SDSU Current Faculty and Vitas

- Siddarth Suryanarayanan – Incoming Department Head (June 22, 2020)
    - Dr. Suryanarayanan will join the department this coming June from Colorado State University. He is an accomplished researcher, and will bring insight and experience to the department in Power Systems and Cloud Computing. We are looking for the vision and new ideas he will bring for curriculum and research, as well as for collaboration and convergence with other disciplines. His external research funding, awards and scholarly presentations attest to his recognition as a national and international scholar as do his international appointments in Greece, Argentina, and France. He has been recognized by IEEE multiple times for accomplishments in his career.
- George Hamer – Acting Department Head/Assistant Department Head/Associate Professor
    - Dr. Hamer has been with the university since 1989 and has served as Assistant Department Head since January 2011. He was appointed Acting Head after the return to teaching ranks for Dr. Steve Hietpas on June 21, 2018. His research areas are in parallel and distributed programming and computer security (steganography).
- Sung Shin – Graduate Coordinator MSCS program/Professor
    - Dr. Shin joined the faculty in 1992 and has served as graduate coordinator of the MSCS program since its inception in 2001. He is an accomplished researcher with $2,500,000 in grant funding lifetime. His current research is focused on medical image processing for cancer detection, telemedicine, and precision agriculture.
- Qiquan Qiao – Graduate Coordinator MSEE and EE Ph.D. programs/Harold Hohbach Professor
    - Dr. Qiao joined the department in 2007 and was named graduate coordinator in 2013. His current research focuses on micro/nano manufacturing/fabrication, photovoltaics, lithium metal/ion batteries, sensors, Food-Energy-Water (FEW) sustainability and precision agriculture technologies. He has published over 180 peer reviewed papers in leading journals including Science, Energy and Environmental Science, Journal of the American Chemical Society, Advanced Materials, Advanced Energy Materials, Advanced Functional Materials, Nanoscale, Joule, ACS Energy Letters, Nano Energy, IEEE Electron Device Letters, IEEE Transactions of Electron Devices, etc. He has received more than $11,500,000 in research funding as PI or Co-PI from NSF, NASA, USAID, EDA, 3M, Agilent, Raven Industries, and others.
- Jerry Cooley – Instructor CS program

- Mr. Cooley has been with the EECS department since 2007 and teaches entry level services courses for the CS program. Currently he teaches the INFO 101 Introduction to Informatics course to over 150 students a year. This is an introductory programming course using Python that serves as non-major students. He also serves as the department "web master" creating content for numerous digital display platforms.

- Robert Fourney – Associate Professor EE program
    - Dr. Fourney joined the department in 2003 as part of the EE program with a background in computer engineering. He teaches both CS and EE courses in the area of hardware and security. His research interest lie in the areas of engineering education, smart power grids, and computer security.
- Ken Gamradt – Lecturer CS program
    - Mr. Gamradt earned his BS degree in electrical engineering from SDSU and returned in the early 1990's to pursue an MS in Engineering with Computer Science emphasis. He discovered a love of teaching and joined the department after earning his MS degree as an instructor of computer science. In addition to teaching he spent several years as the programs technician in charge of servers, HPC clusters, and desktop computing.
- Tim Hansen – Assistant Professor EE program
    - Dr. Hansen joined the department in 2015 as a computer engineer with research interests in smart grids and high performance computing. He has been part of almost $500,000 in research funding as PI and/or Co-PI since arriving at SDSU. During this time he has mentored three MSEE students and is currently advising two Ph.D. candidates and three MS students. He is passionate about teaching and has been awarded the 2019 IEEE-HKN C. Holmes MacDonald Outstanding Teaching Award .
- Steve Hietpas – Professor EE program
    - Dr. Hietpas joined the department in 1994 shortly after earning his Ph. D. in EE at Montana State. In the mid to late 80's he worked for the Space Energy Group at Space Systems Division of General Dynamics in San Diego. There he worked in research and development of power processing/power electronics for the Shuttle Centaur and the International Space Station programs. From 2010 to 2018, Professor Hietpas served as the Head for the Department of Electrical Engineering and Computer Science. He also serves as the Coordinator for the Center for Power Systems Studies and is a Licensed Professional Engineer in the State of South Dakota. His research interests include power systems, power electronics, motor drives, and control systems.
- Morakot Kaewmanee – Imaging Engineer 1

- Ms. Kaewmanee joined the IP Lab in March 2012 as an Imaging Engineer 1. Her research interests involve radiometric calibration using Pseudo-Invariant Calibration Site, Vicarious Radiometric Calibration of optical imaging sensors, the development of empirical calibration using satellite geometry. She is an internationally known satellite calibration and validation scientist with over 15 years experience.

- Paula Kurtenbach – Lecturer CS program
    - Ms. Kurtenbach earned her BS in EE degree from SDSU in 1985 and worked in the industry as an embedded software developer before returning to SDSU to earn her MSCS degree in 2002. She returned to SDSU in 2005 to join the department and is now a lecturer in computer science teaching programming and digital logic courses. She is passionate about recruiting more female students into STEM programs and participates in many outreach and recruiting events for the college and the department.
- Larry Leigh – Director of SDSU Image Processing Laboratory
    - Mr. Leigh has been associated with the IP Lab since 2002 and has recently been promoted to Director of the lab. For over fifteen years, his research at SDSU has involved satellite calibration fieldwork with subsequent data analysis. Through this work, the team has calibrated and validated satellites launched by numerous USA and international commercial and governmental work. This work has provided the cornerstone for satellite incomparability and for the starting basis for ground level product generation.
- Cibele Teixeira Pinto – Research Associate Imaging Engineer
    - Dr. Pinto joined the Image Processing Laboratory fulltime in January of 2017 after spending time in 2014-2015 as a visiting scholar. She assists in directing research teams in the SDSU IP Lab with work focused on the radiometric characterization and calibration of satellite sensor systems. She also teaches graduate level courses in remote sensing and image processing.
- Jason Sternhagen – Research associate III EE program
    - Mr. Sternhagen joined the department in 20## as a Research Associate and Clean Room manager. He also teaches entry level courses to first and second year students and is actively involved in the first year seminar for CS and EE students. His work with Ph.D. students in the EE program is highly regarded by the student in the program, his dedication to their needs leads to their success.
- Songxin Tan – Associate Professor EE program
    - Dr. Tan joined the department in 2005 as faculty in the EE program. His research interests are in image processing, remote sensing (lidar) of objects

and vegetation, and engineering education pedagogy. He has been part of over $300,000 in research funding during his career.

- Reinaldo Tonkoski – Associate Professor EE program
    - Dr. Tonkoski joined the department in 2012 as faculty in the EE program. He has authored over eighty technical publications in peer reviewed journals and conferences and is currently an Editor of IEEE Transactions on Sustainable Energy, Associate Editor of IEEE Access, and IEEE Latin American Transactions. His research interests include grid integration of renewable energy systems and batteries, smart grid, power quality and power electronics. He, along with Dr. Hansen, has recently been awarded $600,000 in research funding from the DOE along with the University of Alaska Fairbanks for modeling of power systems.
- Kwanghee Won – Assistant Professor CS program
    - Dr. Won joined the department in January of 2018 as faculty in the computer science program. His research interests involve machine vision, body area networks, and precision agriculture. During his short time here he has already produced two MSCS students and is advising two current students. He has been awarded over $400,000 in research funding as PI/CoPI.
- Yue Zhou – Assistant Professor EE program
    - Dr. Zhou joined the department in January of 2018 as faculty in the electrical engineering program. His research interests involve energy harvesting, batteries and supercapacitors, and electric propulsion.

Curriculum Vitas

CIBELE TEIXEIRA PINTO, Ph.D.
Research Associate – Imaging Engineer
South Dakota State University
Daktronics Engineering Hall 309, Box 2222
Brookings, SD 57007
Cibele.Teixeira.Pinto@sdstate.edu

ACADEMIC BACKGROUND

Ph.D. in Remote Sensing (03/2013 – 07/2016)
National Institute for Space Research, Brazil

M.S. degree in Remote Sensing (03/2009 – 04/2011)
National Institute for Space Research, Brazil

Undergraduate in Mathematics (02/2005 – 12/2008)
Universidade de Taubaté, Brazil

PROFESSIONAL EXPERIENCE

Research Associate – Imaging Engineer (01/2017 – Present)
South Dakota State University – Image Processing Laboratory, USA

Responsibilities: Participate and assist in directing research teams in the SDSU Image Processing Laboratory focused on the radiometric characterization and calibration of satellite sensor systems. Duties include providing technical input to team leaders and general daily lab support to graduate and undergraduate students involved in imaging research, design, and development, formal presentations, generating journal articles and contributing to formal written reports.

Graduate Courses:

- EE-792-S05 Advanced Image Processing (Instructor)
- EE-792-S02 Remote Sensing Engineering (Instructor)
- EE-792-S06 Optical Sensors (Instructor)
- EE-790-S02 Seminar-Image Processing (Instructor)

Visiting Research Scholar (10/2014 – 10/2015)
South Dakota State University – Image Processing Laboratory, USA

Project Title: Radiometric Calibration of Optical Satellites.

- ✓ The objective of the research scholar period was to develop works on a project of vicarious and Pseudo-Invariant Calibration Sites (PICS)-based absolute calibration of moderate spatial sensor systems using SDSU developed calibration sites.

Institutional Training Program (07/2011 **–** 02/2013)
National Institute for Space Research, Brazil

Project Title: Uncertainty evaluation in absolute and spectral calibration of sensors on-board CBERS-3 satellite.

- ✓ The objective of this project was to develop an image quality verification plan, focused on what concerns the absolute and spectral calibration of sensors on-board CBERS-3 satellite.

Undergraduate Teaching Assistant (04/2008 – 12/2008)
University of Taubaté, Brazil

Project: Undergraduate teaching assistant.

- ✓ Responsible for supporting students individually during off-classroom hours and assisting course instructor with grading (e.g., homework, quizzes and lab reports).

Undergraduate Research Mentorship Program (04/2006 – 12/2008)
Institute for Advanced Studies**,** Aerospace Technology and Science Department, Brazil

Project Title: Spectral characterization of electro-optical sensors.

- ✓ The aim of this project was to develop a methodology to determine the Spectral Response Function (FRE) of electro-optical sensors. The FRE was obtained identifying the sensor's sensibility to a flux of monochromatic light. To test the procedure a non-operational airborne sensor, the Thermal Infrared Imaging System (SISIMI), has been used in laboratory.

RELEVANT PUBLICATIONS

Journal Papers

Pinto, C. T; Haque, Md O; Micijevic, E.; Helder, Dennis L. Landsat 1-5 Multispectral Scanner System (MSS) Sensors Radiometric Calibration Update. *IEEE Transactions on Geoscience and Remote Sensing* 2019, 1-17, DOI: 10.1109/TGRS.2019.2913106.

Jing, X.; Leigh, L.; H., Dennis; **Pinto, C. T**.; Aaron, D. Lifetime Absolute Calibration of the EO-1 Hyperion Sensor and its Validation. *IEEE Transactions on Geoscience and Remote Sensing* 2019, 57(11), 9466-9475 p.

Tuli, F. T. Z.; **Pinto, C. T**.; Angal, A.; Xiong, X.; Helder, D. New Approach for Temporal Stability Evaluation of Pseudo-Invariant Calibration Sites (PICS). *Remote Sensing* 2019, 11, 1-23.

Jing, X.; Leigh, L.; **Pinto, C. T**; Helder, D. Evaluation of RadCalNet Output Data Using Landsat 7, Landsat 8, Sentinel 2A, and Sentinel 2B Sensors. *Remote Sensing* 2019, 11, 1-26.

Martins V. S.; Soares, J. V.; Novo, E. M. L. M.; Barbosa, C. C. F.; **Pinto, C. T**.; Arcanjo, J. S.; Kaleita, A. Continental-scale surface reflectance product from CBERS-4 MUX data: Assessment of atmospheric correction method using coincident Landsat observations. *Remote Sensing of Environment*, 2018, 218, 55-68.

Mattar, C.; Santamaría-Artigas, A.; Ponzoni, F.; **Pinto, C. T.**; Barrientos, C.; Hulley, G. Atacama Field Campaign: laboratory and in situ measurements for remote sensing applications. *International Journal of Digital Earth* 2018, 1-20.

Pinto, C. T; Ponzoni, F. J.; Castro, R. M.; Leigh, L.; Mishra, N.; Aaron, D.; Helder, D. First in-flight radiometric calibration of MUX and WFI on-Board CBERS-4. *Remote Sensing* 2016, 8, 1-22.

Pinto, C. T; Ponzoni, F. J.; Castro, R. M.; Leigh, L.; Kaewmanee, M.; Aaron, D.; Helder, D. Evaluation of the uncertainty in the Spectral Band Adjustment Factor (SBAF) for cross-calibration using Monte Carlo simulation. *Remote Sensing Letters* 2016, 7, 837-846.

Pinto, C. T.; Ponzoni, *F.* J.; Barrientos, C.; Mattar, C.; Santamaría-Artigas, A.; Castro. R. M. Spectral and Atmospheric Characterization of a site at Atacama Desert for Earth Observation Sensors Calibration. *IEEE Geoscience and Remote Sensing Letters* 2015, 12, 2227-2231.

Pinto, C. T.; Ponzoni, F. J.; Castro, R. M.; Temporal Stability of Tuz Gölü and Atacama Desert Reference Surfaces for Absolute Calibration of Orbital Sensors. *Brazilian Journal of Geophysics* 2015, 33, 205-2015.

Pinto, C. T.; Ponzoni, F. J.; Castro, R. M.; Griffith, D. J. Spectral uniformity evaluation of reference surfaces for airborne and orbital sensors absolute calibration. *Brazilian Journal of Geophysics* 2012, 30, 263-275.

Book

Ponzoni, F. J.; Pinto, **Pinto, C. T**.; Lamparelli, R. A. C.; Zullo Junior, J.; ANTUNES, M. A. H. Calibração de Sensores Orbitais. São Paulo: Oficina de Textos, 2015. 96p. ISBN: 978-85-7975-167-7. Title in English: Orbital Sensor Calibration.

Chapter Book

D. Helder; D. Schott; J., Stone; T.; **Pinto, C. T**. (2018). Vicarious Calibration and Validation. In S. Liang (Ed.), Comprehensive Remote Sensing, vol. 1, pp. 475–518. Oxford: Elsevier. ISBN: 9780128032206. Chapter Title: Vicarious calibration and validation.

Proceeding Papers

Pinto, C. T.; Leigh, L.; Helder, D. SDSU Vegetative Site Analysis from 2013 to 2017 for Radiometric Calibration of Earth Observation Sensors. In: *Brazilian Symposium on Remote Sensing*, 19. (SBSR), 2019, Santos. Anais... São José dos Campos: INPE, 2019. p. 1-4.

Pinto, C. T; Shrestha, M.; Hasan, N.; Leigh, L.; Helder, D. SBAF for Cross-Calibration of Landsat-8 OLI and Sentinel-2 MSI over North African PICS. *SPIE Proceeding Conference*. Earth Observing Systems XXIII. San Diego, California, US. August, 2018.

Pinto, C. T; Chittimalli, S; Leigh, L.; Ruggles, T.; Helder, D. A reflectance-based cross calibration of the Landsat archive. *SPIE Proceeding Conference*. Earth Observing Systems XXII. San Diego, California, US. August, 2017.

Pinto, C. T.; Castro, R. M.; Ponzoni, F. J.; Leigh, L.; Helder, D. Uncertainty Evaluation of the TOA Radiance Predicted by MODTRAN-5. In: *Brazilian Symposium on Remote Sensing*, 18. (SBSR), 2017, Santos. Anais... São José dos Campos: INPE, 2017. p. 1068-1075.

Pinto, C. T; Oliveira, P. V. C.; Ponzoni, F. J. ; Castro, R.M. . Identificação de áreas susceptíveis a processos erosivos na região do Vale do Paraíba. In: *Brazilian Symposium on Remote Sensing*, 17, João Pessoa. Anais... São José dos Campos: INPE, 2015. p. 0067-0074.

Pinto, C. T; Fonseca, L. M. G. ; Ponzoni, F. J. ; Castro, R.M. . Avaliação de Técnicas de Fusão de Imagens Aplicadas ao Sensor NAOMI 1/FASAT. In: *Brazilian Symposium on Remote Sensing*, 17, João Pessoa. Anais... São José dos Campos: INPE, 2015. p. 0510-0517.

Pinto, C. T.; Ponzoni, F. J.; Fonseca, L. M. G.; Castro, R. M. Simulação de Monte Carlo na avaliação das incertezas em parte do processo de calibração de sensores. In: *Brazilian Symposium on Remote Sensin*, 16. (SBSR), 2013, Foz do Iguaçu. Anais... São José dos Campos: INPE, 2013. p. 9131-9137.

Pinto, C. T.; Ponzoni, F. J.; Boggione, G. A.; Fonseca, L. M. G.; Castro, R. M. Uncertainties assessment in orbital or airborne sensors absolute calibration. In: *International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences*, 10., 2012, Florianópolis. Proceedings... 2012. p. 13-18.

Pinto, C. T.; Ponzoni, F. J.; Castro, R. M. In-lab radiometric instruments calibration and uncertainties assessment. In: *International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences*, 10., 2012, Florianópolis. Proceedings... 2012. p. 19-24. Papel.

Pinto, C. T; F J Ponzoni ; R M Castro . A reference surface uniformity and isotropy evaluation for orbital or airborne sensors absolute calibration. In: *International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences*, 2012, Florianópolis. Proceedings... 2012, 2012. p. 25-30.

Pinto, C. T; R M Castro; F J Ponzoni . Calibração absoluta do radiômetro portátil CIMEL/CE313 em laboratório e avaliação das incertezas. In: *Brazilian Symposium on Remote Sensing*, 15, Curitiba. Anais... São José dos Campos: INPE, 2011. p. 8962-8969.

Boulomytis ; **Pinto, C. T** ; Castillo ; Pereira ; Cesar ; Poças ; Santos ; L L Andrade ; Carvalho ; Rudorff ; Marinho . Sistemas de sensores laboratoriais para a análise do comportamento espectral da vegetação sob a influência de diferentes tipos de solo e cobertura vegetal. In: *Brazilian Symposium on Remote Sensing*, 15, Curitiba. Anais... São José dos Campos: INPE, 2011. p. 9048-9055.

Pinto, C. T; M L Silva ; M C Melo ; L L Andrade ; R M Castro . Caracterização espectral parcial do sensor SISIMI. In: *Brazilian Symposium on Remote Sensing*, 14, Natal. Anais... São José dos Campos: INPE, 2009. p. 7639-7646.

Pinto, C. T; M C Melo ; L L Andrade ; Silva, M. L.; R M Castro. Caracterização Espectral do Sensor SISIMI. XIII Encontro de Iniciação Científica da UNITAU. 2008. Taubaté. Anais...Universidade de Taubaté, 2008.

Avelisio, M. A.; Silva, M. L.; Melo, M. C.; **Pinto, C. T**.; Castro, R. M.; Moreira. Calibração Radiométrica de Sensores Eletroópticos. II Seminário de Iniciação Científica do IEAv (II SICI), 2008. São José dos Campos. Anais...Institute for Advanced Studies, Aerospace Technology and Science Department, 2008, p. 25-26.

Melo, M. C.;Avelisio, M. A.; **Pinto, C. T**.; Castro, R. M. Caracterização de um Fotômetro Solar. XII Encontro de Iniciação Científica da UNITAU, 2007. Taubaté. Anais...Universidade de Taubaté, 2007.

Avelisio, M. A.; Melo, M. C.; **Pinto, C. T**.; Castro, R. M.; Moreira, R. C.; Esposito, E. S. C. Caracterização Radiométrica de Sensores Eletroópticos. In: *Seminário de Iniciação Científica do IEAv* (I SICI), 1, 2007. São José dos Campos. Anais...Institute for Advanced Studies, Aerospace Technology and Science Department, 2007, p. 27-28.

Pinto, C. T.;Avelisio, M. A.; Melo, M. C.; Castro, R. M.; Moreira, R. C.; Esposito, E. S. C.; Couto, K. V. Integração de Equipamentos para a Caracterização Espectral de Sensores Eletroópticos. In: *Seminário de Iniciação Científica do IEAv* (I SICI), 1, 2007. São José dos

Campos. Anais...Institute for Advanced Studies, Aerospace Technology and Science Department, 2007, p. 27-28.

Pinto, C. T.; Avelisio, M. A.; Castro, R. M.; Moreira, R. C.; Esposito, E. S. C.; Melo, M. C.; Couto, K. V. Caracterização espectral de sensores eletroópicos. In: *Brazilian Symposium on Remote Sensing*, 13. (SBSR)., 2007, Florianópolis. Anais... São José dos Campos: INPE, 2007. p. 6383-6385.

CONFERENCE PRESENTATION

Joint Agency Commercial Imagery Evaluation (JACIE) Workshop
Reston, Virginia, USA. September, 2019
Presentation: New Approach for Pseudo-Invariant Calibration Sites (PICS) Evaluation

Proceeding of SPIE, Earth Observing Systems XXIII
San Diego, California, USA. August, 2018.
Presentation: SBAF for cross-calibration of Landsat-8 OLI and Sentinel-2 MSI over North African PICS

CALCON Technical Meeting
Meeting on Characterization and Radiometric Calibration for Remote Sensing
Utah State University, Logan, Utah, USA. June 18–21, 2018.
Workshop: Vicarious Calibration and Validation

PECORA, Observing a Changing Earth
Sioux Falls, South Dakota, USA. November, 2017.
Presentation: Uncertainty of the TOA Radiance predicted by MODTRAN-5 using Monte Carlo Simulation

Proceeding of SPIE, Earth Observing Systems XXII
San Diego, California, USA. August, 2017.
Presentation: A reflectance-based cross calibration of the Landsat sensors

Joint Agency Commercial Imagery Evaluation (JACIE) Workshop
Fort Worth, Texas, USA. April, 2016.
Presentation: First In-flight Radiometric Calibration of the CBERS-4 MUX and WFI

Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences
Florianópolis, Santa Catarina, Brazil. July, 2012.
Presentation: A reference surface uniformity and isotropy evaluation for orbital or airborne sensors absolute calibration

LANDSAT CALIBRATION MEETINGS

Winter 2020 USGS-NASA Landsat Science Team Meeting
Phoenix, Arizona, AZ. February, 2020
Arizona State Office, Bureau of Land Management (BLM), U.S. Department of the Interior
Presentation: Surface Product Validation – Landsat Level-2 Data Products.

USGS EROS Calibration and Validation Technical Interchange Meeting (TIM)
USGS EROS, Sioux Falls, SD. September, 2019
Presentation: Vicarious Calibration 2018 Reflective Bands Landsat-7 ETM+ and Landsat-8 OLI
Presentation: 2019 Updated Vicarious Calibration ETM+ and OLI
Presentation: RadCalNet: Level 1 Landsat-7 ETM+, Landsat-8 OLI Sentinel-2A MSI and Sentinel-2B MSI
Presentation: New Approach for Evaluation of the Temporal Stability Analysis of Pseudo-Invariant Calibration Sites

USGS EROS Calibration and Validation Technical Interchange Meeting (TIM)
USGS EROS, Sioux Falls, SD. December, 2018.
Presentation: Vicarious Calibration 2018 Reflective Bands Landsat-7 ETM+ and Landsat-8 OLI
Presentation: Vicarious Calibration 2018 Reflective Bands Sentinel-2A & 2B MSI
Presentation: RadCalNet: Level 1 Landsat-7 ETM+, Landsat-8 OLI Sentinel-2A & 2B MSI
Presentation: Level 1 Evaluation: RadCalNet and SDSU Sites Landsat ETM+ & OLI
Presentation: SBAF for Cross-Calibration of Landsat-8 OLI and Sentinel-2 MSI over North African PICS

USGS EROS Calibration and Validation Technical Interchange Meeting (TIM)
USGS EROS, Sioux Falls, SD. May, 2018.
Presentation: Impacts of Atmosphere on PICS TOA Reflectance
Presentation: Pseudo Invariant Calibration Sites Stability Analysis

USGS EROS Calibration and Validation Technical Interchange Meeting (TIM)
Greenbelt, MD. December, 2017.
Presentation: ETM+ Landsat-7 an OLI Landsat-8 2017 Vicarious Calibration Results
Presentation: Radiance and Reflectance Cross-Calibration from MSS-5 to MSS-1
Presentation: Impacts of Atmosphere on Pseudo-Invariant Calibration Sites TOA Reflectance

USGS-NASA Landsat Science Team Meeting
USGS EROS, Sioux Falls, SD. July, 2017.
Listener

USGS EROS Calibration and Validation Technical Interchange Meeting (TIM)
USGS EROS, Sioux Falls, SD. June, 2017.
Presentation: Work Update on Cross Calibration of Sentinel 2 and Landsat 8
Presentation: Worldwide Optimal Pseudo-Invariant Calibration Sites (PICS) Search

USGS EROS Calibration and Validation Technical Interchange Meeting (TIM)
Greenbelt, MD. January, 2017.
Presentation: Uncertainty Evaluation in Cross-Calibration from OLI Landsat8 to MSS Landsat1

SYNERGISTIC ACTIVITIES

[1] Instructor of all four South Dakota State University Image Processing Lab (SDSU IP LAB) graduate courses: (a) EE-792-S05 Advanced Image Processing; (b) EE-792-S02 Remote Sensing Engineering; (c) EE-792-S06 Optical Sensors; and (d) EE-790-S02 Seminar-Image Processing. In addition, I served as thesis advisor of Master students and a committee member in SDSU Electrical Engineering and Computer Science.

[2] Served as an article reviewer for the journal publication *Transactions on Geoscience and Remote Sensing* (*TGRS)* and *Remote Sensing*. Provided feedback on the paper, suggest improvements and made recommendations to the editor about whether to accept, reject or request changes to the article.

[3] Performed the cross-calibration update of the Landsat series sensors (1972-2018). Landsat satellite imagery, which has been continuously collected since 1972, composes an unparalleled archive of more than four decades of global moderate-resolution imagery. This study ties all the Landsat legacy instruments from Landsat-1 MSS (launched in 1972) through Landsat-8 OLI (launched in 2013) to a consistent radiometric scale.

[4] Led a workshop regarding vicarious calibration at the Characterization and Radiometric Calibration for Remote Sensing (CALCON) Technical Meeting. The annual meeting provides a forum for scientists, engineers, and managers to present, discuss, and learn about calibration, characterization, and radiometric issues within the microwave, infrared, visible, and ultra violet electromagnetic spectral range. The workshop focused in Reflectance-Based Approach, Cross-Calibration Method and Evaluation of Uncertainties.

[5] Developed with colleagues a practical atmospheric correction algorithm, called Coupled Moderate Products for Atmospheric Correction (CMPAC). The CMPAC was developed and implemented for the Multispectral Camera (MUX) on-board the China-Brazil Earth Resources Satellite (CBERS-4). CBERS has an open data distribution policy, ensuring free access through the internet to its catalogue. This study contributes to quantitative applications in the land monitoring and environmental assessment at spatial 20m resolution.

RELEVANT SKILLS

Language
Portuguese: Native
English: Full professional proficiency
Spanish: Full professional proficiency

Computer Skills
Experience with ArcGIS, ENVI, SPRING, MODTRAN and MATLAB software's.

ABET Syllabus and Vita Formats

1. Name
   Jerry Cooley

2. Education – degree, discipline, institution, year
   MA – English – SDSU – 1986

3. Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time
   SDSU – Instructor – 2007 – 2011 – part-time
   SDSU – Instructor – 2011 – present – full-time

4. Non-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time
   N/A

5. Certifications or professional registrations
   N/A

6. Current membership in professional organizations
   N/A

7. Honors and awards
   N/A

8. Service activities (within and outside of the institution)
   Judge for Best Robotics
   Co-coordinator for Program Design Competition
   Voice-over for Engineering Awards Banquet
   Department Webmaster
   Editorial Assistant for ABET reviews

9. Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation
   N/A

10. Briefly list the most recent professional development activities
    ASEE Best Practices Workshop
    Drupal training
    Active Learning discussions

Biographical Sketch

Dr. Robert Fourney
Associate Professor
Department of Electrical Engineering and Computer Science
South Dakota State University (SDSU)

a. PROFESSIONAL PREPARATION

1985: B.S., Electrical Engineering, Virginia Polytechnic and State University, Blacksburg, VA

1989: MSEE, Electrical Engineering, University of Maryland, College Park (UMCP), College Park, MD

2000: Ph.D., Electrical Engineering, University of Maryland, College Park (UMCP), College Park, MD

b. APPOINTMENTS

08/2009-present: Associate Professor, Electrical Engineering and Computer Science Department, SDSU, Brookings, SD

08/2003–8/09: Assistant Professor, Electrical Engineering Department, SDSU, Brookings, SD

1/2002-6/2003: Instructor, Dept. of Electrical Engineering, UMCP, College Park, MD

1/2002-6/2003: Instructor, Dept. of Electrical Engineering, UMCP, College Park, MD

c. SIGNIFICANT PRODUCTS

Nepal, S.; Shakya , A.; Fourney, R.; Sternhagen, J.; Tonkoskit R**.** "Development of Real-time Control of Commercial Off-The-Shelf Inverter/Charger for Energy Management of Microgrids," Accepted for presentation at the IEEE PES General Meeting 2016, Boston, 2016.

Fourney, Sternhagen, Hamer, and Mettler, “Implementing a Freshman Experience in Electrical Engineering”, presented at the ASEE Midwest Sections Conference, 10/17/14-10/18/14.

G. Hamer, R. Fourney, W. Wang, and A. Viadyae "Using 802.11 Signal Strength for Indoor Location Tracking", Conference Proceedings at the ISCA 26th International Conference on Computers and Their Applications (CATA-2011).

Robert S. Fourney and Michael VanBemmel : Towards a Reconfigurable Hardware Based Tool for Cryptographic Benchmarking. ISCA 24th International Conference on Computers and Their Applications (CATA-2009).

Robert S. Fourney and Austin D. Hanson : Torbit: an Open Source Flaw Measurement Tool Suite. *Proceedings of the 17th International Conference on Software Engineering and Data Engineering*, Los Angeles, CA, June 30-July 2, 2008.

Tandukar, P., Bajracharya, L., Hansen, T. M., Fourney, R. S., Tamrakar, U., Tonkoski, R. (2018). *Real-time Operation of a Data Center Virtual Power Plant Considering Battery Lifetime*. Amalfi Coast: IEEE SPEEDAM 2018.

Tandukar, P., Shakya, A., Hansen, T. M., Fourney, R. S., Tonkoski, R. (2017). Genitor Based Energy Management System for Remote Microgrids Considering Battery Lifetime. *Electrical Energy Storage Applications and Technologies (EESAT) Conference*. San Diego, CA:.

Kapil Duwadi, Robert Fourney, Reinaldo Tonkoski, and Timothy M. Hansen, "SustainabilityMetrics for Inverter-based Voltage Regulation Methods in PV-rich Low Voltage Grids," in *2019 IEEE International Conference on Electro/Information Technology (EIT'19)*, Brookings, SD, 6 pages, May 2019.

Fernando B. dos Reis, Kapil Duwadi, Mohammad Asif Iqbal Khan, Robert Fourney, Sumit Paudyal, Reinaldo Tonkoski, and Timothy M. Hansen, "Impact of Residential Load Models for Overvoltage Prevention Studies in PV-Rich LV Grids," in *IEEE PowerTech Milan 2019*, Milan, Italy, 6 pages, June 2019.

Kapil Duwadi, Fernando B. dos Reis, Rupak Mahat, Robert Fourney, Bishnu Bhattarai, Reinaldo Tonkoski, and Timothy M. Hansen, "Numerical Oscillation Prevention for PV Inverter Controllers in Quasi-Steady-State Simulators," in *IEEE Power and Energy Society General Meeting 2019*, Atlanta, GA, 5 pages, August 2019.

d. SYNERGISTIC ACTIVITIES

Faculty advisor for Game Creation Organization (GCO), SDSU's multi-disciplinary computer game development club.

Chair of Electrical Engineering Curriculum Committee

Designed, implemented, and taught two course hands-on "Freshmen Experience" sequence.

Active in Middle and High School Outreach (BEST Robotics, Engineering Expo Photovoltaic Cannon contest, Briggs Scholarship Committee).

Teach Computer and Microcontroller System Design Courses, Advise Senior Design Teams in the use of microcontrollers and microcontroller based projects

KENNETH AARON GAMRADT – Lecturer

Electrical Engineering and Computer Science – South Dakota State University
Brookings, South Dakota 57007 – 605-688-4526 – ken.gamradt@sdstate.edu

PROFESSIONAL EXPERIENCE

SOUTH DAKOTA STATE UNIVERSITY

Department of Electrical Engineering and Computer Science

Lecturer (Fall 2013 – Present)
Instructor (Fall 1994 – Spring 1998, Spring 2001 – Spring 2013)
Graduate Teaching Assistant (Spring 1992 – Spring 1994)

- Responsible for teaching four courses per semester – includes developing semester schedule, daily lesson plans, student evaluation using: assignments/projects, quizzes, and exams. Several courses taught are team based.
- Current CS courses taught:
  - Computer Organization & Architecture, Computer Science Lab, Game Programming I & II, Object Oriented Programming, Operating Systems, Systems Programming
- Current SE courses taught:
  - Human Factors and User Interface
- Other courses taught:
  - Assembly Language Programming, BASIC Programming, C/C++/UNIX for Engineers, Compiler Construction, Computer Science I and II, Computer Logic, Data Structures, FORTRAN Programming, GUI Programming, Introduction to Computers, Java Programming, Mobile Apps, Parallel Computing, Programming Languages.
- Courses developed:
  - Game Programming I & II, Object Oriented Programming, Java Programming, Mobile Apps, Parallel Computing.
- Committees:
  - Curriculum committee, Faculty Search committee

Network and Computer Administrator (Fall 1991 – Summer 1998, Spring 2001 – 2017)

- Responsible for maintaining local area networks – Linux, NetWare, and Windows based.
- Responsible for maintaining hardware and software for 100+ workstations and servers.
- Responsible for managing network accounts for both faculty and students.

Department of Information Technology Services/Department of Computing Services

Communications Network Analyst – Networking Office (July 1998 – December 2000)

- Responsible for assisting in a campus wide network upgrade.
- Responsible for assisting in the management of: network hubs, switches, and routers; user network authentication records; DNS/DDNS; DHCP servers; Novell NetWare server configuration and NDS resources.
- Responsible for planning and implementing a Windows domain in support of a campus wide e-mail system migration from Microsoft Mail to Lotus Domino and Microsoft Exchange.
- Responsible for recommending and purchasing server hardware.
- Responsible for assisting networking staff and student workers with their assigned tasks.

Certified Training Courses Taken

- Linux Clustering Institute – Linux Clustering Workshop
- CompTIA – Linux+
- Cisco – Managing Cisco Network Security (MCNS 2.0)
- Cisco – Interconnecting Cisco Network Devices (ICND 1.0A)
- Microsoft – Accelerated Exchange Server 5.5 (MS 1313A)
- Lotus – Domino Messaging Administration R4.6

Career and Academic Planning Center (May 1998 – July 1998)

Network and Computer Administrator

- Responsible for maintaining the office local area network – Novell NetWare based.
- Responsible for migrating the office work environment to Microsoft Office 97 Professional, and Microsoft Outlook 98 on Microsoft NT Workstation 4.0.

CONTROL DATA CORPORATION

Computer Operations Division – Arden Hills, MN (1988 – 1989)
Government Systems Division – Bloomington, MN (1985 – 1988)
Electrical Engineer – Input/Output Unit and Design Engineering Departments.

- CMOS ASIC VLSI Gate Array development.
- Parallel and Serial Interface development – VME bus integrity enhancements.
- Testing CMOS Gate Arrays – developed and tested system checkout modules.
- Group administrator for PC and workstation usage.
- Supervised internship students work assignments.

EDUCATION

Graduate of **South Dakota State University** with a **Master of Science** degree.

Major: Engineering (Computer Science emphasis) – May 1994
Support Areas: Engineering and Mathematics
GPA: 4.00/4.00

Graduate Course Work:

- Design & Analysis of Computer Algorithms, Theory of Computation, Structure & Design of Programming Languages, Software Engineering Management, Computer Networks, Object Oriented Programming with C++, Compiler Construction, Numerical Linear Algebra, Numerical Analysis I & II, Operations Research, Data & Image Compression, Number Theory in Computer Science, Parallel Processing, Artificial Neural Networks.

Graduate of **South Dakota State University** with two **Bachelor of Science** degrees.

Major: Computer Science – May 1992, Electrical Engineering – May 1985
Minor: Mathematics
GPA: 3.58/4.00 (4.00/4.00 : August 1990 – May 1992)

Honors: The National Dean's List, Eta Kappa Nu, Tau Beta Pi, Phi Kappa Phi, Engineer in Training.

George Hamilton Hamer

South Dakota State University
Box 2222, SDEH 214
Brookings SD, 57007
(605)688-4526
George.Hamer@sdstate.edu

Academic rank Associate Professor
Appointment Date – 8/15/89 – Instructor
Assistant Professor – 8/15/97
Associate Professor – 8/15/07

Degrees

PhD	Computer Science	NDSU	2006
MS -	Computer Science	MSU	1992
BS -	Construction Management	NDSU	1980

Professional experience

Acting Department Head, EE and CS – June 2018 – present
Primary duties are financial management of department including research funding in excess of $2.5M/year, evaluating faculty and staff, scheduling, assessment and advising, teaching evaluation, curriculum
development and management, review of graduation applications, ABET accreditation, and Industrial Advisory board.

Assistant Department Head, EE and CS – January 2010 – Present
Primary duties are scheduling, assessment and advising, teaching evaluation, curriculum development and management, review of graduation applications, ABET accreditation, and Industrial Advisory board. Responsible for developing an online database systems for tracking students from first year until graduation, culminating in an online exit survey for use in assessment and ABET self-studies. Implemented a first year student tracking system in order to closely monitor first year students and their retention into the second year.

Associate Professor – South Dakota State University – Fall 2007 - Present
Primary responsibilities include classroom instruction in Computer Science courses, including preparing and delivering lectures, evaluating students' programs, written homework and exams, assigning grades. Other responsibilities include undergraduate academic advising, counseling graduate and undergraduate students, and serving on any assigned departmental, college or university committee or advisory groups.

Assistant Professor - South Dakota State University - Fall 1997 – Fall 2007

Instructor – South Dakota State University – Fall 1989 – Fall 2007

Graduate Teaching Assistant – Moorhead State University – Fall 1987 – Spring 1989

General Manager – Tree Top Restaurant – Moorhead MN, Spring 1983 – May 1985

Leadership Training

BOR Academic Leadership Training – 2019
Imagine 2023 Training – 2019
SDSU Leadership Academy – 2013
ABET Program Evaluator (PEV) Training – 2012
SDSU Department Head Training – 2012

Honors and Awards

- 2013 Jerome J Lohr College of Engineering Teacher of the Year
- 2011 Electrical Engineering and Computer Science Department Teacher of the Year
- 2005 College of Engineering Academic Advisor of the Year

Research Interests

My current research involves Steganography and Watermarking digital data as applied to databases and data warehouses. Other areas of interest include cryptography, distributed processing using cluster computing (Beowulf), High Performance Computing, Parallel and Distributed processing, and data mining of genomic and other data sets.

Teaching

Dr. Hamer has taught courses from introductory programming at the undergraduate level to graduate level courses in high performance computing. Over his 30+ years of teaching, he has taught most courses in the CS curriculum and focuses on courses system level programming (Assembly Language and Compiler Construction are two current courses).

Advising

Typical advising workload included 30-35 undergraduate students (advised most transfer and international students) and 1-2 graduate students per year. Dr. Hamer is the advisor and transfer evaluation coordinator for all South Korean 2+2 students.

MS Theses Advised

1. *Make OS Independent Software: A Bare-PC Build Tool for x86 PC,* by Mo Zhang, 2015
2. *EC2 Public Cloud Computing and Large Scale Processing of Landsat Data*, by Jason Werpy, 2013
3. *An Approach for Adding Type-Safe Static-Context Duck Typing to an Object-Oriented Programming Language,* by Kevin Pond, 2010
4. *Application of Web Protocols to Daktronics Player Configuration*, by David Brue, 2010
5. *Design and Implementation of a Hybrid Model of Data Management (a Case Study for the FTEUS Project),* by Kiran Timilsina, 2011
6. *IP Payload Compression for Higher Throughput,* Bikrant Neupane, 2009
7. *An Efficient Search Paradigm Implementing a Unique Identifier*, Devendra Manandhar
8. *Application of the RS Method to Detect Steganographic Messages in Database Tables*, David Andrawis, 2007
9. *Development of Web-Based Intelligent Tutoring System for SDView,* Hee Jung Jeon, 2007

MS Design Papers Advised

1. *Survey of Datamining Techniques,* Arjun Shankara Rao, 2014
2. *The Implementation of a Search Engine: Searching Local Sites*, By Deependra Rawal, 2009
3. *Design and Prototype Implementation of Web Based IT Billing System,* Prerana Thapa, 2009
4. *Parallel Processing MPI and PVM: A Comparative Study, TCP and UDP Performance Analysis: A Comparative Study,* Lakshmi Potluri, 2006
5. *Developing a Bioinformatics Website Using LAMP*, Dong He, 2006

6. *Online Examination System,* Sree Manthini, 2006
7. *A Survey on Network Attacks,* Sanjay Mishra, 2006
8. *A Basic C# Language Tutorial and a C# Mini-Compiler Project,* Alex Goubanov, 2005
9. *Session Initiation Protocol (SIP),* Srinivasa Reddy Mettu, 2003
10. *Intrusion Detection in an Education Environment,* Jeffrey Hauck, 2003
11. *Distributed Object Application over the Internet: An N-tier Client/Server Application with CORBA and Java,* Qingqi Song, 2001
12. *Effects of Imperfect Power Control on a Capacity of a Spread Spectrum Code Division Multiple Access System,* Mohammed Asaduzzaman, 2001
13. *Implementation of Internet Testing Environment,* Rajesh Kumar Rajaram, 2001
14. *A Review of SQL Query Optimization in Oracle,* Weiwei Deng, 2000

Publications and Conference Papers

Saha, D., **Hamer, G.,** Lee, J., "Development of Inter-Leaves Weed and Plant Regions Identification Algorithm using Histogram of Oriented Gradient and K-Means Clustering", RACS 2017, Krakow, Poland, Sept. 2017

Taheri, M., **Hamer, G.,** Son, S., & Shin, S., "Automated Single and Multi-Breast Tumor Segmentation Using Improved Watershed Technique in 2D MRI Images", RACS 2016, Odense, Denmark, October 2016.

Taheri, M., **Hamer, G.,** Son, S., & Shin, S., "Enhanced Breast Cancer Classification with Automatic Thresholding Using SVM and Harris Corner Detection", RACS 2016, Odense, Denmark, October 2016.

Hamer, G., & Werpy, J., "Public Cloud Computing and Large Scale Processing of Landsat Data", ACM SAC 2014, Gyeongju, Korea, March 2014

Fourney, R., Sternhagen, J., **Hamer, G.,** & Mettler, C., "Implementing a Freshman Experience in Electrical Engineering", 2013 ASEE North Midwest Conference, October 18, 2013, Fargo, ND, USA.

Hamer, G., Fourney, R., Wang, W., & Vaidya, A., "Using 802.11 Signal Strength for Indoor Location Tracking", Proceedings of the ISCA 26th International Conference on Computer and Their Applications (CATA-2011) March 23-25, 2011, New Orleans, Louisiana, USA.

Krebsbach S., Graham S., Vondruska J., & **Hamer G**., "Creating a Virtual Science Center – Virtual DUSEL (vDUSEL)", Proceedings of the ISCA 22nd International Conference on Computer Applications in Industry and Engineering (CAINE-2009) November 4-6, 2009, San Francisco, California, USA.

Krebsbach S., Graham S., Vondruska J., & **Hamer G**., "Virtual DUSEL (vDUSEL) The Online Educational Project for Sanford Center for Science Education", Midwest Instruction and Computing Symposium, MICS '09, April 17-18, 2009, Rapid City, South Dakota, USA

Neupane B. & **Hamer G**., "IP Payload Compression for Increased Throughput", Proceedings of the ISCA 24th International Conference on Computers and Their Applications (CATA 2009), April 8-10 2009, New Orleans, Louisiana, USA

Hamer G., Andrawis D., & Krebsbach S. "Application of the RS Method to Detect Steganographic Messages in Database Tables" Proceedings of the ISCA 20th International Conference on Computer Applications in Industry and Engineering (CAINE-2007) to be held November 7-9, 2007, San Francisco, California, USA.

Hamer G. & Krebsbach S., "Statistical Steganography and Steganalysis of Database Tables" Proceedings of the ISCA 19th International Conference on Computer Applications in Industry and Engineering (CAINE-2006) to be held November 13-15, 2006, Las Vegas, Nevada, USA.

Krebsbach S. & **Hamer G.,** "Achieving Near-Optimal Distortion Reduction with Invisible Watermarking RSSI Algorithms" , Proceedings of the ISCA 19th International Conference on Computer Applications in Industry and Engineering (CAINE-2006) to be held November 13-15, 2006, Las Vegas, Nevada, USA.

Hamer G. & Perrizo W., "Chi-Squared Statistical Steganalysis of Database Tables" SEDE, Los Angeles CA. USA, July 2006

Hamer G. & Perrizo W., "Statistics Preserving Steganography Using Database Tables", CATA, Seattle WA. USA, March 2006

Perera A., Abidin T., Serazi M., & **Hamer G.** "Vertical Set Square Distance Based Clustering without Prior Knowledge of K" IASSE, Toronto Canada, July 2005

Hamer G. & Steinwand D., "Extending the Beowulf Cluster to the Desktop", (Poster Session) CAINE, Las Vegas NV, Nov. 2003

Krebsbach S., **Hamer, G.** & Perrizo W., (2003) "Watermarking Remotely Sensed Images (RSI) (Digital Image or Relational Data?)" CAINE, Las Vegas NV, Nov. 2003

Steinwand D., Maddox B., Beckman T., & **Hamer G.,** "Extending Beowulf Clusters", U.S. Department of the Interior Open-File Report 03-208, 2003

Crane, M., Steinwand, D., Beckman, T., Krpan, G., Liu, S., Nichols, E., Haga, J., **Hamer, G.**, "A Parallel-Processing Approach to Computing for the Geographic Sciences: Applications and Systems Enhancements. U.S. Department of the Interior Open-File Report 01-465, 2001

Grants/Funding Obtained

- EpSCOR – vDUSEL (Virtual Deep Underground Science and Engineering Laboratory) 2009 (~ $6,000) – Travel and undergraduate research support
- Summer Research Fellow – AGE85 Ethanol Aviation Fuels (two months summer salary support) (2007) Collect and analyze flight test data
- Summer Research Grant USGS/EROS 2003 ($19,300) – Clusters of Clusters
- Summer Research Grant USGS/EROS 2002 ($18,500) – Extending the Beowulf Cluster to the Desktop
- NASA Space Grant Fellow at USGS/EROS – Summer 2001

Member of

Association for Computing Machinery (ACM)
ABET CAC Program Evaluator
International Society for Computers and Their Applications (ISCA)

University/Professional Service

- Served on and led numerous department, college, and institutional committees and task forces
- Academic/Faculty Senate member (2006-2012)
- Completed Peer Teaching Observation training (2011)
- JJLCOE Promotion and Tenure Committee (2018-2019)
- Member of SDBOR IT Discipline Council (2002 – 2010)
- Reviewer for
    - International Society for Computers and Their Applications
    - ACM SAC (chair Operating Systems track)
    - ACM RAC
- Co-Editor of Mid-continent Information and Database Systems Conference (MIDAS)

Timothy M. Hansen

Curriculum Vitae

Truncated

Work Address: Electrical Engineering and Computer Science
South Dakota State University
Box 2222
Brookings, SD 57007-2222, USA
Phone: (605) 688-6220
Email: timothy.hansen@sdstate.edu
Google Scholar: http://goo.gl/OBqdMg

NOTE: The following information has been removed to meet 10-pages: conference posters presented, patent applications, undergraduate research, committee positions and service, and courses taught/ designed.

Personal Information

Professional Experience

Aug. 2015 - Present	Assistant Professor, Electrical Engineering and Computer Science (EECS) Department, South Dakota State University (SDSU), Brookings, SD
May 2014 - Aug. 2015	Cyber-physical-energy Systems Graduate Research Intern, Distributed Energy Systems Integration Group, National Renewable Energy Laboratory (NREL), Golden, CO
Aug. 2011 - May 2015	Graduate Research Assistant, Department of Electrical and Computer Engineering (ECE), Colorado State University, Fort Collins, CO
Mar. 2009 - Jul. 2011	Embedded Systems Engineering Intern, CCS Inc., Waukesha, WI

Education

Date	*Degree*	*School*
2015	Ph.D. Electrical Engineering GPA: 3.94 (4.0 Scale)	Colorado State University (CSU), Fort Collins, CO
2011	B.S. Computer Engineering Mathematics Minor Graduated High Honors GPA: 3.80 (4.0 Scale)	Milwaukee School of Engineering (MSOE), Milwaukee, WI

Doctoral Dissertation:
"Resource Allocation Optimization in the Smart Grid and High-Performance Computing"

Doctoral Advisors:
Howard Jay Siegel and Anthony A. Maciejewski, CSU

Awards and Honors

2019 **National society award:** 2019 IEEE-HKN C. Holmes MacDonald Outstanding Teaching Award, received "for exceptional engagement of undergraduate students in electrical and computer engineering through pedagogical innovations, classroom technologies and curriculum development."

2019 **Best paper award:** "Parallel Implementation of AC Optimal Power Flow and Time-Constrained Optimal Power Flow using High-Performance Computing," in *IEEE 9th Annual Computing and Communication Workshop and Conference (CCWC 2019)* [C32], Jan. 2019

2018 EPSCoR South Dakota Discovery Center Science Communication Fellow, Fall 2018

2018 American Society for Engineering Education (ASEE) National Effective Teaching Institute (NETI-1) Fellow, Jan. 2018

2017 **Best paper award:** "Metrics-Based Assessment of Sustainability in Demand Response," in *15th IEEE International Conference on Smart City* [C29], Dec. 2017

2017 SDSU Jerome J. Lohr College of Engineering "Grantswinship" Award, given for amount of research dollars brought into the college for FY 2016-2017 (first year awarded, also received in subsequent years).

2017 Invited Visiting Faculty, Franche-Comté Electronics, Mechanics, Thermal Science, and Optics (FEMTO-ST), Energy Department, Université de Technologie de Belfort-Montbéliard (UTBM), part of Université Bourgogne Franche-Comté (UBFC), 90010 Belfort cedex, France, Summer 2017

2016 **Best paper award:** "Spatial-Temporal Stochasticity of Electric Vehicles in an Integrated Traffic and Power System," in *2016 IEEE International Conference on Electro/Information Technology (EIT'16)* [C9] (out of approx. 125 papers), May 2016

Research Activities

Research Grants and Contracts

Total: $1,116,055 (as PI: $190,794; as Co-PI: $925,261)

[G7] Co-Principal Investigator: "Development and Validation of Models to Assess Dynamic Response of Converter-Dominated Power Systems across Multiple Spatiotemporal Scales," from United States Department of Energy Office of Science, Principal Investigator – Reinaldo Tonkoski, Grant No. DE-SC0020281, Sep. 15, 2019 to Sep. 14, 2021, Award: $592,899, SDSU sub-contract of a $3,000,000 award with University of Alaska Fairbanks (lead) and University of Puerto Rico Mayaguez.

[G6] Principal Investigator: "Battery Energy Storage System-based Virtual Inertia for a Resilient Power Grid," from SDSU Office of Academic Affairs and Office of Research and Economic Development: Research, Scholarship and Creative Activity (RSCA) Challenge Fund, Co-Principal Investigator(s) – Reinaldo Tonkoski, Aug. 19, 2019 to Aug. 18, 2020, Award: $32,105.

[G5] Principal Investigator: "Undergraduate Research: Emission modeling and simulation for sustainable electric power systems," from SDSU Office of Academic Affairs Scholarly Excellence Fund, Co-Principal Investigator(s) – Jeffrey Doom, Nov. 1, 2017 to June 30, 2018, Award: $2,000.

[G4] Co-Principal Investigator: "MRI: Acquisition of a Microgrid Cyber-Physical Testbed for Advanced Energy Management Systems," from National Science Foundation, Principal Investigator – Reinaldo Tonkoski, Co-Principal Investigator(s) – Jeffrey Doom, Semhar Michael, and Zhen Ni, Grant No. ECCS-1726964, Sep. 15, 2017 to Aug. 31, 2020, Award: $252,362.

[G3] Co-Principal Investigator: "Next Generation Energy Management System for Future Smart Homes," from South Dakota Board of Regents Competitive Research Grant Program, Principal Investigator – Zhen Ni, Aug. 21, 2017 to Aug. 20, 2018, Award: $80,000.

[G2] Principal Investigator: "Collaborative Research: A Scalable Sustainability-Based Approach to a Novel Demand Response Paradigm in the Emerging Smart Grid," from National Science Foundation, Grant No. ECCS-1608722, Aug. 15, 2016 to Aug. 14, 2020*, Award: $153,689, SDSU portion of a $425,000 collaboration with Colorado State University. * Includes a one-year no-cost extension.

[G1] Principal Investigator: "Design of a Flexible Building Energy Management System," from SDSU Office of Academic Affairs Scholarly Excellence Fund, Jan. 1, 2016 to Aug. 31, 2016, Award: $3,000.

Journal Publications

[J15] Fernando Bereta dos Reis, Reinaldo Tonkoski, and **Timothy M. Hansen**, "Synthetic Residential Load Models for Smart City Energy Management Simulations," *IET Smart Grid*, accepted 2020, to appear.

[J14] Priti Paudyal, Prateek Munankarmi, Zhen Ni, and **Timothy M. Hansen**, "A Hierarchical Control Framework with a Novel Bidding Scheme for Residential Community Energy Optimization," *IEEE Transactions on Smart Grid*, vol. 11, no. 1, pp. 710–719, Jan. 2020.

[J13] Berk Celik, Siddharth Suryanarayanan, Robin Roche, and **Timothy M. Hansen**, "Quantifying the Impact of Solar Photovoltaic and Energy Storage Assets on the Performance of a Residential Energy Aggregator," *IEEE Transactions on Sustainable Energy*, vol. 11, no. 1, pp. 405–414, Jan. 2020.

[J12] Ujjwol Tamrakar, Dipesh Shrestha, Naresh Malla, Zhen Ni, **Timothy M. Hansen**, Indraman Tamrakar, and Reinaldo Tonkoski, "Comparative Analysis of Current Control Techniques for Virtual Inertia Emulation," *Applied Sciences: Energy*, vol. 8, no. 12, 19 pages, Dec. 2018.

[J11] Venkat Durvasulu and **Timothy M. Hansen**, "Market-Based Generator Cost Functions for Power System Test Cases," *IET Cyber-Physical Systems: Theory & Applications, special issue on Cyber Physical Power Systems: Advanced Intelligent Technologies and Applications*, vol. 3, no. 4, pp. 194–205, Dec. 2018.

[J10] Venkat Durvasulu and **Timothy M. Hansen**, "Benefits of a Demand Response Exchange Participating in Existing Bulk-Power Markets," *Energies, special issue on Demand Response in Electricity Markets*, vol. 11, no. 12, 21 pages, Dec. 2018.

[J9] Bijen R. Shrestha, Ujjwol Tamrakar, **Timothy M. Hansen**, Bishnu P. Bhattarai, Sean James, and Reinaldo Tonkoski, "Efficiency and Reliability Analyses of AC and 380V DC Distribution in Data Centers," *IEEE Access*, vol. 6, no. 1, pp. 63305–63315, Dec. 2018.

[J8] Radhakrishnan Angamuthu Chinnathambi, Anupam Mukherjee, Mitch Campion, Hossein Salehfar, **Timothy M. Hansen**, Jeremy Lin, and Prakash Ranganathan, "A Multi-Stage Price Forecasting Model for Day-Ahead Electricity Markets," *Forecasting, special issue on Ensemble Forecasting Applied to Power Systems*, vol. 1, no. 1, 21 pages, July 2018.

[J7] **Timothy M. Hansen**, Edwin K. P. Chong, Siddharth Suryanarayanan, Anthony A. Maciejewski, and Howard Jay Siegel, "A Partially Observable Markov Decision Process Approach to Residential Home Energy Management," *IEEE Transactions on Smart Grid*, vol. 9, no. 2, pp. 1271–1281, Mar. 2018.

[J6] Ujjwol Tamrakar, Dipesh Shrestha, Manisha Maharjan, Bishnu P. Bhattarai, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Virtual Inertia: Current Trends and Future Directions," *Applied Sciences: Energy, special issue on Advances in Integrated Energy Systems Design, Control, and Optimization*, vol. 7, no. 7, 29 pages, July 2017.

[J5] Bryan Palmintier, Elaine Hale, **Timothy M. Hansen**, Wesley Jones, David Biagioni, Harry Sorensen, Hongyu Wu, and Bri-Mathias Hodge, "IGMS: An Integrated ISO-to-Appliance Scale Grid Modeling System," *IEEE Transactions on Smart Grid, special issue on High-Performance Computing Applications for a More Resilient and Efficient Power Grid*, vol. 8, no. 3, pp. 1525–1534, May 2017.

[J4] Santosh Chalise, Jason Sternhagen, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Energy Management of Remote Microgrids Considering Battery Lifetime," *The Electricity Journal*, vol. 29, no. 6, pp. 1–10, July 2016.

[J3] **Timothy M. Hansen**, Rahul Kadavil, Bryan Palmintier, Siddharth Suryanarayanan, Anthony A. Maciejewski, Howard Jay Siegel, Edwin K. P. Chong, and Elaine Hale, "Enabling Smart Grid Co-Simulation Studies," *IEEE Electrification*, vol. 4, no. 1, pp. 25–32, Mar. 2016.

[J2] **Timothy M. Hansen**, Robin Roche, Siddharth Suryanarayanan, Anthony A. Maciejewski, and Howard Jay Siegel, "Heuristic Optimization for an Aggregator-based Resource Allocation in the Smart Grid," *IEEE Transactions on Smart Grid*, vol. 6, no. 4, pp. 1785–1794, July 2015.

[J1] **Timothy M. Hansen**, Siddharth Suryanarayanan, Anthony A. Maciejewski, Howard Jay Siegel, and Arun V. Modali, "A Visualization Aid for Demand Response Studies in the Smart Grid," *The Electricity Journal*, vol. 28, no. 3, pp. 100–111, Apr. 2015.

Conference Publications and Presentations

[C45] Nischal Guruwacharya, Niranjan Bhujel, Ujjwol Tamrakar, Manisha Rauniyar, Sunil Subedi, Sterling E. Berg, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Data-Driven Power Electronic Converter Modeling for Low Inertia Power System Dynamic Studies," in *IEEE Power and Energy Society General Meeting 2020*, Montreal, Quebec, Canada, 5 pages, accepted 2020, to appear.

[C44] Ujjwol Tamrakar, Nischal Guruwacharya, Niranjan Bhujel, Felipe Wilches-Bernal, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Inertia Estimation in Power Systems using Energy Storage and System Identification Techniques," in *IEEE Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM) 2020*, Sorrento, Italy, 6 pages, accepted 2020, to appear.

[C43] Rupak Mahat, Kapil Duwadi, Fernando B. dos Reis, Robert Fourney, Reinaldo Tonkoski, and **Timothy M. Hansen**, "Techno-economic Analysis of PV Inverter Controllers for Preventing Overvoltage in LV Grids," in *IEEE Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM) 2020*, Sorrento, Italy, 6 pages, accepted 2020, to appear.

[C42] **Timothy M. Hansen**, Edwin K. P. Chong, Siddharth Suryanarayanan, Anthony A. Maciejewski, and Howard Jay Siegel, "A Partially Observable Markov Decision Process Approach to Residential Home Energy Management," presented at *IEEE Power and Energy Society General Meeting 2019*, Atlanta, GA, August 2019.

[C41] Kapil Duwadi, Fernando B. dos Reis, Rupak Mahat, Robert Fourney, Bishnu Bhattarai, Reinaldo Tonkoski, and **Timothy M. Hansen**, "Numerical Oscillation Prevention for PV Inverter Controllers in Quasi-Steady-State Simulators," in *IEEE Power and Energy Society General Meeting 2019*, Atlanta, GA, 5 pages, August 2019.

[C40] Aravind Ingallali, André Luna, Venkat Durvasulu, David A. Copp, Tu A. Nguyen, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Energy Storage Systems in Emerging Electricity Markets: Frequency Regulation and Resiliency," in *IEEE Power and Energy Society General Meeting 2019*, Atlanta, GA, 5 pages, August 2019.

[C39] Yingying Zheng, Siddharth Suryanarayanan, Anthony A. Maciejewski, Howard Jay Siegel, Berk Celik, and **Timothy M. Hansen**, "An Application of Machine Learning for a Smart Grid Resource Allocation Problem ," in *IEEE PowerTech Milan 2019*, Milan, Italy, 6 pages, June 2019.

[C38] Fernando B. dos Reis, Kapil Duwadi, Mohammad Asif Iqbal Khan, Robert Fourney, Sumit Paudyal, Reinaldo Tonkoski, and **Timothy M. Hansen**, "Impact of Residential Load Models for Overvoltage Prevention Studies in PV-Rich LV Grids," in *IEEE PowerTech Milan 2019*, Milan, Italy, 6 pages, June 2019.

[C37] Ujjwol Tamrakar, David A. Copp, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Model Predictive Frequency Control of Low Inertia Microgrids," in *28th IEEE International Symposium on Industrial Electronics*, Vancouver, Canada, 6 pages, June 2019.

[C36] Aravind Ingallali, Ujjwol Tamrakar, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Modeling Hydro Power System Frequency Dynamics for Virtual Inertia Emulation," in *28th IEEE International Symposium on Industrial Electronics*, Vancouver, Canada, 6 pages, June 2019, **received a best presentation award**.

[C35] Berk Celik, Venkat Durvasulu, Fernando B. dos Reis, Yingying Zheng, and **Timothy M. Hansen**, "A Framework for Large-Scale Incentive-Based Residential Demand Response using Aggregators," in *2019 IEEE International Conference on Electro/Information Technology (EIT'19)*, Brookings, SD, 6 pages, May 2019.

[C34] Kapil Duwadi, Robert Fourney, Reinaldo Tonkoski, and **Timothy M. Hansen**, "Sustainability Metrics for Inverter-based Voltage Regulation Methods in PV-rich Low Voltage Grids," in *2019 IEEE International Conference on Electro/Information Technology (EIT'19)*, Brookings, SD, 6 pages, May 2019.

[C33] Kapil Duwadi, Aravind Ingalalli, and **Timothy M. Hansen**, "Monte Carlo Analysis of High Penetration Residential Solar Voltage Impacts using High-Performance Computing," in *2019 IEEE International Conference on Electro/Information Technology (EIT'19)*, Brookings, SD, 6 pages, May 2019.

[C32] Alex Werner, Kapil Duwadi, Nicholas Stegmeier, **Timothy M. Hansen**, and Jung-Han Kimn, "Parallel Implementation of AC Optimal Power Flow and Time-Constrained Optimal Power Flow using High-Performance Computing," in *IEEE 9th Annual Computing and Communication Workshop and Conference (CCWC 2019)*, Las Vegas, NV, 6 pages, Jan. 2019, **received the best paper award**.

[C31] André Luna, Ujjwol Tamrakar, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Frequency Response in Grids with High Penetration of Renewable Energy Sources," in *IEEE North American Power Symposium 2018 (NAPS18)*, Fargo, ND, 5 pages, Sep. 2018.

[C30] Priti Paudyal, Prateek Munankarmi, Zhen Ni, and **Timothy M. Hansen**, "Incentive-based Residential Energy Optimization Considering Comfort and Voltage Impacts," in *IEEE Power and Energy Society General Meeting 2018*, Portland, OR, 5 pages, Aug. 2018.

[C29] Prajina Tandukar, Labi Bajracharya, **Timothy M. Hansen**, Robert Fourney, Ujjwol Tamrakar, and Reinaldo Tonkoski, "Real-time Operation of a Data Center Virtual Power Plant Considering Battery Lifetime," in *IEEE Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM) 2018*, Amalfi Coast, Italy, 6 pages, June 2018.

[C28] Swagata Sharma, Venkat Durvasulu, Berk Celik, Siddharth Suryanarayanan, **Timothy M. Hansen**, Anthony A. Maciejewski, and Howard Jay Siegel, "Metrics-Based Assessment of Sustainability in Demand Response," in *15th IEEE International Conference on Smart City*, Bangkok, Thailand, pp. 130–137, Dec. 2017, **received the best paper award**.

[C27] Prajina Tandukar, Ayush Shakya, **Timothy M. Hansen**, Robert Fourney, and Reinaldo Tonkoski, "Genitor Based Energy Management System for Remote Microgrids Considering Battery Lifetime," in *2017 Electrical Energy Storage Applications and Technologies (EESAT)*, San Diego, CA, 13 pages, Oct. 2017.

[C26] Venkat Durvasulu, Hendy Syahril, and **Timothy M. Hansen**, "A Genetic Algorithm Approach for Clearing Aggregator Offers in a Demand Response Exchange," in *IEEE Power and Energy Society General Meeting 2017*, Chicago, IL, 5 pages, July 2017.

[C25] Manisha Maharjan, Ujjwol Tamrakar, Surendra Bajagain, **Timothy M. Hansen**, and Reinaldo Tonkoski, "A Steady-State Equivalent Model of Solid State Transformers for Voltage Regulation Studies," in *IEEE Power and Energy Society General Meeting 2017*, Chicago, IL, 5 pages, July 2017.

[C24] Fernando Bereta dos Reis, Manisha Maharjan, and **Timothy M. Hansen**, "VPSfAV: A Computational Tool to Aid the Teaching of Protection Systems," in *2017 IEEE International Conference on Electro/Information Technology (EIT'17)*, Lincoln, NE, 5 pages, May 2017.

[C23] Manisha Maharjan, Ujjwol Tamrakar, Naresh Malla, Zhen Ni, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Adaptive Droop-Based Active Power Curtailment Method for Overvoltage Protection in Low Voltage Distribution Network," in *2017 IEEE International Conference on Electro/Information Technology (EIT'17)*, Lincoln, NE, 5 pages, May 2017.

[C22] Berk Celik, Venkat Durvasulu, Swagata Sharma, Siddharth Suryanarayanan, **Timothy M. Hansen**, Anthony A. Maciejewski, and Howard Jay Siegel, "Metrics-based Assessment of Sustainability in Demand Response," in *7^{th} International Energy Conference and Workshop (REMOO'17)*, Venice, Italy, May 2017.

[C21] Venkat Durvasulu, Hendy Syahril, and **Timothy M. Hansen**, "A Framework for Integrating Demand Response into Bulk Power Markets," in *7^{th} International Energy Conference and Workshop (REMOO'17)*, Venice, Italy, 15 pages, May 2017.

[C20] Venkat Durvasulu, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Classification of Generators Participating in the Bulk-Power Market," in *18^{th} IEEE International Conference on Industrial Technology (ICIT)*, Toronto, Ontario, Canada, pp. 575–579, Mar. 2017.

[C19] Fathalla A. Eldali, **Timothy M. Hansen**, Siddharth Suryanarayanan, and Edwin K. P. Chong, "Employing ARIMA Models to Improve Wind Power Forecasts: A Case Study in ERCOT," in *IEEE North American Power Symposium 2016*, Denver, CO, 6 pages, Sep. 2016.

[C18] Venkat Durvasulu and **Timothy M. Hansen**, "Classifying Day-Ahead Electricity Markets using Pattern Recognition for Demand Response," in *IEEE North American Power Symposium 2016*, Denver, CO, 6 pages, Sep. 2016.

[C17] Sadhana Shrestha and **Timothy M. Hansen**, "Distribution Feeder Impacts of Electric Vehicles Charging in an Integrated Traffic and Power Network," in *IEEE North American Power Symposium 2016*, Denver, CO, 6 pages, Sep. 2016.

[C16] Shiva Poudel, Zhen Ni, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Cascading Failures and Transient Stability Experiment Analysis in Power Grid Security," in *IEEE Power and Energy Society Innovative Smart Grid Technologies 2016*, Minneapolis, MN, 5 pages, Sep. 2016.

[C15] Bijen Raj Shrestha, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Reliability Analysis of 380V DC Distribution in Data Centers," in *IEEE Power and Energy Society Innovative Smart Grid Technologies 2016*, Minneapolis, MN, 5 pages, Sep. 2016.

[C14] Avijit Das, Zhen Ni, **Timothy M. Hansen**, and Xiangnan Zhong, "Energy Storage System Operation: Case Studies in Deterministic and Stochastic Environments," in *IEEE Power and Energy Society Innovative Smart Grid Technologies 2016*, Minneapolis, MN, 5 pages, Sep. 2016.

[C13] **Timothy M. Hansen**, Robin Roche, Siddharth Suryanarayanan, Anthony A. Maciejewski, and Howard Jay Siegel, "Heuristic Optimization for an Aggregator-based Resource Allocation in the Smart Grid," presented at *IEEE Power and Energy Society General Meeting 2016*, Boston, MA, July 2016.

[C12] Rahul Kadavil, **Timothy M. Hansen**, and Siddharth Suryanarayanan, "An Algorithmic Approach for Creating Diverse Stochastic Feeder Datasets for Power Systems Co-Simulations," in *IEEE Power and Energy Society General Meeting 2016*, Boston, MA, 5 pages, July 2016.

[C11] Labi Bajracharya, Shekhar Awasthi, Santosh Chalise, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Economic Analysis of a Data Center Virtual Power Plant Participating in Demand Response," in *IEEE Power and Energy Society General Meeting 2016*, Boston, MA, 5 pages, July 2016.

[C10] Bryan Palmintier, Elaine Hale, **Timothy M. Hansen**, Bri-Mathias Hodge, and Kyri Baker, "Experiences Integrating Transmission and Distribution Simulations for DERs with the Integrated Grid Modeling System (IGMS)," in *19th IEEE Power Systems Computation Conference (PSCC) 2016*, Genoa, Italy, 7 pages, June 2016.

[C9] Sadhana Shrestha and **Timothy M. Hansen**, "Spatial-Temporal Stochasticity of Electric Vehicles in an Integrated Traffic and Power System," in *2016 IEEE International Conference on Electro/Information Technology (EIT'16)*, Grand Forks, ND, 6 pages, May 2016, **received the best paper award (out of approx. 125 papers)**.

[C8] Hameed R. Atia, Ayush Shakya, Prajina Tandukar, Ujjwol Tamrakar, **Timothy M. Hansen**, and Reinaldo Tonkoski, "Efficiency Analysis of AC-Coupled and DC-Coupled Microgrids Considering Load Profile Variations," in *2016 IEEE International Conference on Electro/Information Technology (EIT'16)*, Grand Forks, ND, 5 pages, May 2016.

[C7] Ujjwol Tamrakar, Reinaldo Tonkoski, Zhen Ni, **Timothy M. Hansen**, and Indraman Tamrakar, "Current Control Techniques for Applications in Virtual Synchronous Machines," in *6th IEEE International Conference on Power Systems*, New Delhi, India, 6 pages, Mar. 2016.

[C6] Siddharth Suryanarayanan, Marvin Anthony Devadass, and **Timothy M. Hansen**, "A Load Scheduling Algorithm for the Smart Home Using Customer Preferences and Real Time Residential Prices," in *9th IFAC Symposium on Control of Power and Energy Systems*, New Delhi, India, 6 pages, Dec. 2015.

[C5] **Timothy M. Hansen**, Bryan Palmintier, Siddharth Suryanarayanan, Anthony A. Maciejewski, and Howard Jay Siegel, "Bus.py: A GridLAB-D Communication Interface for Smart Distribution Grid Simulations," in *IEEE Power and Energy Society General Meeting 2015*, Denver, CO, 5 pages, July 2015. Presented at the Best Papers Session on Power System Modeling and Simulation.

[C4] Robin Roche, Siddharth Suryanarayanan, **Timothy M. Hansen**, Sila Kiliccote, and Abdellatif Miraoui, "A Multi-Agent Model and Strategy for Residential Demand Response Coordination," in *IEEE PowerTech Eindhoven 2015*, Eindhoven, Netherlands, 6 pages, July 2015.

[C3] **Timothy M. Hansen**, Florina M. Ciorba, Anthony A. Maciejewski, Howard Jay Siegel, Srishti Srivastava, and Ioana Banicescu, "Heuristics for Robust Allocation of Resources to Parallel Applications with Uncertain Execution Times in Heterogeneous Systems with Uncertain Availability," in *2014 International Conference on Parallel and Distributed Computing (ICPDC'14)*, in the proceedings of World Conference on Engineering 2014 (WCE 2014), London, UK, pp. 536–541, July 2014, **received the best paper award**.

[C2] **Timothy M. Hansen**, Robin Roche, Siddharth Suryanarayanan, Howard Jay Siegel, Daniel Zimmerle, Peter M. Young, and Anthony A. Maciejewski, "A Proposed Framework for Heuristic Approaches to Resource Allocation in the Emerging Smart Grid," in *IEEE PES International Conference on Power Systems Technology 2012 (POWERCON 2012)*, Auckland, New Zealand, 6 pages, Oct. 2012.

[C1] Florina M. Ciorba, **Timothy M. Hansen**, Srishti Srivastava, Ioana Banicescu, Anthony A. Maciejewski, and Howard Jay Siegel, "A Combined Dual-Stage Framework for Robust Scheduling

of Scientific Applications in Heterogeneous Environments with Uncertain Availability," in *21st Heterogeneity in Computing Workshop (HCW 2012)*, in the proceedings of 2012 International Parallel and Distributed Processing Symposium Workshops and Ph.D. Forum (IPDPSW), Shanghai, China, pp. 187–200, May 2012.

Book Chapters

[B2] **Timothy M. Hansen**, Robin Roche, Siddharth Suryanarayanan, Anthony A. Maciejewski, Howard Jay Siegel, and Edwin K. P. Chong, "Customer Modeling and Pricing-mechanisms for Demand Response in Smart Electric Distribution Grids," in *Cyber-Physical-Social Systems and Constructs in Electric Power Engineering* (Siddharth Suryanarayanan, Robin Roche, and Timothy M. Hansen, eds.), ch. 6, pp. 135–160, The Institution of Engineering and Technology (IET), London, UK, 2016.

[B1] Siddharth Suryanarayanan, Robin Roche, and **Timothy M. Hansen**, "Introduction to Cyber-physical-social Systems and their Applications in Power Systems Engineering," in *Cyber-Physical-Social Systems and Constructs in Electric Power Engineering* (Siddharth Suryanarayanan, Robin Roche, and Timothy M. Hansen, eds.), ch. 1, pp. 3–14, The Institution of Engineering and Technology (IET), London, UK, 2016.

Books Edited

[BE1] Siddharth Suryanarayanan, Robin Roche, and **Timothy M. Hansen**, eds., *Cyber-Physical-Social Systems and Constructs in Electric Power Engineering*, The Institution of Engineering and Technology (IET), London, UK, 2016.

Technical Reports

[R1] Bryan Palmintier, Elaine Hale, **Timothy M. Hansen**, Wesley Jones, David Biagioni, Kyri Baker, Hongyu Wu, Julieta Giraldez, Harry Sorensen, Monte Lunacek, Noel Merket, Jennie Jorgensen, and Bri-Mathias Hodge, "Integrated Distribution-Transmission Analysis for Very High Penetration Solar PV," Tech. Rep. NREL/TP-5D00-65550, National Renewable Energy Laboratory, Jan. 2016.

Invited Talks

[T21] **Timothy M. Hansen**, "Power System Modeling, Simulation, and Testing Capabilities and Resources at South Dakota State University," Department of Energy-funded Solar Energy Innovation Network (SEIN) Project Workshop on Equitable PV Rate Structures for Rural Electric Co-ops, invited talk (remote webinar due to COVID-19), East River Electric Co-op, Madison, SD, Apr. 2020.

[T20] **Timothy M. Hansen**, "Efficiency, Reliability, and Market Opportunities for Renewable-Powered Datacenters," Workshop of Renewable Energy-Powered Datacenters, invited talk (remote webinar), Besançon, France, Oct. 2019.

[T19] **Timothy M. Hansen**, "Using SDSU's Roaring Thunder to Teach Next-Generation High-Performance Computing Experts," Growing Research Champions Symposium, invited talk, Brookings, SD, Oct. 2019.

[T18] **Timothy M. Hansen**, "Emerging Topics in Energy Storage and Demand Response in Electricity Markets," East River Electric Power Cooperative Managers Meeting, invited talk, Brookings, SD, July 2019.

[T17] **Timothy M. Hansen**, "Electricity Market Opportunities for Data Center Virtual Power Plants," presented at Panel: "Advances in Data Center Energy Optimization," in *9th International Green and Sustainable Computing Conference*, invited panelist, Pittsburgh, PA, Oct. 2018.

[T16] **Timothy M. Hansen**, "Large-Scale Synthetic Datasets to Enable Resource Management Studies for the Future Smart City," Pacific Northwest National Laboratory (PNNL), *Computing@PNNL Seminar*, invited seminar, Richland, WA, Aug. 2018.

[T15] **Timothy M. Hansen** and Reinaldo Tonkoski, "Graduate Degrees in Electrical Engineering: Power and Energy Systems," in *2018 Tau Beta Pi District 11 Conference*, invited talk, Brookings, SD, Apr. 2018.

[T14] **Timothy M. Hansen**, "The Role of High-Performance Computing and Resource Management in the Future Smart City," South Dakota State University, IEEE Local Branch, invited talk, Brookings, SD, Apr. 2018.

[T13] **Timothy M. Hansen**, "The Role of High-Performance Computing and Resource Management in the Future Smart City," Colorado State University, Electrical and Computer Engineering Department, invited seminar, Fort Collins, CO, Feb. 2018.

[T12] **Timothy M. Hansen**, "Cyber-physical-social Systems to Enable Smart Cities," in the Plenary Panel on "Convergence of High-Performance Computing and Communication, Smart City, and Data Sciences and Systems: Fields Helping Grand Challenges and Each Other," in *IEEE International Conference on High Performance Computing and Communications (HPCC17)*, invited panelist, Bangkok, Thailand, Dec. 2017.

[T11] **Timothy M. Hansen**, "Modeling and Simulating End-User Behavior in the Future Electric Distribution Network," University of North Dakota, Department of Electrical Engineering, invited webinar, Grand Forks, ND, Nov. 2017.

[T10] **Timothy M. Hansen**, "Modeling and Simulating End-User Behavior in the Future Electric Distribution Network," Université de Technologie de Belfort-Montbéliard, FEMTO-ST Institute, invited talk, Belfort, France, July 2017.

[T9] **Timothy M. Hansen**, "Environmentally and Economically Sustainable Electricity for the Future," Brookings Sustainability Council, invited talk, Brookings, SD, Mar. 2017.

[T8] **Timothy M. Hansen**, "Customer Modeling in Smart Electric Distribution Grids," presented at Panel: "Modeling and Simulating the End-User in CPS-Based Power Systems Analyses," in *IEEE Power and Energy Society General Meeting 2016*, invited panelist, Boston, MA, July 2016.

[T7] **Timothy M. Hansen**, "A Scalable Sustainability-based Approach to Demand Response using CPS," National Science Foundation, Cyber Physical NSF Workshop 2016, Boston, MA, July 2016.

[T6] Siddharth Suryanarayanan and **Timothy M. Hansen**, "Cyber-physical-social-systems: Modeling of Consumer Assets and Behavior in an Integrated Energy System," Energy Systems Integration–Research Challenges 102, course organized by *International Institute for Energy Systems Integration (IIESI)*, Golden, CO, Aug. 2015.

[T5] **Timothy M. Hansen**, "A Partially Observable Markov Decision Process Approach to Home Energy Management," *Old Dominion University*, Electrical and Computer Engineering Department, invited seminar, Norfolk, VA, Apr. 2015.

[T4] **Timothy M. Hansen**, "A Partially Observable Markov Decision Process Approach to Home Energy Management," *South Dakota State University*, EECS Department, invited seminar, Brookings, SD, Apr. 2015.

[T3] **Timothy M. Hansen**, "A Visualization Aid for Demand Response Studies in the Smart Grid," *National Renewable Energy Laboratory*, Energy Systems Integration Group, invited seminar, Golden, CO, Jan. 2014.

[T2] **Timothy M. Hansen**, "Heuristic Optimization for an Aggregator-based Resource Allocation for Demand Response in the Smart Grid using an Incentive-based Pricing Structure," *Colorado State University Smart Grid Interest Group*, invited seminar, Fort Collins, CO, Dec. 2013.

[T1] **Timothy M. Hansen**, "Heuristic Approaches to Resource Allocation in the Emerging Smart Grid," *Symposium on Sustainable Energy and Computing (SSEC) 2013*, invited presentation, Wailea, HI, Jan. 2013.

Educational Activities

Ph.D. Dissertation Supervision Completed at SDSU

May 2019	Venkat Durvasulu	"Data-Driven Test Cases for Sustainability Assessment of Smart Grid Initiatives in Organized Electricity Markets"
	First position:	Research and Development Engineering Fellow, Midcontinent Independent System Operator (MISO)

M.S. Thesis Supervision Completed at SDSU

Apr. 2019	Kapil Duwadi	"Techno-Economic and Sustainability Study of PV Inverter Controllers in Distribution Networks for Voltage Regulation" (Co-advisor: Robert Fourney)
	First position:	Researcher-II, Electrical Power Distribution Systems Group, National Renewable Energy Laboratory (NREL)
Apr. 2019	Prateek Munankarmi	"Coordinated Smart Home Thermal and Energy Management System using a Co-Simulation Framework" (Co-advisor: Robert Fourney)
	First position:	Researcher-II, Residential Buildings Research Group, National Renewable Energy Laboratory (NREL)
July 2018	Rupak Mahat	"Techno-Economic Analysis of PV Inverter Based Controllers of Low Voltage Distribution Networks" (Co-advisor: Robert Fourney)
July 2017	Prajina Tandukar	"Energy Management System Considering Battery Lifetime" (Co-advisors: Reinaldo Tonkoski and Robert Fourney)
	First position:	Controls Engineer, Intralox
July 2016	Sadhana Shrestha	"Spatial-Temporal Stochasticity of Electric Vehicles in an Integrated Traffic and Power System"
	First position:	Planning Engineer, New York Independent System Operator (NYISO)
Apr. 2016	Labi Bajracharya	"Economic Analysis of a Data Center Virtual Power Plant Participating in Demand Response"
	First position:	Power Systems Software Engineer, GE Grid Solutions

Ph.D. Students Currently Advising

Fernando Bereta dos Reis, EECS Department, SDSU

M.S. Students Currently Advising

Abodh Poudyal, EECS Department, SDSU
Manisha Rauniyar, EECS Department, SDSU
Sunil Subedi, EECS Department, SDSU

STEVEN MICHAEL HIETPAS, Ph.D., PE

Head, Electrical Engineering and Computer Science Department
Coordinator for the Center for Power Systems Studies (CPSS)
Registered Professional Engineer, South Dakota, PE 8748

steven.hietpas@sdstdate.edu
http://www.sdstate.edu/eecs/about/faculty/steven-hietpas/
http://cpss.sdstate.edu

EDUCATION

Ph.D. Electrical Engineering, Montana State University, 1994
Dissertation: *Identification and Robust Control Methods Using Ellipsoidal Parametric Uncertainty Descriptions*
M.S. Electrical Engineering, Montana State University 1991
B.S. Electrical Engineering, Montana State University 1984

EMPLOYMENT HISTORY

Professor	2003 –	South Dakota State University
Assoc. Professor	1998 – 2003	South Dakota State University
Asst. Professor	1994 – 1998	South Dakota State University
Technical Staff	1996 (Summer) – Strategic Defense Division, TRW	
Graduate Student	1989 – 1994	Montana State University, Bozeman, MT
Engineer	1984 – 1989	General Dynamics, Space Systems Division, Space Energy Group, San Diego, CA

- Conducted research and development on high frequency power switching DC-DC converters for the Shuttle-Centaur Program
- Conducted research and development on high frequency power switching resonant DC-AC inverters for the International Space Station Program

PROFESSIONAL SUMMARY

Since joining SDSU in 1994, Dr. Hietpas has been the involved in the development of the power and energy program at SDSU. Assuming the position of coordinator for the Center for Power Systems Studies (CPSS) in 1997, he has worked with the regional power industry strengthening SDSU's involvement in power systems research and education. Through a National Science Foundation grant and with contributions from members of the CPSS a 2000 ft^2 state-of-the-art energy conversion laboratory was commissioned in August of 2002. This lab was completely designed, fabricated, and tested by electrical engineering students. This laboratory has supported research in the area of power electronic converters and machine drives as well as in photovoltaics. The new facility is also used to teach electromechanical systems to senior electrical engineering students. Other CPSS activities include chairing the South Dakota Biannual Regional Power Conference, administering student scholarships, and providing opportunities to students such as power-technology tours and senior design projects. In 2002 Hietpas assumed the position of the Undergraduate Electrical Engineering Program Coordinator, coordinating program assessment, new-student orientation; graduate teaching assistant selection and supervision; course scheduling and curriculum management efforts, among other duties. Hietpas has served as the advisor to the Electrical and Computer Engineering student honors society (Eta Kappa Nu – HKN) since 1998, helping to strengthen their involvement in promotion of electrical engineering and outreach to local schools. Regionally and nationally, Hietpas has served on various committees, including IEEE Siouxland Section, South Dakota Electrical

Council, and the IEEE Rural Electrical Power Conference. Hietpas was invited to conduct a workshop CoEV (Watertown, SD), give a presentation (ONR/NSF Faculty Workshop), and serve on panels (NSF – Restructuring Power and Energy Curriculum). Dr. Hietpas became an ABET Program Evaluator in 2010 and has successfully completed four accreditation visits.

Administrative Experience

Dr. Hietpas has been the Coordinator for the Center for Power Systems Studies since 1997. He has had opportunity to work closely with numerous engineers and managers from industry and has addressing the needs of the power industry. This program was established in 1968 by Junis Storry and Wayne Knabach. Since his installment, he has strengthened the scholarship funding and graduate student support. He has established a consistent Biennial South Dakota Regional Power Conference that is convened on even years, and it has consistently been rated very high among its participants. Recently, he encouraged the membership to establish the Wayne Knabach Award for Excellence in Power. The first award went to Wayne Knabach in 2009. The committee for nominating an industry person for this award is comprised of CPSS Members and Associate Members along with the most recent recipient. The CPSS also hosts its own website, cpss.sdstate.edu, and boasts a secure Who's Who in Power from SDSU database, wherein members are able to access and edit it at will. While serving as the coordinator, he has maintained a strict budget, having never exceeded expenses with respect to revenues and existing assets.

In 2000, Dr. Hietpas assumed the role of electrical engineering assessment coordinator. As coordinator, he formed a committee early on, whose work ultimately produced a comprehensive ABET-quality assessment plan for the program. These efforts resulted in two successful ABET Accreditations (2004 and 2010).

In 2002, Dr. Hietpas assumed the position of Undergraduate Coordinator for the Electrical Engineering Program. During this time, he strived to bring enhanced efficiencies and quality to various operational aspects within the program, including assessment, advising, and graduate teaching assistant training and teaching quality. Improvements were made in the methods for hiring and monitoring of EE graduate teaching assistants. Working with the graduate coordinator, an improved online application form and process was developed, leading to a significant increase in the quality of graduate teaching assistants. One particular action proved beneficial to the entire program wherein teaching assistants maintain an engineering notebook for the lab they teach and are required to meet with their instructor to review their work and to verify they have properly prepared.

Teaching Experience

Dr. Hietpas teaching pedagogy strongly revolves around project-based learning. While he follows a more traditional lecture-style teaching approach, he fully embraces all forms of technology to enhance the learning environment. With deep concern for those students active in extracurricular activities (such as collegiate athletes who periodically miss class) and for his international students (who are working hard in dealing with the natural language), he has been recording his in-class lectures and posting online for over 10 years. Since 1994, Dr. Hietpas has taught at both the undergraduate and graduate levels, covering topics in circuits, electronics, magnetics, continuous and digital controls, electromechanical systems, power electronics, and power systems.

A sample of the project-based learning activities include:

- Modeling of and control design for

    - Robotic Finger Joint
    - Unmanned Arial Vehicle
    - Regulated Power Supply.
    - Walt Disney World "Twilight Zone Tower of Terror" ride
- DC-DC Converters and PMDC Motor Drives
- Power electronic choke inductors and flyback "coupled" inductors
- Electronic sensor and display system for measuring hail damage.

Of the many and varied senior design capstone projects advised, the largest project spanned 5 years and five different senior design teams – this multi-year project to the development of a one-of-a-kind electromechanical systems laboratory, commissioned in 2002. This lab is completely automated and has worked extremely well for over 13 years. The lab is used by sophomores through graduate students in the study of circuits, electromechanical systems, power electronics and power systems.

Research Experience

Dr. Hietpas primary research focus is in power systems, power electronics, and controls. As a result of the state-of-the-art Electromechanical Systems Laboratory (just described) he developed electric drives for DC, AC Induction, and AC Synchronous machines. With the advances in electric drive technology over the last 25 years, including the proliferation of FPGA integration within these systems, he has developed drives that have also been used for instructional purposed in both under and graduate level courses. He has also conducted research in the area of power-electronic-based distribution transformers. For many years, he served on paper review committees for the IEEE Rural Electric Power Conference, the IEEE Transactions on Industrial Electronics, and the IET (Institute of Engineering Technology) Power Electronics Journal.

Service Experience

Dr. Hietpas has served on various college and university committees since 1994, including the Academic Affairs Committee, Research Advisory, College of Engineering's scholarship committees, the Intercollegiate Advisory Board for SDSU. IEEE Siouxland Executive Committee, where I served as the Treasurer. Since 1997, I have served on the Executive Board for the South Dakota Electric Council. In this capacity I have helped in organizing conventions and securing speakers. Nationally, I have been serving on the paper review committee for the IEEE Rural Electric Power Conference. Each year, I review approximately 30-50 papers and help narrow this to about 20-25 papers for the conference. Furthermore, I help in selecting 2-4 papers for submission to the IEEE-IAS Transactions on Industry Applications. In 1998 I assumed the role of Advisor to the departments Gamma Rho Chapter of the Electrical and Computer Engineering Honor Society, Eta Kappa Nu (HKN). Through my work with the Eta Kappa Nu (HKN) honor society, the students designed and developed a Faraday Flashlight that can be assembled by 6th grade students, which meets one of South Dakota State 6th Grade Curriculum requirements dealing with magnetism and energy conversion. For the last three years we have worked with the Sioux Valley Middle School Science Teacher, Amy Schlimmer, wherein each student (at a low cost of $12 per student) constructs a Faraday Flashlight. This has been a very popular activity for the students and Ms. Schlimmer has asked for our continued participation in this activity.

PROFESSIONAL IMPROVEMENT

Selected to attend ABET Program Evaluator Training (July 2010)
SDSU TLC Course – "Engaging Students" (Spring 2010)
Professional Engineer – State of South Dakota, License # 8748 (2005 – present)
ONR/NSF Workshops (1997 – 2011)
IDEAL Scholar – ABET (2007)
Essential Teaching Seminar – ASME/AICHE/IEEE (2003)
NETI – ASEE (1995)

ADMINISTRATION

Department Head (2010-Present)

- Supervise 23 faculty and two staff
- Develop strategic planning and set priorities
- Faculty teaching assignment
- Conduct annual professional staff evaluations and complete salary enhancement schedules
- Work closely with two industry advisory boards (16 members/each) in the continued development and improvement of our programs
- Oversee and direct EE and CS Program Assessment Plans
- Work closely with SDSU Foundation in fund raising projects

Program Coordinator for Electrical Engineering (2002 – 2010)

- High School/Parent Visitations
- Orientation
- Wrote Undergraduate Student Handbook
- Revised/Developed spreadsheet Plan of Study for Advising
- Developed and administered the EE Program Assessment Plan
- Assisted our new Software Engineering program develop its Assessment Plan
- Wrote the majority of two successful ABET self-study reports
- Coordinated the development of a new department website (2006)
- Established the requirement of all GTAs to keep and maintain engineering notebooks for their lab in an effort to improve the quality of our students' undergraduate lab experience
- Hired and supervised all Graduate Teaching Assistants

Coordinator for the Center for Power Systems Studies (1997 – present)

- 11 Members (Utilities in SD, ND, MN, IA, NE, MT)
- 19 Associate Members
- Established the Bi-Annual South Dakota Regional Power Conference
- Increase funding support
- Increase student internships
- Developed an on-line (secure) Who's Who database of SDSU Power Engineering graduates

COURSES TAUGHT

Circuits I/II
Electronics I/II/III
Control Systems
Electromechanical Systems
Completely redesigned labs to include power electronic and electric drive components

Senior Design I and II
Organized and chaired first two Senior Design Conferences, 1995/1996
Engineering Economics
Power Systems Analysis
Power Electronics
Advanced Digital Control Systems (Graduate)
Advanced Power Systems (Graduate)

INVITED PRESENATIONS/PANELS/WORKSHOPS

- ONR/NSF Workshops on Education and Workforce (Power/Energy/Machines/Drives)
- Power Electronics Workshop, CoEV (Watertown, SD)

SERVICE

Member of IEEE-CEAA (2017 – Present)
Provost Leadership Task Force (2011-Present)
IEEE PES Scholarship Initiative Region Board Member (2010-2016)
Intercollegiate Athletic Board (officer, 2008-2011)
Alternative Power Technology (APT-SDSU) Search Committee (member)
Assessment Coordinator for Electrical Engineering (2002-2010)
CPSS/EE/COE Scholarship Committee (chair, 1998-2010)
EE Program Curriculum Review Committee
IEEE Paper Review Committees (Rural Electric Power Conference, Transactions on Industrial Applications, Transactions on Education, 1998 – 2010)
IET-PES Journal (Institution of Engineering and Technology – Power Electronics) Paper Review Committee (2005-present)
ASEE Campus Representative (2007-2011)
Advisor to the Eta Kappa Nu (HKN, 1998 - 2016)
Initiated the SDSU Robotics Program (2009-2010)
Research Advisory Council (1997-1999)
Faculty Search Committees, EE and SE
Academic Affairs Committee (1996-1998)
NSF-CCLI Review Panel (1999)

RECOGNITIONS

Outstanding Chapter, Gamma Rho/Eta Kappa Nu, Electrical and Computer Engineering Honor Society, Faculty Advisor (2008-2014, a national recognition)
College of Engineering Outstanding Academic Advisor of the Year (2006)
Senior Member of the IEEE
"Jackrabbit Top Program – Thanking Outstanding People" (2008)
ASEE Outstanding Zone Representative (2009)

RESEARCH and DEVELOPMENT

Distribution Fault Detection and Location

Funding support through Cooper Power Systems, Inc.

Modeling A Distribution System for Wind Turbine Integration

Funding support through Otter Tail Power Company

AC-AC Power Converter

Funding from the Demonstration of Energy-Efficient Developments (DEED) and American Public Power

Association (APPA) program

DC and AC Motor Drives – Undergraduate EE Program/Laboratory

Funding support through the National Science Foundation

GRADUATE STUDENTS

Madhab Paudel, 2009, *Development of a Fault Location Algorithm Based on Distributed Neutral-to-Ground Current Sensor Measurements*

Monish Chitrakar, 2009, *FPGA-based V/Hz Drive for a 3-Phase 3-hp Induction Motor*

Ankur Singhal, 2005, *Scalar Control of a 3-Phase 3-hp Induction Motor using Simulink and dSPACE Prototyping Platform*

Vijay Kambhammettu, 2004, *Design of New Energy Laboratory Power Processing Systems*

Sudeep Kumar Pyakuryal, 2003, *A Computer Model of Otter Tail Power Company (OTPC) Power System using ATP – A comparison of SDSU'ATP Model to OTPC's PSS/E Model*

Kala Meah, 2003, *Rapid Control Prototyping of a Permanent Magnet DC Motor Drive using dSPACE and Mathworks Simulink*

Md. Abdus Sattar, 2002, *Design and Construction of a 3-phase 3-hp Variable Speed Induction Motor Drive*

Mark Naden, 1999, *Voltage Sag Correction using an AC Voltage-Voltage Converter*

Udaya Kumar Tejwani, 1996, *Modified PWM Technique for Reduction of Voltage Harmonic Distortion*

PUBLICATIONS

[1] A. L. De Luna Santos, S. M. Hietpas, R. Tonkoski, "Linear Quadratic Regulator Controller to Improve Transient Frequency Stability Through Virtual Inertia", ISGT Conference, Feb. 6, 2020.

[2] Sun, Wei; Chambers, Reece; Kleinjan, Ryan; Nelson, Jeremy; Hietpas, Steven; Johnson, Rick; Johnson, Toby; Strube, Todd, "Design and implementation of IEC 61850 in communication-assisted protection strategy," *T&D Conference and Exposition, 2014 IEEE PES* , vol., no., pp.1,5, 14-17 April 2014

[3] M. Paudel and S. Hietpas, "A Fault Location Algorithm Based on Distributed Neutral-to-Ground Current Sensor Measurements", accepted to *IEEE-PES General Meeting*, Minneapolis, MN, July 25-29, 2010.

[4] R. Haub, R. Fourney, and S. Hietpas, "Integrating Microcontrollers into a Modern Energy Conversion Laboratory Course," *Proceedings of the 2007 ASEE Annual Conference & Exposition*, Honolulu, HI, June 24-27, 2007.

[5] K. Meah, S. Hietpas and S. Ula, "Rapid Control Prototyping of a Permanent magnet DC Motor Drive Using dSPACE and Mathworks Simulink," *IEEE Applied Power Electronics Conference (APEC)* , February 2007.

[6] S. M. Hietpas, "A State-of-the-Art Energy and Electric Drives Laboratory Designed and Implemented by Undergraduate and Graduate Students," the *Proceedings of the 2004 ASEE Annual Conference & Exposition*, Salt Lake City, UT, June 20-23, 2004.

[7] Steven Hietpas, "A New Energy Conversion and Electric Drives Laboratory at South Dakota State University," Proceedings of the 2003 NSF Faculty Workshop on Power Electronics and Electric Drives,

Tempe, AZ, Jan. 5-7, 2003.
[8] S. M. Hietpas, “An efficient pedagogical approach for integrating power electronics, drives and the PMDC motor into the traditional energy conversion course,” *Proceedings of the 2002 American Society for Engineering Education Annual Conference & Exposition*, Montreal, Quebec, Canada (June 2002).
[9] S. M. Hietpas and M. Ropp, “Incorporating Electric Drives into the Electrical Machines Course: A Systems Level Approach,” *Proceedings of the 2001 American Society for Engineering Education Annual Conference & Exposition*, Albuquerque, NM (June 2001).
[10] S. M. Hietpas and M. Naden, “Automatic Voltage Regulator Using an AC Voltage-Voltage Converter, ” *IEEE Trans. on Industry Applications, Vol. 36, No. 1, January/February 2000, pp. 33-38.*
[11] S. M. Hietpas, “Using Multimedia Tools For Teaching Electric Drives,” presented at *National Science Foundation Workshop, Multimedia Delivery of Power Electronics Education*, Orlando, FL. S. M. Hietpas and M. Naden, “Automatic Voltage Regulator Using and AC Voltage-Voltage Converter,” *The Proc. of the IEEE 1999 Rural Electric Power Conference*, May 1999.
[12] S. M. Hietpas and R. Pecan, "Simulation of a Three-Phase AC-AC Boost Converter to Compensate for Voltage Sags," *The Proc. of the IEEE 1998 Rural Electric Power Conference*, April 1998.
[13] U. K. Tejwani and S. M. Hietpas, "Modified PWM Technique for Reduction of Voltage Harmonic Distortion Using AC-AC Converter*," The Proc. of the 29th Annual Frontiers of Power Conference*, Oct. 1996.
[14] S. M. Hietpas, "Senior Design Conference: An Important Program for Every Engineering Curriculum," *The Proc. of the 58th Annual ASEE North Midwest Section Meeting*, Oct. 1996.
[15] S. M. Hietpas and D. A. Pierre, "Discrete Prony System Identification for Power Systems," *The Proc. of the 27th Annual North American Power Symposium*, pp. 24-29, Oct. 1995.
[16] S. M. Hietpas and D. A. Pierre, "Two Algorithms for Minimax Control of Systems with Ellipsoidal Parametric Uncertainty," *The Proc. of the American Control Conference*, WM17, June 1995.
[17] S. M. Hietpas and D. A. Pierre, "System Identification Using Prony Methods For Digital Control Systems," *10th IFAC Symposium on System Identification*, vol. 2, pp. 619-694, July, 1994.
[18] B. J. Bujanowski, J. W. Pierre, S. M. Hietpas, T. L. Sharpe, and D. A. Pierre, "A comparison of several system identification methods with application to power systems," *The IEEE Midwest Symposium on Circuits and Systems*, Aug., 1993.
[19] D. A. Pierre, J. R. Smith, M. H. Nehrir, R. M. Johnson, P. A. Emmanuel, S. M. Hietpas, T. A. Short, Robust Adaptive Transient Damping in Power Systems: Damping Controller in AC/DC Power Systems -- Routines for Simulation, Computer Requirements for Implementation, DC Controllers, and Robust Control, EPRI TR-101097, Research Project 2665-01, Vol. 2, Final Report, Electric Power Research Institute, Sept., 1992.

Jason D. Sternhagen
Research Associate III
Department of Electrical Engineering and Computer Science
South Dakota State University
Brookings, SD 57007
605-695-7846, fax: 605-688-4401,
jason.sternhagen@sdstate.edu

Professional Preparation

- South Dakota State University, B.S. Electrical Engineering, December 1998.
- South Dakota State University, M.S. Electrical Engineering, December 2001.

Appointments

- Research Associate III, South Dakota State University, Brookings, SD 2013 – present.
  - Provide management and technical support for the undergraduate and graduate laboratories.
  - Support and collaborate with research faculty and students.
  - Teach assigned courses.
  - Provide general support and outreach within and outside of SDSU.
- Research Lead, Alternative Power Technology, Brookings, SD, 2009 – 2013.
  - Managed microgrid and photovoltaic research and development project teams.
  - Responsible for development and implementation of 30 kW microgrid test bed and cleanroom laboratory.
- Sr. Product Design Engineer, MtronPTI, Yankton, SD, 2004 - 2009.
  - Managed minor and major projects involving the product design, process, quality, and materials teams.
  - Developed crystal-controlled oscillators using both discrete and ASIC designs.
- Microelectronic Process Engineer, MtronPTI, Yankton, SD, 2002 - 2004.
  - Developed and improved manufacturing processes.
  - Responsible for thick film, automated component placement, solder reflow and wash process, gold ball wirebonding, and die bonding departments.
- Electrical Engineer, Tyson Foods Inc., Dakota Dunes, SD, 2002.
  - Conducted electrical power studies at existing facilities to assess plant electrical system health.
  - Wrote in-house reports detailing overall condition of plant electrical system that were used to correct electrical and safety deficiencies as well as justification of capital expenditures.
- Research and Development Engineer, Microconversion Technologies, Brookings, SD, 1998-2000
  - Developed wireless RF system to interrogate a passive surface acoustic wave sensor.
  - Developed packaging processes for a surface acoustic wave dewpoint hygrometer.

Current Course Responsibilities

- EE260 Electronic Materials.
- EE300/L Basic EE I; Developed new curriculum and laboratories.
- EE302/L Basic EE II; Developed new curriculum and laboratories.
- EE320/L Electronics I.
- EE321/L Electronics II.

Previous Course Responsibilities

- EE101L; Developed new curriculum to engage and inspire freshman students.
- EE360 Electronic Devices
- GE109L; Developed Arduino controlled robot car and associated courseware.

Service Activities

- Robotics Club; faculty advisor (2014 – present)
- Sigma Phi Delta; faculty advisor (2016 – present)
- EE Summer Camp
    - Camp director (2019 – present)
    - Organized and staffed the BBQ on the final day of the camp. Organized and procured components for the camp. Developed, coordinated, and staffed the photovoltaic cell fabrication session. (2014 to present)
- BEST Robotics
    - Hosted a summer BEST seminar for students and teachers. Developed and led sessions on basic electronics, soldering, and Simulink. (2019)
    - Presented a seminar on "Advanced Simulink" and coordinated a "Basic Simulink" seminar volunteer presenter for BEST kickoff day. (2018-present)
    - Developed procedures that enabled volunteer labor to test the batteries and consumable materials. Coordinated and managed volunteers. (2018 to present)
    - Game Day Judge (2013 – present)
- Summer Scholars; developed and led the EE sessions for prospective college students (2018 – present)
- Invited speaker on Renewable Energy and Photovoltaic Systems with laboratory tour; South Dakota Rural Electric Association Member Services group (2018)
- Engineering the Future: Summer Workshop for Teachers (2014)
- Electrical Engineering Presentations to Cub Scouts (2014)

Honors and Awards

- Greek System Faculty of the Month (February 2020)
- Excellence in Service Award, SDSU EE&CS Department (2014)

Publications

1. Ahmed A. El-magrous, Jason D. Sternhagen, Gary Hatfield, and Qiquan Qiao, "Internet of Things Based Weather-Soil Sensor Station for Precision Agriculture," 2019 IEEE EIT conference, May 2019. Third place in conference best paper award.

2. S. Chalise, J. Sternhagen, T. Hansen, R. Tonkoski, “Energy Management of Remote Microgrids Considering Battery Lifetime,” The Electricity Journal (Elsevier), vol. 29, 2016.

3. S. Nepal, A. Shakya, R. Fourney, J. Sternhagen, and R. Tonkoski, “Development of Real-time control of Commercial Off-The-Shelf Inverter/ Charger for Energy Management of Microgrids,” Accepted for presentation at the IEEE PES General Meeting 2016, Boston, 2016.

4. R. Fourney, J. Sternhagen, G. Hamer, and C. Mettler, “Implementing a Freshman Experience in Electrical Engineering,” 2013 ASEE North Midwest Section Conference, October 2013.

5. S. Chalise, F. B. Dos Reis, J. Sternhagen, and R. Tonkoski, “Power Management Strategies for Microgrids with High Penetration of Renewables,” Fifth International Conference on Power and Energy Systems, Kathmandu, Nepal, October 2013.

6. Y. Bhandari, S. Chalise, J. Sternhagen, and R. Tonkoski, “Reducing Fuel Consumption in Microgrids using PV, Batteries, and Generator Cycling,”, 2013 IEEE International Conference on Electro/ Information Technology (EIT), May 2013.

7. Kraig D. Mitzner, Jason Sternhagen, David W. Galipeau, “Development of a Micromachined Hazardous Gas Sensor Array,” Sensor s and Actuators B: Chemical, August 2003.

8. J. D. Sternhagen, Kraig D. Mitzner, Eric J. Berkenpas, Wade Kempf, and David W. Galipeau, “A Study of a Micromachined Sensor Array for Automotive Emissions,” Proceedings International Symposium on Microelectronics, 2002.

9. J. D. Sternhagen, C. E. Wold, W. Kempf, M. Karlgaard, K. D. Mitzner, R. D. Mileham, and D. W. Galipeau, “A Novel Integrated Acoustic Gas and Temperature Sensor”, IEEE Sensors Journal, August 2002.

10. J. D. Sternhagen, K. D. Mitzner, E. Berkenpas, M. Karlgaard, C. E. Wold, D. W. Galipeau, “A Direct Digital Synthesis System for Acoustic Wave Sensors,” IEEE Sensors Journal, August 2002.

11. J. D. Sternhagen, A Study of Micromachined Gas Sensor Arrays for Automotive Emissions, Masters Thesis, Electrical Engineering Department, South Dakota State University, 2001.

12. K. Mitzner, E. Berkenpas, J. Sternhagen, M. Karlgaard, C. Wold, and D. Galipeau, “A Direct Digital Synthesis System for Surface Acoustic Wave Sensors,” Proceedings of the 2001 IEEE International Frequency Control Symposium and PDA Exhibition, June 2001.

13. C. E. Wold, J. D. Sternhagen, R. D. Mileham, K. D. Mitzner, and D. W. Galipeau, “Temperature Measurement Using Surface Skimming Bulk Waves,” IEEE Ultrasonics Symposium, 1999.

14. R. D. Mileham, J. D. Sternhagen, and D. W. Galipeau, “Surface Acoustic Wave Thermogravimetric Measurements of Thin Polymer Films,” IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, vol. 45, no. 5, September 1998.

15. R. D. Mileham, J. D. Sternhagen, and D. W. Galipeau, “Thermal Characterization of Thin Polymer Films Using a Surface Acoustic Wave Sensor,” Proceedings International Symposium on Microelectronics, 1997.

Synergistic Activities

- Instructor and curriculum development for GE109L First Year Seminar Laboratory.
- Instructor and curriculum development for EE102 Introduction to Electrical Engineering
- Instructor and curriculum development for Engineering the Future Summer Workshop for High School Teachers, 2014.
- Renewable Energy Microgrid Laboratory Management
- Microelectronic Cleanroom Laboratory Management

Collaborators and Co-Editors:

Yogesh Bhandari (Cummins)

Santosh Chalise (South Dakota State University)

Lew Christopher (Center for Bioprocessing Research and Development)

Fernando. B. Dos Reis (Federal University of Santa Catarina - Brazil)

Jikai Du (South Dakota State University)

Shawn Duan (South Dakota State University)

Damon Fick (South Dakota School of Mines and Technology)

Robert Fourney (South Dakota State University)

David Galipeau (South Dakota State University)

Stephen Gent (South Dakota State University)

George Hamer (South Dakota State University)

Todd Letcher (South Dakota State University)

Cory Mettler (South Dakota State University)

Qiquan Qiao (South Dakota State University)

Alevtina Smirnova (South Dakota School of Mines and Technology)

Wei Sun (South Dakota State University)

Reinaldo Tonkoski (South Dakota State University)

Graduate Advisor:

Master’s Advisor: Dr David W. Galipeau. Professor of Electrical Engineering. South Dakota State University.

Paula L. Kurtenbach

Paula.Kurtenbach@sdstate.edu

EDUCATION

South Dakota State University, Brookings, SD: 9/07-5/11
Completed 24 credits toward a PhD in Computational Science and Statistics, Cumulative Graduate GPA: 4.00/4.00

South Dakota State University, Brookings, SD: 9/00-5/02
MS Engineering with Computer Science emphasis. May of 2002, Cumulative Graduate GPA: 4.00/4.00
Thesis: Real-Time Control with Handheld Computers Running Palm OS

South Dakota State University, Brookings, SD: 1/93-5/94, 9/80-5/85
BS in Math with Secondary Education, May of 1994.
BS in Electrical Engineering with minor in Computer Science, May of 1985.
Total Cumulative GPA: 3.6/4.00

TEACHING EXPERIENCE

Computer Science Instructor, SDSU: 8/05 to Present
Taught CSC 150 (C programming), CSC 250 (C++ Programming), CSC 300 (Data Structures), CSC 244 (Digital Logic) to students in a smart classroom face-to-face instructional setting.
Have taught CSC 150 completely on-line with D2L.
Currently teaching CSC 150, CSC 250, and CSC 300 using a blended delivery of Zoom connections and D2L delivery of notes recorded with Camtasia.
Wrote a CSC 150 on-line course for delivery in WebCT/D2L starting Spring 2007.
Develop & Maintain WebCT/D2L shells to support face-to-face classes.
Help with the Ready, Set, Go and GEMS workshops for middle & high school girls held at SDSU.
Helped with "Our Place in Space" workshops funded through a SD Board of Regents No Child Left Behind Grant for Summer 2007 with follow-ups during the 200-08 school year. Grant provides training & hands-on activities for 7-12 Math & Science Teachers. Served as Math consultant and presented activities.
Served as a member of the interview team for the SDSU Briggs Scholarships, Spring 2007.

Distance Teacher, DIAL ILC Project, Flandreau, SD: 7/02 to 7/06
Taught ITV distance courses over the DDN, using VTEL equipment and on-line courses using both WebCT and Blackboard course shells.
Taught Math courses for Flandreau School District in a face-to-face setting using VTEL display equipment.
Wrote three semester long technology courses using WebCT.
Presented sessions on distance teaching at the 2003 SD Math/Sci Conference, 2004 SD TIE Conference, WebCT Impact 2005 User Conference.
Helped at the 04 & 05 "Activity Based Math Across the Curriculum" workshops in Sioux Falls.
Presented WebCT workshops, Spring & Summer 06. Conducted 1-on-1 WebCT training Summer 04, 05 & 06.

Courses Taught	Algebra 1	8/02-5/03
	Algebra 2	8/02-5/03 & 8/04-5/05
	Functions/Trig/Pre-Calc	8/02-5/05
	Earth Science	8/02-5/04
	Integrated Math, Intro to Technology	8/03-5/04
	Digital Photography (Photoshop 7)	1/04-5/04
	Web Design 1 (Dreamweaver MX 2004)	8/03-1/04 & 8/04-1/05
	Web Design 2 (Flash MX 2004)	1/05-5/05
	Pre-Calc 1 & Pre-Calc 2 (Face to Face)	8/04-5/05

Graduate Teaching Assistant, SDSU, Brookings, SD: 9/00 to 5/01

Courses Taught	Intermediate Algebra	9/00-12/00
	Trigonometry	1/01-5/01

Teacher, Pipestone/Jasper High School, Pipestone, MN: 8/94 to 6/00

Courses Taught	Adv Math Concepts, Algebra 2	9/98-6/00
	Geometry	9/94-6/98
	Algebra/Geometry	9/95-6/98
	Math for Living	9/96-11/96, 9/98-6/00
	Computer Programming	9/94-6/95, 1/97-6/97, 9/99-1/00
	Physics	11/96-1/97
School Activities	Math Department Head	9/98-6/00
	Math League Coach	9/94-6/00
	National Honor Society Advisor	9/96-6/00
	District Technology Committee	9/94-5/98

Student Teacher, Flandreau Public High School, Flandreau, SD: 2/94 to 4/94
Courses Taught: Algebra 1, Computer Science 1, and Geometry.

ENGINEERING EXPERIENCE

Software Engineer, Daktronics Inc., Brookings, SD:
Summer '07, 5/01 to 7/02, Summer '00, '98, '97, '96, '95, '94, 11/92 to 1/94
Developed C++ code for new in-board controller, using Visual C++ and Microsoft Windows. Developed a 'Palm' handheld computer application to control Daktronics scoreboards in real-time using CodeWarrior for PalmOS and Microsoft Windows. Developed computer software to convert sports statistics and information for display on Daktronics scoreboards and to import and export roster information as part of a sports statistics program using Visual C++ and Microsoft Windows. Developed test scripts for a sports statistics program using Visual Test / Visual Basic and Microsoft Windows. Updated a computerized results system for drag racing using C and DOS. Work included obtaining input from customers, writing software, writing manuals, documenting and testing product and instructing customers in the use of the software.

Software Engineer Quantum Medical Systems, Issaquah, WA: 3/89 to 10/92
Member of the software engineering group. Created software to control an ultrasound imaging system. Coordinated tasks with marketing, research, and manufacturing, also documented and tested software. Integrated VCR's and cameras. Wrote software in 'C' language on Sun workstations, running UNIX for a 68020 based embedded system.

Temporary Software Engineer, NAMSI, Inc., Tacoma WA: 11/88 to 3/89
Helped to configure and administrate an IBM PC-RT computer network for the engineering department. Company designs & manufactures fingerprint matching systems.

Software Engineer, BDM Corporation, Tacoma WA: 1/87 to 11/88
Developed software for a military communications network. Wrote software in C, Pascal, and PL/M languages on Sun and Grid Compass (Similar to IBM PC) computers. Work included developing embedded software for a 68000/68020 target. Tasks included user training.

Electronics Engineer, NCSC, Panama City, FL: 7/85 to 10/86
Developed software to acquire real-time data from transducers. Programmed in BASIC on Hewlett-Packard Personal Computers. Wrote manuals & trained users.

Kwanghee Won, Ph.D.

Assistant Professor
Department of Electrical Engineering and Computer Science
South Dakota State University
Box 2222, DEH 127, Brookings, SD 57007, kwanghee.won@sdstate.edu

A. Professional Preparation

Kyungpook National University, South Korea, Computer Engineering, Ph.D., 2013
Dissertation: Geometric modeling of road scenes by stereo matching and labeling
Kyungpook National University, South Korea, Computer Engineering, M.S., 2007
Thesis: Natural image matting through neighbor embedding
Kyungpook National University, South Korea, Computer Engineering, B.S., 2005

B. Appointments

2018-Present Assistant professor, Electrical Engineering and Computer Science, South Dakota State University (SDSU), Brookings, SD

2018-2018 Lecturer, Electrical Engineering and Computer Science, South Dakota State University (SDSU), Brookings, SD

2017-2017 Postdoctoral Research Associate, Civil Engineering, University of Nebraska-Lincoln, Lincoln, NE

2015-2016 Research Scholar, Computer Science, University of Nebraska-Omaha, Omaha, NE

2014-2015 Senior Researcher, DGIST, Daegu, South Korea.

C. Products

Won, K., Sim, C., (2020) "Automated Transverse Crack Mapping System with Optical Sensors and Big Data Analytics," Sensors 20(7), p. 1838, 2020

Shin, S., **Won, K.**, and Shin, S., (2020) "Size Efficient Preprocessed Symmetric RSA for Wireless Body Area Network," ACM Applied Computing Review, 20(1), 15-23, 2020

Lee, C., Choi, S., Kim, J.Y., and **Won, K.**, (2019) "Instance Segmentation in Urban Scenes using Inverse Perspective Mapping of 3D Point Clouds and 2D Images," Proceedings of the ACM Conference on Research in Adaptive and Convergent Systems.

Lee, J.Y., Sim, C., Detweiler, C., and **Won, K.**, (2019) "Computer-Vision based UAV Inspection for Steel Bridge Connections," Proceedings of the 12th International Workshop on Structural Health Monitoring, IWSHM 2019.

Shin, S., Choi, S., **Won, K.**, and Shin, S., (2019) "Preprocessed Symmetric RSA Authentication for Wireless Body Area Networks in Space," Proceedings of the ACM Conference on Research in Adaptive and Convergent Systems 2019.

Won, K. and Sim, C. (2018), "Using Deep Convolutional Neural Network to Develop Full-depth Transverse Crack Mapping System," Engineering Mechanics Institute Conference (EMI 2018), Boston, 2018.

Suh, S.H., Jhang, J.E., **Won, K.**, Shin, S.Y., and Sung, C.O., (2018) "Development of Vegetation Mapping with Deep Convolutional Neural Network," Proceedings of the ACM Conference on Research in Adaptive and Convergent Systems 2018.

Kim, D., Lee, J., Yoon, J.S., Lee, K.J., and **Won, K.**, (2018) "Development of Automated 3D Knee Bone Segmentation with Inhomogeneity Correction for Deformable Approach in Magnetic Resonance Imaging," Proceedings of the ACM Conference on Research in Adaptive and Convergent Systems 2018.

Won, K., and Sim, C., (2017), "Interactive Control of a Flying Robot for Bridge Inspection," UKC 2017 Conference, Korean-American Scientists and Engineers Association, Washington D.C., 2017 (Poster award)

Youn I.H, **Won, K,** Youn, J.H., and Scheffler, J, (2016) "Wearable sensor-based biometric gait classification algorithm using WEKA," Journal of information and communication convergence engineering 14 (1), 45-50.

Won, K, and Jung, S.K., (2015) "Real-time 3D Cube Detection and Tracking using Depth Sensor for Interactive Augmented Reality System," IEEE International Conference on Consumer Electronics, 2015.

Won, K, Son, J., and Jung, S.K., (2014) "Stixels Estimation through Stereo Matching of Road Scenes," Proceedings of the ACM Conference on Research in Adaptive and Convergent Systems.

Jang, J.S., **Won, K.**, and Jung, S.K., (2013) "Rotation Estimation for Visual Odometry using 3D Vector Correspondence," 39th Annual Conference of the IEEE Industrial Electronics Society (IEEE IECON 2013), Austria.

Park, H.S., Park, M.W., **Won, K.**, Kim, K.H., and Jung, S.K., (2013) "In-Vehicle AR-HUD System to Provide Driving-Safety Information," ETRI Journal, 35(6), 1038-1047.

Won, K, Park, SY, and Jung, S.K. (2013) "Adaptive local color correction for stereoscopic three-dimensional displays," Journal of Electronic Imaging 22 (3), 033026.

Won, K, and Jung, S.K., (2012) "Billboard Sweep Stereo for Object Detection in Road Scenes," Electronics Letters, 48(24), 1528-1530.

D. Reviewer Activities

Journal of Supercomputing
Journal of Nondestructive Evaluation
IEEE Transactions on Vehicular Technology

E. Patent work

S.K Jung and **K. Won,** (2016) "Apparatus for estimating of vehicle movement using stereo matching," US Patent 9,373,175

S.K. Jung, and **K. Won,** (2013) "Object detection using the ground plane based dense stereo disparity map (South Korea, 10-1317839-00-00, Grant) Oct. 7, 2013

S.K. Jung, S.-Y. Park, and **K. Won**, (2013) "Color correction method and apparatus for stereoscopic image," (Suth Korea, 10-1295782-00-00, Grant) Aug. 6, 2013

F. Synergistic Activities

1. Served as the supervisor of the research of graduate and undergraduate students at SDSU and mentoring dissertation research of PhD students at University of Nebraska Lincoln

2. Currently working on a NASA EPSCoR Research Initiation Grant, titled "Developing visual-based distributed state estimation for swarm formation flying of small satellites", as an Institutional PI at SDSU with the PI and collaborators at South Dakota School of Mines and Technology. The objective is to investigate on deep reinforcement learning-based approaches for small satellites formation mission.

3. Working on a NASA EPSCoR (Award: 80NSSC18M0022) project, titled "Wireless body area network in Space: development of wireless health monitoring system with new-flexible sensors" as a Co-Investigator. It is a collaborative project with chemistry and applied biological science faculty at South Dakota School of Mines and Technology.

4. Working with collaborators in animal science department at SDSU on a research project supported by South Dakota Agricultural Experiment Station as a PI. The objective is to develop a deep 3D generative model for livestock animal applications.

5. Published papers in peer-reviewed conference proceedings and journals in the areas of image processing, computer graphics, and computer vision: Algorithms for efficient 3D reconstruction using geometric properties of scenes; Deep neural networks for real-time instance segmentation using 2D and 3D data; SLAM-based map generation system for automated bridge inspection; Development of a parallel algorithm for stereo-view 3D reconstruction on GPU; Visual odometry by utilizing geometric feature classification.

Larry Leigh
Imaging Engineer II **South Dakota State University** **Larry.Leigh@sdstate.edu**

Professional Preparation

Institution	Major Degree	Year
South Dakota State Univ., Brookings SD	Mechanical Engineering B.S.	1998
South Dakota State Univ., Brookings SD	Mechanical Engineering M.S.	2000

Appointments

2019-present	Director, Image Processing Lab, SDSU, Brookings, SD
2016-06/2019	Assistant Director, Image Processing Lab, SDSU, Brookings, SD
2002-present	Imaging Engineer II, Image Processing Lab, SDSU, Brookings, SD

Products

PRODUCTS MOST CLOSELY RELATED

1. Shrestha, Mahesh, Larry Leigh, and Dennis Helder. 2019. “Classification of North Africa for Use as an Extended Pseudo Invariant Calibration Sites (EPICS) for Radiometric Calibration and Stability Monitoring of Optical Satellite Sensors.” *Remote Sensing* 11 (7): 875. https://doi.org/10.3390/rs11070875.
2. Jing, Xin, Larry Leigh, Cibele Teixeira Pinto, and Dennis Helder. 2019. “Evaluation of RadCalNet Output Data Using Landsat 7, Landsat 8, Sentinel 2A, and Sentinel 2B Sensors.” *Remote Sensing* 11 (5): 541. https://doi.org/10.3390/rs11050541.
3. Ryan, Robert, Mary Pagnutti, Kara Burch, Larry Leigh, Timothy Ruggles, Changyong Cao, David Aaron, Slawomir Blonski, and Dennis Helder. 2019. “The Terra Vega Active Light Source: A First Step in a New Approach to Perform Nighttime Absolute Radiometric Calibrations and Early Results Calibrating the VIIRS DNB.” *Remote Sensing* 11 (6): 710. https://doi.org/10.3390/rs11060710.
4. Angal, Amit, Xiaoxiong Xiong, Dennis Helder, Morakot Kaewmanee, and Larry Leigh. 2018. “Assessing the Calibration Differences in the Reflective Solar Bands of Terra MODIS and Landsat-7 Enhanced Thematic Mapper Plus.” *Journal of Applied Remote Sensing* 12 (04): 1. https://doi.org/10.1117/1.JRS.12.044002.
5. Teixeira Pinto, Cibele, Mahesh Shrestha, Dennis Helder, Larry Leigh, and Nahid Hasan. 2018. “SBAF for Cross-Calibration of Landsat-8 OLI and Sentinel-2 MSI over North African PICS.” In *Earth Observing Systems XXIII*, edited by James J. Butler, Xiaoxiong (Jack) Xiong, and Xingfa Gu, 34. SPIE. https://doi.org/10.1117/12.2321203.
6. Barsi, Julia A., Bahjat Alhammoud, Jeffrey Czapla-Myers, Ferran Gascon, Md. Obaidul Haque, Morakot Kaewmanee, Larry Leigh, and Brian L. Markham. 2018. “Sentinel-2A MSI and Landsat-8 OLI Radiometric Cross Comparison over Desert Sites.” *European Journal of Remote Sensing* 51 (1): 822–37. https://doi.org/10.1080/22797254.2018.1507613.
7. McCorkel, Joel, Charles M. Bachmann, Craig Coburn, Aaron Gerace, Larry Leigh, Jeff Czapla-Myers, Dennis Helder, and Bruce Cook. 2017. “Overview of the 2015 Algodones Sand Dunes Field Campaign to Support Sensor Intercalibration.” *Journal of Applied Remote Sensing* 12 (01): 1. https://doi.org/10.1117/1.JRS.12.012003.
8. Teixeira Pinto, Cibele, Sandeep Chittimalli, Larry Leigh, Timothy Ruggles, and Dennis L. Helder. 2017. “A Reflectance-Based Cross Calibration of the Landsat Sensors.” In *Earth Observing Systems XXII*, edited by James J. Butler, Xiaoxiong (Jack) Xiong, and Xingfa Gu, 21. SPIE. https://doi.org/10.1117/12.2275993.

9. Pinto, Cibele T., Flávio J. Ponzoni, Ruy M. Castro, Larry Leigh, Morakot Kaewmanee, David Aaron, and Dennis Helder. 2016. “Evaluation of the Uncertainty in the Spectral Band Adjustment Factor (SBAF) for Cross-Calibration Using Monte Carlo Simulation.” *Remote Sensing Letters* 7 (9): 837–46. https://doi.org/10.1080/2150704X.2016.1190474.
10. Pinto, Cibele, Flávio Ponzoni, Ruy Castro, Larry Leigh, Nischal Mishra, David Aaron, and Dennis Helder. 2016. “First In-Flight Radiometric Calibration of MUX and WFI on-Board CBERS-4.” *Remote Sensing* 8 (5): 405. https://doi.org/10.3390/rs8050405.
11. Wenny, Brian, Dennis Helder, Jungseok Hong, Larry Leigh, Kurtis Thome, and Dennis Reuter. 2015. “Pre- and Post-Launch Spatial Quality of the Landsat 8 Thermal Infrared Sensor.” *Remote Sensing* 7 (2): 1962–80. https://doi.org/10.3390/rs70201962.
12. Mishra, Nischal, Md Haque, Larry Leigh, David Aaron, Dennis Helder, and Brian Markham. 2014. “Radiometric Cross Calibration of Landsat 8 Operational Land Imager (OLI) and Landsat 7 Enhanced Thematic Mapper Plus (ETM+).” *Remote Sensing* 6 (12): 12619–38. https://doi.org/10.3390/rs61212619.
13. Mishra, Nischal, Md Haque, Larry Leigh, David Aaron, Dennis Helder, and Brian Markham. 2014. “Radiometric Cross Calibration of Landsat 8 Operational Land Imager (OLI) and Landsat 7 Enhanced Thematic Mapper Plus (ETM+).” *Remote Sensing* 6 (12): 12619–38. https://doi.org/10.3390/rs61212619.
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17. Ozen, H., N. Fox, A. Deadman, I. Behnert, P. Harris, S. Gurbuz, L. Yuan, et al. 2012. “Comparison of Radiometric Gain of Optical Satellite Sensors Using Tuz Golu Radiometrically Calibrated Test Site.” In *2012 IEEE International Geoscience and Remote Sensing Symposium*, 1120–23. IEEE. https://doi.org/10.1109/IGARSS.2012.6351352.
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20. Kaewmanee, M, L Leigh, C Musana, and P Kietleadseree. 2012. “Inter-Comparison of Theos and Landsat-5 TM over the Libya 4 Pseudo-Invariant Calibration Site.” 2012.

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22. "Calibration of Satellite Imagery, Recalibration of the Past, Through the Present and into the Future Using Invariant Sites | Larry Leigh | Request PDF." n.d. Accessed June 27, 2019. https://www.researchgate.net/publication/256097739_Calibration_of_Satellite_Imagery_Recalibration_of_the_Past_Through_the_Present_and_into_the_Future_Using_Invariant_Sites.
23. Boucher, Y., F. Viallefont, A. Deadman, N. Fox, I. Behnert, D. Griffith, P. Harris, et al. 2011. "Spectral Reflectance Measurement Methodologies for Tuz Golu Field Campaign." In *2011 IEEE International Geoscience and Remote Sensing Symposium*, 3875–78. IEEE. https://doi.org/10.1109/IGARSS.2011.6050077.
24. Leigh, L., D. Helder, I. Behnert, A. Deadman, N. Fox, U. M. Leloglu, H. özen, and Derek Griffith. 2011. "Tuz Gölü Site Characteristics." In *2011 IEEE International Geoscience and Remote Sensing Symposium*, 3871–74. IEEE. https://doi.org/10.1109/IGARSS.2011.6050076.
25. Chang, Jiyul, David E. Clay, Larry Leigh, David Aaron, Kevin Dalsted, and Mark Volz. 2008. "Evaluating Modified Atmospheric Correction Methods for Landsat Imagery: Image-Based and Model-Based Calibration Methods." *Communications in Soil Science and Plant Analysis* 39 (9–10): 1532–45. https://doi.org/10.1080/00103620802006669.
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27. Schell, Andrew, Larry Leigh, and Michael Tinker. 2002. "Deployment, Foam Rigidization, and Structural Characterization of Inflatable Thin-Film Booms." In *43rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*. Reston, Virigina: American Institute of Aeronautics and Astronautics. https://doi.org/10.2514/6.2002-1376.
28. Schell, Andrew, Larry Leigh, and Michael Tinker. 2002. "Deployment, Foam Rigidization, and Structural Characterization of Inflatable Thin-Film Booms." In *43rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*. Reston, Virigina: American Institute of Aeronautics and Astronautics. https://doi.org/10.2514/6.2002-1376.
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30. Leigh, Larry, Hamid Hamidzadeh, Michael Tinker, and Kara Slade. 2001. "Dynamic Characterization of an Inflatable Concentrator for Solar Thermal Propulsion." In *19th AIAA Applied Aerodynamics Conference*. Reston, Virigina: American Institute of Aeronautics and Astronautics. https://doi.org/10.2514/6.2001-1406.
31. COMPARISON OF SATELLITE IMAGERS USING TUZ GÖLÜ AS A REFERENCE STANDARD, Sept 2012, Remote Sensing and Spatial Information Sciences,

Synergistic activities

1. For over fifteen years, my research at SDSU has involved satellite calibration fieldwork with subsequent data analysis. Through this work, the team has calibrated and validated satellites launched by numerous USA and international commercial and governmental work. This work has provided the cornerstone for satellite incomparability and for the starting basis for ground level product generation.

2. I serve as the assistant director of the Image Processing lab overseeing the team that is conducting ground-breaking research on the removal of atmospheric effects on spaceborne imagery via the use of historical and current world meteorological and atmospheric data archives. This work has been highlighted in several M.S. level theses.

3. Through the day-to-day-operational leading of the Image Processing Lab, we further refine new and innovate techniques for vicious calibration of the growing number of satellites on orbit. This involves techniques aimed at the restraints found on small and cube sat missions, but "converting large portions of the globe into" reflectance standards.

4. I have participated in both national and international field campaigns where the goal was to better characterize and understand inherent differences between the calibrations of on-orbit imaging sensors.

Thesis advising

Continue to play an important role in driving student research and involvement through advising students at the B.S., M.S. and Ph.D. levels:

Harika Vuppila (M.S. SDSU), Ashish Shrestha (M.S., SDSU), Suman Bhatta (M.S., SDSU), Sanjog Sharma (M.S., SDSU), Sudeep Karanjit (M.S., SDSU), Sandip Shrestha (M.S., SDSU), Gyanesh Chander (Ph.D., EROS), Sadhana Karki (M.S., SDSU), Nischal Mishra (M.S., SDSU), Dinesh Shilpakar (M.S., SDSU), Alok Kumar Shrestha (M.S., SDSU), Bikash Basnet (M.S., SDSU), Rajendra Bhatt (M.S., SDSU), Sirish Uprety (M.S., SDSU), Daniel Morstad (M.S., SDSU), Rimy Malla (M.S., SDSU)
A total of ~20 M.S. students and 1 Ph.D. student have been advised

Morakot Kaewmanee

Research Associate- Imaging Engineer II

SDSU Image Processing Laboratory

South Dakota State University

Brookings, SD, 57007

Morakot.kaewmanee@sdstate.edu,605-651-4528

Research Interests

- Satellites radiometric calibration using Pseudo-Invariant Calibration Sites
- Vicarious Radiometric Calibration of optical imaging sensors
- Development of Pseudo-Invariant Calibration Sites Normalization techniques
- Development of empirical absolute calibration using satellite geometry and satellite radiometric characteristics on PICS

Education

M.S. Spatial Information System in Engineering

Chulalongkorn University, Bangkok, Thailand, 2003

B.S. Land Information (Surveying)

Royal Melbourne Institute of Technology, Melbourne, Australia, 1996

Training

Certificate of Image Processing, Beihang University, Beijing, China, 2009

Certificate of Space School, EADS Astruim, Toulouse, France, 2005-2006

Research Experience

SDSU Image Processing Laboratory, South Dakota State University, Mar 2012-Present

- Development of Absolute Calibration Model for Extended PICS, provide calibration opportunity on a daily basis with accuracy within 5%.

- Improve SDSU Absolute Calibration Model on PICS-Libya4, to predict ToA Reflectance with accuracy of 3%.
- Development of Spatial and Temporal Maps for the Normalization PICS (Pseudo-Invariant Calibration Sites).
- Uncertainty Evaluation of Spectral Band Adjustment Factor (SBAF) for Cross-Calibration Using Monte Carlo Simulation.
- Solar Models Differences and the effect on ESUN values for the conversion of at sensor spectral radiance to exoatmospheric TOA Reflectance.
- The Effect of Extraterresterial Solar Model and Spectral Differences on Cross Calibration.
- Inter-comparison: Thaichote, LANDSAT5 TM over Libya4 Pseudo Invariant Calibration Site.

Synergistic Activities

- ***Landsat Technical Interchange Meeting (TIM),*** Reported work update on Landsat 7, Landsat 8, Sentinel 2A Sentinel 2B radiometric calibration utilizing PICS to Landsat Technical Interchange Meeting twice a year since 2015, leading to new innovation calibration technique to perform absolute calibration for any optical sensors using PICS in the whole Northern Africa as a target.
- ***Collaborattion with the PICSCAR*** project (Pseudo Invariant Calibration Sites Characterization of Radiometric Assessment) in collaboration with ESA (European Space Agency)under the auspices of CEOS/WGCV/IVOS, Committee of Earth Observation System/Working Group on Calibration and Validation/Infrared Visible and optical Sensors, to improve the usage of PICS and better understanding of sensors and inter-comparison sensors performance since 2017.
- ***A guest lecturer at SDSU*** in Advanced Image processing EE792 and Remote Sensing Engineering course EE575 since 2018.
- ***Presentation of research works*** at numerous conferences at national and international level on the topics of Satellite calibration, including at Asian Conference for Remote Sensing (2012, 2013), CALCON (2017, 2018), PECORA (2017), JACIE (2018), Landsat Ground Station Operations Working Group Workshop, CEOS-WGCV IVOS meetings, CEOS-WGCV and WGISS meetings during 2009-2011.
- ***Supervising graduate students*** to complete their master thesis pursuing Master

degree in Electrical Engineering since 2016.

Work Experience

Visiting Scientist/ Imaging Engineer, **Mar 2012-Present**

SDSU Image Processing Laboratory

- Supervise graduate students, master thesis and journal papers
- Absolute Calibration using PICS and Extended PICS
- Cross calibration satellites using PICS : Thaichote, Landsat5 TM, Sentinel-2A, 2B, OLI
- Vicarious Calibration Campaign at Algodones Dunes, California, 2015
- Vicarious calibration : field preparation and data collection
- Satellite Absolute Calibration using SDSU Absolute Calibration Model : Landsat7, OLI, Sentinel 2A, 2B, Planets
- Maintain and work on Landsat1-7 Image Assessment System for Landsat Satellites trending over PICS

Image Ground Segment Engineer, **Oct 2004-Dec 2011**

Geo-Informatics and Space Technology Development Agency (Public Organization)

Bangkok, Thailand

- Established Image Ground Segment for THEOS Satellite at Siracha, Thailand and International Ground receiving Station at Mi Yuan Station, China and Kiruna Sweden
- Supervised and operated the THEOS telemetry acquisition and production.
- Supervised the THEOS Image Quality activities, Calibration and Validation
- THEOS Ground Segment System, administrated and maintained the health of the system.
- GISTDA representative to participate at WGCV,WGISS, IVOS meetings and UNOOSA,

Research Associate, **2004**

Asian Institute Technology (A.I.T.), Bangkok, Thailand

- Watershed Analysis , Nam Ko and Nam Khun ,Petchaboon using Aster DEM and SRTM DEM
- Prepared digitization materials for ArcGIS tutorials to train the employees
- Mosaicking Quickbird images for digitizing work
- Supervised students, digitizing work and attribute data
- Quality check the digitizing work and attribute data.

Survey Engineer **1997-1998 & 2000-2004**

Krungthep Engineering Consultant , Bangkok, Thailand

- Topographic survey and route survey
- Drainage Catchment analysis using GIS, Bangkok Flood Prevention Project
- Supervised and managed surveying contracts
- Client negotiation and customer service relations Supervise and coordinate survey projects i.e. Topographic survey, Construction Engineer
- Analyzed survey data and prepared survey reports

Hydrographic Survey Engineer **1998-1999**

UDL Marine Operations (Thailand) Ltd., Rayong, Thailand

- Marine Hydrographic survey work , Map Ta Phut, Thailand
- Prepared and performed hydrograhich survey plan using GPS and Echo sounder
- Data processing using Hydro Program
- Prepared report for cut/fill dredging volume calculation

Papers/Publications

- Farhad, M.M.; **Kaewmanee, M**.; Leigh, L.; Helder, D. *Radiometric Cross Calibration and Validation Using 4 Angle BRDF Model between Landsat 8 and Sentinel 2A. Remote Sens.* **2020**, *12*, 806.
- Raut, B.; **Kaewmanee, M**.; Angal, A.; Xiong, X.; Helder, D. *Empirical Absolute Calibration Model for Multiple Pseudo-Invariant Calibration Sites. Remote Sens.* **2019**, *11*, 1105.

- Angal, A., Xiong, X, Helder, D, **Kaewmanee, M.,** Leigh, L., *Assessing the Calibration differences in the reflective solar bands of Terra MODIS and Landsat-7 enhanced thematic mapper plus*, J. of Applied Remote Sensing, 12(4),044002 **2018**.
- Barsi, J.A., Alhammoud, B., Czapla-Myers, J., Gascon, F, Haque, Md., **Kaewmanee, M.,** Leigh, L., Markham, B.L., *Sentinel-2A MSI and Landsat-8 OLI radiometric cross comparison over desert sites*, European Journal of Remote Sensing, 51:1, 822-837, **2018**
- Pakat, A, Hui, D., **Kaewmanee, M**., Helder, D., *Cross calibration Thaichote and Landsat 8 over Libya4 using pseudo invariant calibration sites (PICS)*, 2017 IEEE International Conference on Applied System Innovation, Sapporo, Japan, May 13-17, **2017**.
- Pinto C T., Ponzoni F, Castro R, Leigh L, **Kaewmanee M** , Aaron D, Helder D, ”Uncertainty Evaluation of Spectral Band Adjustment Factor (SBAF) for Cross-Calibration Using Monte Carlo Simulation”, Remote Sensing Letter, 2016

Conference papers/Presentations

- **Kaewmanee, M**., Pseudo Invariant Calibration Sites: PICS Evolution, CALCON, Logan, UT, 2018. (Workshop)
- **Kaewmanee, M**., Refined Absolute PICS Calibration Model over Libya-4 using Sentinel2A, S2B and Landsat 7, 8 Collection-1 data for Validation, PECORA 20 Conference, Sioux Falls, SD, November 2017.
- **Kaewmanee, M**., Vuppula, H., Helder, D., Improved Temporal Resolution of Pseudo Invariant calibration Sites (PICS) Through Development of the PICS Normalization Process, CALCON, Logan, UT, 2017.
- **Kaewmanee M**, Musana C., Kietleadseree P., “The Effect of Extraterresterial Solar Model and Spectral Differences on Cross Calibration”, ACRS-2013, Bali, Indonesia 2013,
- **Kaewmanee M,** Leigh L.,Musana C., Kietleadseree P., “Inter-comparison: Thaichote, LANDSAT5 TM over Libya4 Pseudo Invariant Calibration Site”,ACRS-2012, Pattaya, Thailand, 2012,
- **Kaewmanee, M.,** "THEOS: Operational Concept and Its Status APRSAF-16," APRRSAF-16,Bangkok, Thailand, January 26-29, 2010,
- Hu G, **Kaewmanee, M.,** F. Bignone, "Test and assessment of THEOS satellite capability for mapping",MapAsia-2009, Singapore,2009,

- R. Nutpramoon, **M. Kaewmanee**, S. Moukomla, "THEOS Calibration and Validation Plan," CEOS WGCV 27 Meeting, June 12-15, Middlesex, United Kingdom, 2007
- **M. Kaewmanee**, T. Choomnoommanee, R. Fraisse, "Thailand Earth Observation System: Mission and Products," Proceedings of ISPRS Commission I Symposium, Paris, France, July 4-6, 2006,

Computer Skills

Experience with Arcview, Erdas, ArcGIS, ENVI, MATLAB, Visual Basic, Ski Pro, GPSurvey.

Curriculum Vitae

Qiquan (Quinn) Qiao, Ph.D.

Harold C. Hohbach Professor
Director, EDA University Center
J. Lohr College of Engineering
South Dakota State University, Brookings, SD 57006
Tel: 605-688-6965, Fax: 605-688-4401
Email: qiquan.qiao@sdstate.edu
Web: https://www.sdstate.edu/electrical-engineering-and-computer-science/qiao-group

Google Scholar Citations: > 7,800
https://scholar.google.com/citations?hl=en&user=hk6BJvsAAAAJ&view_op=list_works&sortby=pubdate

Professional Preparation

Institution	Field	Degree	Year
University of Florida, Gainesville, FL	Chemistry	Post Doc	2007
Virginia Commonwealth Univ., Richmond, VA, USA	Mechanical Engineering	Ph.D.	2006
Shanghai Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, Shanghai, China	Engineering	M.S.	2003
Hefei University of Technology, Hefei, Anhui, China	Engineering Sensing & Instrumentation	B.S.	1999

Appointments

Institution	Position	Date
EDA University Center	Director	2018-present
Nano Tek, LLC	Founder	2018-present
South Dakota State University Brookings, SD, USA	Harold C. Hohbach Professor Graduate Coordinator	2017-present
South Dakota State University Brookings, SD, USA	Harold C. Hohbach Associate Professor and Graduate Coordinator	2016-2017
South Dakota State University Brookings, SD, USA	Associate Professor	2013-2016
South Dakota State University Brookings, SD, USA	Assistant Professor	2007-2012
University of Florida, Gainesville, FL, USA	Postdoc	2006-2007
Shanghai Institute of Optics & Fine Mechanics, Shanghai, China	Engineer	1999-2003

Awards and Recognitions

- 2019 Best Paper Award, EIT2019

- 2018 South Dakota State University Commercialization Award
- 2017 Faculty Award for Global Engagement: Excellence in International Research, SDSU
- 2016-present, Harold C. Hohbach Professorship
- 2016 Distinguished Researcher, SDSU
- 2015 Excellence in Research, SDSU Department of Electrical Engineering and Computer Science
- 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011 J. Lohr College of Engineering Grantsmanship Award
- 2014 F O Butler Award for Excellence in Research, South Dakota State University
- 2014 Visiting Professorship from Hefei University of Technology, China.
- 2013 Best Poster Award (Hytham Elbohy) at 3rd International Conference on Nanotek and Expo, Las Vegas, NV, USA.
- 2013 Best Poster Winner (Olusegun Adebanjo), SD EPSCoR All Investigator Meeting
- 2012 Best Paper Award (Ashish Dueby), Inter-Continental Advanced Materials for Photonics (I-CAMP) Summer School on renewable and sustainable energy
- 2012 3M Non-tenured Faculty Award
- 2012 Young Investigator Award from SDSU College of Engineering.
- 2010 NSF CAREER Award
- 2010 Excellence in Research Award in the Electrical Engineering and Computer Science, SDSU
- 2009 Bergmann Memorial Research Award from US-Israel Binational Science Foundation
- 2009 Doctor New Investigator Award from American Chemical Society Petroleum Research Fund
- 2006 Chinese Government Award for Outstanding Self-financed Student Abroad, China Scholarship Council (CSC)
- 2006 ASME Solar Energy Division Graduate Student Award
- 2006 VCU GSA Travel Grant Award
- 2005 Energy Technology Division Travel Grant, the Electrochemical Society (ECS), 208th Meeting, - Los Angeles, California.
- 2005 VCU Graduate School Travel Grant to present at 208th meeting of ECS in Los Angeles.

Research interests

- Sustainable energy generation (e.g., photovoltaics)
- Energy storage (e.g., lithium batteries)
- Solar powered wireless sensor networks for precision agriculture
- Sensors technologies (e.g., biomedical sensors, agriculture sensors)
- Optical coating (anti-reflection, light trapping, etc.)
- Light management
- Organic electronics (organic light emitting diodes, organic transistors)
- Precision agriculture technologies
- Atomic force microscopy-based instrumentation for nanoscale mapping of charge carrier dynamics

Served as dissertation advisor for Ph.D. students 31)

1. Yu Xie, graduated, (University of Kansas)
2. Prakash Joshi, graduated, (Nepal)
3. Mahbube Khoda Siddiki, graduated, (University of Missouri)
4. Tingting Xu, graduated, (Northwestern Polytechnical University, China)
5. Swaminathan Venkatesan (PhD), graduated (University of Houston)
6. Olusegun Adebanjo (PhD), graduated
7. Anastasiia Iefanova (PhD), graduated
8. Ashim Gurung (PhD), graduated
9. Nirmal Adhikari (PhD), graduated
10. Ashish Dubey (PhD), graduated
11. Bjorn Vaagensmith (PhD), graduated

12. Sharmin Haq (PhD), transferred to another university
13. Hytham Elbohy (PhD), graduated
14. Sally Mabrouk (PhD), graduated
15. Behzad Bahrami (PhD) , graduated
16. Salem Saad Mohammed Abdulkarim (PhD), graduated
17. Reza Khan Mamun (PhD), current student
18. Eman A. Gaml (current visiting PhD student)
19. Ke Chen (PhD), current student
20. Rajesh Pathak (PhD), current student
21. Ashraful Haider Chowdhury (PhD), current student
22. MD Tawabur Raman (PhD), current student
23. Ahmed Almagroos (PhD), current student
24. Abiral Baniya (MS), graduated
25. Khalid Emshadi (PhD),
26. Raja Sekhar Bobba, (PhD), current student
27. Kwame Ampofo, (PhD), current student
28. Liton Kumar Biswas (PhD), current student
29. Ezaldeen Adhamash (PhD), current student
30. Buddhi Sagar Lamsal (PhD), current student
31. Jyotshna Pokharel (PhD), current student

Served as thesis advisor for MS students (25)

1. Amit Thapa (T-mobile)
2. Prashant Poudel (Texas)
3. Porna Maharjan (Nepal)
4. Prajwal Adhikary (Solarmer Energy, Inc)
5. Abu Mitul (MS), graduated
6. Sudhan Sigdel (MS), graduated
7. Lal Mohammad (MS), graduated
8. Santosh Gyawali (MS), graduated
9. Upendra Neupane (MS), graduated
10. Bjorn Vaagensmith (MS), graduated
11. Devendra Khatiwada (MS), graduated
12. Ravi Kasaudhan (MS), transferred to SDSU computer science program
13. Roya Naderi (MS), graduated
14. Geetha Varnekar (MS), graduated
15. Md. Saleh Akram Bhuiyan (MS), graduated
16. Md. Nazmul Hasan (MS), graduated
17. Bigyan Khanal (MS), graduated
18. Abiral Baniya (MS), graduated
19. Faisal Kabir (MS), graduated
20. Santosh Chapagain (MS), graduated
21. Basanta Chalise (MS), graduated
22. Ataul Mamun (MS), graduated
23. Sheikh Ifatur Rahman (MS), current
24. Sakib Faisal (MS), current
25. Md Ashiqur Rahman Laskar (MS), current

Served as advisor for visiting scholars, postdoc research associates (15)

1) Dr. Wenjin Yue (visiting scholar)
2) Mao Liang (visiting scholar)
3) Dr. Ravindra R. Kamble (visiting scholar)
4) Dr. Wenfeng Zhang (visiting scholar)

5) Dr. Mukesh Kumar (Indian Institute of Technology Ropar)
6) Dr. Zhengping Zhou (Virginia Tech)
7) Dr. Qi Wang (University of Michigan)
8) Dr. Diane Hinkens (SGI-USA)
9) Dr. Jing Li (Chongqing Institute of Green and Intelligent Technology, China)
10) Dr. Qiliang Chen (Han Energy, China)
11) Dr. Yue Song (Xidian University, China)
12) Dr. Shangke Pan (Shanghai Institute of Ceramics, China),
13) Dr. Shaker Atia (Alexandria university, Egypt)
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86. Min Wang, Wenlong Chen, Jiantao Zai*, Shoushuang Huang, Qingquan He, Wei Zhang, **Qiquan Qiao***, Xuefeng Qian*, Hierarchical Cu7S4 nanotubes assembled by hexagonal nanoplates with high catalytic performance for quantum dot-sensitized solar cells, Journal of Power Sources, 299, 212–220, 2015.
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DOI: 10.1109/JPHOTOV.2015.2478659.
92. Mukesh Kumar*, Ashish Dubey, Nirmal Adhikari, Swaminathan Venkatesan and **Qiquan Qiao***, Strategic review of secondary phases, defects and defect-complexes in kesterite CZTS-Se solar cells, Energy Environ. Sci., 8, 3134-3159, 2015.
93. Lal Mohammad, Abu Farzan Mitul, Sudhan Sigdel, Ashish Dubey, Devendra Khatiwada, Nirmal Adhikari, Hytham Elbohy and **Qiquan Qiao***, Interface modification of inverted structure PSBTBT:PC70BM solar cells for improved performance, IEEE Journal of Photovoltaics, 62, 3029-3033, 2015.
94. Lal Mohammad, Qiliang Chen, Abu Mitul, Jianyuan Sun, Devendra Khatiwada, Bjorn Vaggensmith, Cheng Zhang, Jing Li, **Qiquan Qiao***, Improved Performance for Inverted Organic Photovoltaics via Spacer between Benzodithiophene and Benzothiazole in Polymers, Journal of Physical Chemistry C, 2015,119(33), pp 18992 –19000.
95. Hytham Elbohy, Alex Aboagye, Sudhan Sigdel, Qi Wang, M Hassan Sayyad, Lifeng Zhang* and **Qiquan Qiao***, Graphene-embedded Carbon Nanofibers Decorated with Pt Nanoneedles for Higher Efficiency Dye-sensitized Solar Cells, Journal of Materials Chemistry A, 3, 17721-17727, 2015
96. Evan Ngo, Swaminathan Venkatesan, Devendra Khatiwada, Cheng Zhang, **Qiquan Qiao***, Enhanced lifetime of polymer solar cells by surface passivation of metal oxide buffer layers, ACS Applied Materials &Interfaces, 7, 16093-16100, 2015.
97. Lal Mohammad, Abu Mitul, Qi Wang, Swaminathan Venkatesan, Devendra Khatiwada, Ashish Dubey, Cheuk-Lam Ho, Wai-Yeung Wong* and **Qiquan Qiao***, Influence of nanoscale morphology on performance of inverted structure metallated conjugated polymer solar cells, IEEE Transactions on Electron Devices, 62(9), 3029-3033, 2015.
98. Devendra Khatiwada, Swaminathan Venkatesan, Qiliang Chen, Jihua Chen, Nirmal Adhikari, Ashish Dubey, Abu Farzan Mitul, Lal Mohammed and **Qiquan Qiao***, Improved performance by morphology control via fullerenes in PBDT-TBT-alkoBT based organic solar cells, Journal of Materials Chemistry A, 2015, 3, 15307 - 15313.
99. Jiawei Gong, Hui Qiao*, Sudhan Sigdel, Hytham Elbohy, Nirmal Adhikari, K. Sumathy, Qufu Wei*, and **Qiquan Qiao***, Characteristics of SnO2 Nanofiber/TiO2 Nanoparticle Composite for Dye-Sensitized Solar Cells, AIP Advance, 5, 067134, 2015.

Sung Y. Shin
Professor & Graduate Coordinator of Computer Science

EECS Department
SDEH #117, Box 2222
South Dakota State University
(605) 688-6235 – office,
(605) 688-4401 – fax
E-Mail: sung.shin@sdstate.edu

1142 Apache Trail
Brookings, SD 57006
(605) 697 7940 -Home

Citizenship: U.S.A.

EDUCATION

- **Ph.D.** in **Computer Science**, University of Wyoming, Laramie, Wyoming, August 1991
- **M.S.** in **Computer Science**, University of Wyoming, Laramie, Wyoming, December, 1988
- **B.S.** with Honor in **Computer Information Science**, Kentucky State University, Frankfort, Kentucky, May 1984

EXPERIENCE at South Dakota State University

- **Professor & graduate coordinator, EE and Computer Science Department** at SDSU, 2001
- **Associate Professor** (**Tenured**) in Computer Science Department at SDSU, 1996
- **Assistant Professor** in Computer Science Department at SDSU since August 15, 1991

EXPERIENCE for other institutions

- **Invited Visiting Professor,** School of Computing, Soongsil University, Korea, 2014
- **Invited Visiting Professor,** School of Computer Sci. & Engineering, Seoul National University, 2007
- **ASEE Summer Faculty Fellowship** at NASA JSC, summer, 2001 & 2000
- **Visiting Scientist** at NASA JSC, fall, 1999
- **Visiting Scientist** at EROS Data Center, May of 1993
- **Senior Teaching Assistant**, University of Wyoming, 1987 – 1991

RESERCH INTEREST

- Medical Image Processing for Cancer Detection, Telemedicine, Precision Agriculture and Software Fault Tolerance

LIST OF GRANTS OBTAINED (Total over 2,700,000)

- "Wireless Body Area Network in Space: Development of Wireless Health Monitoring System with New-flexible Sensors," Sponsored by NASA EPSCoR, **$225,000** (January 1, 2018 – December 31, 2020). "

- "Study on Machine Learning-based Decision-Support System for EMF-related Health Risk Evaluation," Sponsored by ETRI, Korea, South Dakota State University, **$150,000** Funded. (March 1, 2019 - November 30, 2023).

- "Development of Anatomical EM Modeling Algorithms based on Medical Images, Pilot Study," Sponsored by ETRI, Korea, South Dakota State University, **$90,000** Funded. (March 1, 2015 – October 31, 2018).

- "Team Development for Center for Advanced Sensors (CAS)," Sponsored by SD GOED Research Team Development (RTD), South Dakota State University, **$65,000**, Funded. (July 1, 2016 - June 30, 2017). *Develop the agricultural sensors and machine learning algorithms for decision support systems.*

- "Data to Dollars: societal value through research and education in precision agriculture white mold," Sponsored by SD GOED Research Team Development (RTD), South Dakota State University, **$65,000,** Funded. (May 1, 2016 - April 30, 2017). *Develop the prediction model of white mold area in the soybean fields with agricultural big data, SST and remote sensing data.*

- Micro Tomography Breast Cancer Image Processing from ETRI, **$500,000**, 2011-2016
  "Development of DSS (Decision Support System) which provide preliminary information to support radiologists in making a final diagnostic decision. The first step is to study the pre-processing module (digitization, extraction), analysis and assessment of MT image data, and ROIs (Regions of interest) specification, and segmentation algorithm. The second step is to find co-related attributes with CT, MRI and Ultrasound information which are in a chronically archived database."

- Intelligent Breast Cancer Image Research Project, Pilot Study, from **CNU $45,000**, 2010- 2011
  "Feasibility study of the image co-related model between MRI, CT, and/or MT"

- Intelligent Breast Cancer Image Research Project, Pilot Study, from **CNU $25,000**, 2009- 2010
  "Feasibility study of medical image processing techniques and assessment of MT image data. Existing Computer Added Detection and Diagnosis System."

- Network flow Based Optimization projects in various network environments from **NSF, $200,000,** 2007-2010
  "*To seek the solid theoretical and practical foundations for the two main optimization problems; power optimal wireless communication problem and minimal time evacuation planning problem."*

- ABET & ABEEK Accreditation Comparison Project, from **Korean Government, $80,000**, 2007, *"Evaluation of the Engineering and Technology Accreditation systems based on the comparison between ABET (US) and ABEEK (Korea)"*

- SDView Project grant from **USGS** for SDSU, $**51,000**, 2007-2008
  "Building Partnerships and Infrastructure in South Dakota to Facilitate the Availability, Timely Distribution and Utilization of Remote Sensing and Associated Geospatial Data and Technology"
- SDView Project grant from **USGS** for SDSU, $**89,500**, 2006-2007
- SDView Project grant from **USGS** for SDSU, $**89,500**, 2005-2006
- SDView Project grant from **USGS** for SDSU, $**89,500**, 2004-2005
- SDView Project grant from **USGS** for SDSU, $**92,400**, 2003-2004
- SDView Project grant from **USGS** for SDSU, $**93,700**, 2002-2004
- Governor Round's SE Course Redesign Grant from SD Governor's Office, $**30,847**, 2003
- CEVP project grant from **NASA JSC** for University of Wyoming, **$73,400**, 1999-2002
- Neural Network Research Project of SDSU from **NSF, $100,000,** 1999-2000
- Imaging and Modeling of Coupled Environmental Processing (**GIS** Application) from NSF-EPSCoR, **$934,111**, 1995-1998

- Infomodular CASE, **$38,000**, funded by **Asymetrix** Bellevue, WA, 1993
- Database Management Development Grant, $**13,200**, funded by **Dakota Manufacturing Company**, 1993
- Excelelator/IS Academic Grant, **$20,000** funded by **Index Technology Corporation**, 1991

SERVICE EXPERIENCE

- **Elected Chair,** ACM-SIGAPP, July 2009 – June 2015
- **Editor in Chief,** ACM ACR Newsletter, 2010 – present
- **ABET/CAC Evaluator,** 2004 – Present
- **Associate Editor,** Journal of Computing Science and Engineering, Korea, 2007 – present
- **Editorial Board,** INFORMATION Journal, 2002 – present
- **Editorial Board,** KSII, Transactions on Internet and Information Systems, 2009 – present
- **Elected Vice-Chair,** ACM-SIGAPP, July 2005- June 2009
- **Permanent Steering Committee Member,** ACM SAC International Symposium, 2010-present
- **Conference Chair**, ACM SAC International Symposium, 2010
- **Conference Chair**, ACM SAC International Symposium, 2009
- **Publicity Chair,** ACM SAC International Symposium, 2008
- **Conference Co-Chair,** ACM SAC International Symposium**,** 2007
- **Steering Committee Chair,** ACM RACs, 2010 – Present
- **Steering Committee Chair**, CTIC, 2006 & 2007
- **Track Chair,** ACM SAC 2005 – 2010, Software Engineering Track, 2005
- **Chair,** South Dakota State University Program Design Competition, 2004-Present
- **Conference Chair** of , 15th, 16th and 17th ISCA International Conference on Computers and Their Applications, 200, 2001, and 2002
- **Conference Chair** of SNPD00 ACIS/IEEE International Conference on Software Engineering and Distributed System, at University of Reims, France, May, 2000
- **Editorial Board Member** of the Journal of Association of Computer Info. Science, 1994-1998
- **Guest Editor** of the JISE SCI, 2007, 2008, and 2009
- **Guest Editor** of the INFORMATION Journal, January, 2002 and July, 2003
- **Founder Senior Editor** of the International Journal of Computer Science and Information, 1994–2000
- **Editor of Computer Science Group** for International Conference of AoM, 1994-1998
- **Editorial Board Member** of Global Information Systems, 1995-1998
- **International Program Committee member of ISCA,** 1996-2004
- **International Program Committee member** of Fourth International Conference on Computer Communications and Networks Sponsored by USC, SRI International, and IEEE, 1995
- **International Program Committee member** of 4th International Conference on Information and Knowledge Management Sponsored by USC, SRI International, and IEEE, 1995
- **International Program Committee member** of 3rd ACM International Workshop on Advanced in GIS, Sponsored IEEE, 1995
- **Advisor,** ACM Computer Club, SDSU, 1994 – 2006
- **Advisor,** South Dakota State University Korean Club, 1991-1996
- **Judge** of ACM International Collegiate Programming Contest, 1990, 1994, 1995, 1997, 1998, And 1999
- **Coach** of ACM International Collegiate Programming Contest, 1990, 1994, 1995, 1997, 1998, and 1999, and **Advanced to World Final** in 1998 and 1999

- **Board member of Kid's Voting Committee** for the City of Brookings, 1993-1999

AWARDS

- Award for Global Engagement in International Research in 2013
- Marquis Who's Who in Mathematics and Information Technology, 2011
- ACM SIGAPP Distinguished Service Award, 2010, Switzerland, 2010
- Outstanding Leadership Award (2+2 Programs with Korean Universities), EECS Department, SDSU, 2010
- Best paper Award at the 9th World Multi-Conference on Systemic, Cybernetics, and Informatics, Orlando, Florida, July 2005
- Marquis Who's Who in Science and Engineering, 1999, 2000, 2001, 2002, and 2003
- Best Paper Award at the 2003 MMBA Conference in Chicago, 2003
- Meritorious Service to the AoM/Iaom for the 15th Annual International Conference, Montreal, Canada, 1997
- International WHO's WHO of Professionals, 1997
- Nominee of the teacher of the year for the College of Engineering at SDSU, 1995, 1996
- Who's Who Among America's Teachers, 1994
- NASA Summer Research Fellow Award at EROS, 1993
- SDSU Faculty Research Support Award, 1992
- Ellbogen Outstanding Classroom Teaching Award, University of Wyoming, 1991
- Wyoming Governor's Award for International Education, 1988

REFEREE:

- USDA, FACT (Food and Agriculture Cyber Informatics Tools) Grant grand panel reviewer 2019 and 2020
- NASA, NSF Grant Proposal
- Annual ACM Symposium of Applied Computing, IEEE, ACM, Springer Lecture Notes
- ACM SAC International Symposium, 2005 – present
- ACM RACs, 2010 and 2011
- International CTIC Conference, 2005 – 2009
- Journal of Systems and Software, International Symposium of CAINE, International Conference of IRMA
- IEEE International Parallel Processing Symposium, IEEE Trans. on Software Engineering,
- International Journal of Management, International Conference of AOM/IAOM, IEEE/CSIM Conferences
- C3 Conference and ISCA CATA, 13th, 14th, 16th, 17th, 18th, 19th, and 20th Conferences

Publications: REFEREED PUBLICATIONS

Over 200 peer reviewed journal/conference papers have been published.

1. Bada Kim, Doohyuk Chang, Jongyoung Heo and **Sung Shin**, "Time Series Analysis for Enhancing the Recognition of License Plate Number in VideoStream of IOT Camera," will be appear to Proceedings of the 2020 ACM SAC conference, Brno, Czech, - Converted Online Conference, April 2020

2. Sangwon Shin, Kwanghee Won, and **Sung Shin**, “Size Efficient Preprocessed Symmetric RSA for Wireless Body Area Network,” ACM Applied Computing Review, 2020, Vol. 20, No.1, pp15-23

3. Dongyoun Kim, Sangwon Shin, Jinwoo Park and **Sung Shin** , “Development of a Semantic Scene Conversion Model for Image-based Localization at Night,” in Proc. ACM Research in Applied Computation Symposium ACM RACS, pp 107-112, October 2019

4. Youjeong Jang, Hyung-Do Choi, Fang Deng and **Sung Shin** , “Evaluation of Deep Learning Models for Information Extraction from EMF-Related Literature,” in Proc. ACM Research in Applied Computation Symposium ACM RACS, pp 113-116, October 2019

5. Sangwon Shin, Soohyeon Choi, Kwanghee Won and **Sung Shin**, “Preprocessed Symmetric RSA authentication for wireless body area network in space,” in Proc. ACM Research in Applied Computation Symposium ACM RACS, pp 230-235, October 2019

6. Hansol Lee, **Sung Shin**, Youngwan Kim, Juw Won Park, Sung Shin and Jiman Hong “An Efficient Deep Learning Platform for Detecting Objects,” Proceedings of the 2019 ACM SAC conference, pp. 1353-1354-2175, Limassol, Cyprus

7. Sae-Han Suh, Ji-Eun Jhang, Kwanghee Won, **Sung Shin** and Chang Oan Sung, “Development Vegetarian Mapping with Deep Convolutional Neural Network,” in Proc. ACM Research in Applied Computation Symposium ACM RACS, pp 53-58, October 2018

8. Ji Young Lee, Dongyoun Kim, Jin Yeong Mun, Seok Kang, Seong Ho Son and **Sung Shin,** “Texture Weighted Fuzzy C-Means Algorithm for 3D Brain MRI Segmentation,” in Proc. ACM Research in Applied Computation Symposium ACM RACS, pp 291-295, October 2018

9. Jeongwoo Choi, Yongmin Kim, **Sung Shin**, and Jiman Hong, "Smart IoT Monitoring Framework based on oneM2M for Fog Computing,” pp1848-1852, ACM SAC, Pau, France, (April 5, 2018)

10. Jun Huang, CongCong Xing, **Sung Shin**, and Fen Hou, "Optimizing M2M Communications and Quality of Services in the IoT for Sustainable Smart Cities," accepted and appears, IEEE Transactions on Sustainable Computing, (June, 2017)

11. Myunghoon Shon, Kisu Kim, **Sung Shin**, and Jiman Hong, "DACS: Dynamic Allocation Credit Scheduler for Virtual Machine," pp1563-1562, ACM SAC, Marrakesh, Morocco, Pau, (April, 2017)

12. Wang, Q., Lee, J. Y., Schaffer, T. A., **Sung Shin**, Yoon, H. J., 4th Annual Sanford HealthSDSU Biomedical Research Symposium, "Integration of Flexible Wearable Sensors with Wireless Communication Systems for Health Monitoring," Sanford Health & SDSU, Brookings, SD, United States. (November 10, 2016)

13. Chulwoo Pack, Seong Ho Son, and **Sung Shin**, "Computer Aided Diagnosis with Boosted Learning for Anomaly Detection in Microwave Tomography," ACM ACR, Applied Computing Review, Sep. 2017, Vol. 17, No.3, pp39-48

14. Ravi Kasaudhan, **Sung Y. Shin**, Soon Ik Jeon, and Seong Ho Son, "Similarity Measurement withCombination of Mesh Distance Fourier Transform and Global Features in 2D Binary Image," Proceedings of the 2016 ACM SAC conference, Pisa, Italy. pp2176-2181

15. Chulwoo Pack, **Sung Shin**, Hyung Do Choi, Soon Ik Jeon, and John Kim "Optimizer Multilayer Perceptron Using Dynamic Learning Rate Based Microwave Tomography Breast Cancer Screening," Proceedings of the 2016 ACM SAC conference, pp. 2171-2175, Pisa, Italy

16. Mohammad Taheri, Dheeman Saha and **Sung Shin**, "Enhanced Breast Cancer Classification with Automatic Thresholding Using SVM," Proceedings of 2016 ACM RACs, pp 56-60, (October 11-14, 2016)

17. Austin Hanson, **Sung Shin**, George Hamer, "Hybrid Model for Object Orientation Classification," in Proc. ACM Research in Applied Computation Symposium ACM RACS, pp 164-171, October 2015

18. Chulwoo Pack, Samaneh Aminikhanghahi, **Sung Shin**, Soon Ik Jeon and Seong Ho Son, "An Optimized Fuzzy Support Vector Machine Classifier using Breast Mammogram Tomography: Trade-off between Specificity and Sensitivity," International Journal of Distributed Sensor Networks (SCIE), Vol.18, No.9, September 2015, PP3979-3988

19. C. Pack, **S. Shin,** Soon Ik Jeon and Seong Ho So, "Computer Aided Breast Cancer Diagnosis System with Fuzzy Multiple Parameter Support Vector Machine,2015 ACM RACs, Research in Adaptive and Convergent Systems, Prague, Czech, October 9-12, 2015

20. S. GC, **S. Shin**, C. Pack, Hyung Do Cho, "Variability Measurement for Breast Cancer Classification of Mammographic Masses," 2015 ACM RACs, Research in Adaptive and Convergent Systems, Prague, Czech, October 9-12, 2015

21. Samaneh Aminikhanghahi, **Sung Shin**, Wei Wang, Soon I. Jeon, Seong H. Son, and Chulwoo Pack, "Study of Wireless Mammography Image Transmission Impacts on Robust Cyber-Aided Diagnosis Systems, in print 2015 ACM SAC conference, Salamanca, Spain

22. Yao, Wei Wang, **Sung Shin**, Seong H. Son, and Soon I Jeon, "Competition-Based Device-to-Device Transmission Scheduling to Support Wireless Cloud Multimedia Communications, "International Journal of Distributed Sensor Networks, vol. 2014, Article ID 869514, 7 pages, 2014.doi: 10.1155 /2014 /869514

23. Wei Wang, Genshang Zhang**, Sung Shin,** Carrie Hruska and Seong H. Son, "Fourier irregularity index: A new approach to measure tumor mass irregularity in breast mammogram images," Springer Science, 2014

24. Byungkwan Jung, **Sung Shin**, Wei Wang, Hyung D. Choi, and Jung K. Pack, "Similar MRI Object Retrieval Based on Modified Contour to Centroid Triangulation with Arc Difference Rate with Arc Deference Rate," 2014 ACM SAC conference, Gyeongju, Korea, March, 2014, pp. 31-33

25. Samaneh Aminikhanghahi, Wei Wang, **Sung Shin**, Seong H. Son, and Soon I. Jeon, "Effective Tumor Feature Extraction for Smart Phone based Microwave Tomography Breast Cancer Screening," 2014 ACM SAC conference, Gyeongju, Korea, March, 2014, pp. 674-679

26. Samaneh Aminikhanghahi, Wei Wang, **Sung Shin**, Seong H. Son, and Soon I. Jeon, "An Optimized Support Vector Machine Classifier to Extract Abnormal Features from Breast Microwave Tomography Data," 2014 ACM RACs conference, Towson, MD, October, 2014, pp. 111-115

27. Byungkwan Jung, **Sung Shin**, Seong H. Son and Jung K Pack, "Shape based Medical Image Retrieval Method Using Irregularity Chain Code Similarity," 2014 ACM RACs conference, Towson, MD, October, 2014, pp. 121-125

28. Chunqiu Wang, Wei Wang, **Sung Shin**, Soon I. Jeon, "Comparative Study of Microwave Tomography Segmentation Techniques Based on GMM and KNN in Breast Cancer Detection," 2014 ACM RACs conference, Towson, MD, October, 2014, pp. 303- 308

29. Hyun I. Kim, **Sung Shin**, Wei Wang and Soon I. Jeon, "SVM based Harris Corner Detection for Breast Mammogram Image Normal/Abnormal Classification," in Proc. ACM Research in Adaptive and Reliable Systems (RACS), pp.187-191, October 2013

30. Zhe Li, Wei Wang, **Sung Shin** and Hung D. Choi, "Enhanced Roughness Index for Breast Cancer Benign/Malignant Measurement Using Gaussian Mixture Model," in Proc. ACM Research in Adaptive and Reliable Systems (RACS), pp.177-186, October 2013

31. Byung K. Jung, Wei Wang, **Sung Shin**, Hyung Do Choi and Jungki Pack, "A Sequential Feature Filtering Approach for Breast Magnetic Resonance Image Similarity Study," INFORMATION Journal, Vol.16, No.8, pp. 6259-6268, August 2013

32. Hyun I. Kim, **Sung Y. Shin**, Wei Wang, Soonik Jeon and Sungho Son, "Similarity Measurement for Breast Medical Image Retrieval System with Hybrid Object Based Approach," INFORMATION Journal, Vol.16, No.8, pp. 6269-6278, August 2013

33. Minwoo Jang, Joongjin Kook, Samin Ryu, Kahyun Lee, **Sung Shin**, Ahreum Kim and Youngsoo Park, "An Efficient Similarity Comparison Based on Core API Calls," in proceedings of ACM SAC 2013, pp. 1634 – 1638 , Portugal, March 2013

34. Donghoon Kang, **Sung Y. Shin**, Chang Oan Sung, Jung Y. Kim, Jeongki Pack, Hyung Do Choi, "Improved Methods of Segmantation and Object Extraction With Breast MRI Images," INFORMATION Journal, Vol.15, No.7, pp. 2727-2736, July 2012

35. Jucheol Moon, **Sung Y. Shin**, Donghoon Kang, Soon Ik Jeon, Hyung Do Choi, Jung Y. Kim, "Extracting Breast Cancer Features in Medical Images and Generating Its Parametric Pattern," INFORMATION Journal, Vol.15, No.7, pp. 2737-2746, July 2012

36. Joonhyouk Jang, Jinman Jung, Yookun Cho, Sanghoon Choi, **Sung Y. Shin,** "Design of a
Light weight TCP/IP Protocol Stack with an Event-Driven Scheduler," Journal of Information Science and Engineering, Vol. 28, No 6, pp. 1059-1071, November 2012

37. Eungyu Lee, Joonwoo Lee, Hyeongseok Kang, Kanghee Kim, Sung-Ryul Kim and **Sung Y. Shin**, "An Implementation Study of a Ghost Drive: Hidden File Store in a File System," in proceedings of ACM SAC 2012, pp. 2796- 1798, Italy, March 2012

38. Zhe Li, **Sung Y. Shin**, Soon I. Jeon, Seong H. Son, Jeong K. Pack, "A New Histogram-Based Cancer Image Classifier Using Gaussian Mixture Model," in Proc. ACM Research in Applied Computation Symposium (RACS), pp.143-147, October 2012.

39. Genshang Zhang, **Sung Y. Shin**, Wei Wang, Carrie Hruska, Hyung D. Choi, "A New Fourier-Based Approach to Measure Irregularity of Breast Cancer Masses in Mammograms," in Proc. ACM Research in Applied Computation Symposium (RACS), pp. 153-157, October 2012

40. Jucheol Moon, **Sung Y. Shin**, Dooghoon Kang, Soonik Jeon, Huyng Do Choi, and Jung Y Kim, "Agglomerated Feature Extraction in Medical Images for Breast Cancer and Its Characteristic Pattern Generation,"' in Proc. ACM Research in Applied Computation Symposium (RACS), pp. 220-226, Nov. 2011

41. Dooghoon Kang, **Sung Y. Shin**, Chang Oan Sung, Jung Y. Skim, Jeong-Ki Pack and Hyung-Do Choi, "An Improved Method of Breast MRI Segmentation with Simplified K-means Clustered Images,"' in Proc. ACM Research in Applied Computation Symposium (RACS), pp. 226-231, Nov. 2011

42. WookHwan Choi, Junghoon Shin, Sangjun Lee and **Sung Y. Shin** "Efficient and Flexible Key/Value Data store System using Java Reflection," INFORMATION Journal, pp. 1565-1578, Vol.14, No.4, May, 2011

43. Manki Min, Austin F. O'Brien, and **Sung Y. Shin**, "Improved PSOR algorithm for minimum power multicast tree problem in wireless ad hoc networks," International Journal of Sensor Networks, Index science Publishers, Vol. 8, No.3/4 (2010), pp. 193–201.

44. Ju-Hwan Kim, Jong Wook Kwak, Soomi Yang, **Sung Y. Shin**, Chu Shik Jhon, "Branch Pre-Prediction: A Method for Hiding Branch Prediction Latency", INFORMATION Journal, Vol.13, No.2, March, 2010

45. Wei Wang and **Sung Y. Shin**, "A New Green Scheduling Approach to Maximize Wireless Multimedia Networking Lifetime via Packet and Path Diversity," Springer Birkhauser, ISBN:978-3-0348-0031-0, pp. 167-180, 2010

46. Wookhwan Choi, Junghoon Shin, Sangjun Lee**,** and **Sung Y. Shin**, "Design and Implementation of a Key/Value Distributed Data Store System using Java Reflection," Proceedings of ACM CTIC 2010 International Conference on Convergence Technology and Information Convergence, Atlanta, GA, October, 2010, pp. 15-18

47. Junghoon Lee, Gyung-Leen Park, Sang-Wook Kim, Hye-Jin Kim and **Sung Y Shin**, "Failure Management Development for Integrated Automotive Safety-Critical Software Systems," ACM SAC 2010, pp. 189-193, Switzerland, March 2010

48. Eric Bauer**, Sung Y. Shin**, Hyung Do Choi, "Comparison of 2D Affine Transforms on GUI Platforms," Proceedings of ACM CTIC 2009, International Conference on Convergence Technology and Information Convergence, Atlanta, GA, October, 2009, pp. 157-163

49. Hakin Kimm, **Sung Y. Shin**, Ho-Sang Ham, and Chang Oan Sung, "Failure Management Development for Integrated Automotive Safety-Critical Software Systems," ACM SAC 2009, pp. 517-521, Hawaii, March 2009

50. **Sung Y. Shin**, Manki Min, Sangjun Park, and Austin O'Brien, "Improved Simulation Comparisons of Capacity Route Planner Algorithms," INFORMATION Journal, Vol.12, No.4. 2009, pp. 819-826

51. **Sung Y. Shin**, Hyungbae Park, Jiman Hong, and Haklin Kimm, "Development of Fault Tolerant Linux Kernel 2.6 with Backward Error Recovery," INFORMATION Journal, Vol.11, No.5. 2008, pp637-648

52. **Sung Y. Shin**, Manki Min, Sangjun Park, and Austin O'Brien, "Comparison of Capacity Route Planner Algorithms," Proceedings of CTIC 2008, International Conference on Convergence Technology and Information Convergence, Jeju, Korea, November 2008, pp. 195-199

53. M. Min and A.F. O'Brien and **Sung Shin**, "SOR revisited: Partitioning and Recovering after Shrinking," Proceedings of the IEEE International Conference on Computer Communications and Networks, St. Thomas, USVI, August, 2008

54. Jaeheung Lee, Jungyoung Heo, Yoogun Cho, Jiman Hong, and **Sung Y. Shin**, "Secure Deletion for NAND Flash File System," ACM SAC 2008, pp. 1710-1714, Brazil, March, 2008

55. Hong Min, Yoo-Kun Cho, **Sung Y. Shin**, Jiman Hong, "Dynamic memory allocator for sensor operating system design and analysis," accepted for the JISE, Journal of Information Science and Engineering (SCI Level)

56. ByeongJu Yun, **Sung Y. Shin**, SungChan Hong, YouSik Hong, Cheonshik," Traffic Accident Analysis using PDA," Proceedings of the 3rd Asia Pacific International Conference on Information Science and Technology, Cavite State University, Indang, Philippines, December, 2008, pp. 289 - 300

57. Seok Myun Kwon, Jin Suk Kim and **Sung Y. Shin**, "A Load-balancing Algorithm for Monte Carlo Simulations in Peer to Peer Systems," Journal of Information Journal, Vol.10, No.3, pp. 273-278

58. JungHoon Lee, Mikyung Kang, Gyung-Leen Park and **Sung Y. Shin**, "Design of Reliable Real-Time Policy for Dual-Channel Networks," Journal of Information Science and Engineering, Vol. 23, No.5, pp. 12- 17

59. Haklin Kimm, **Sung Shin**, and ChangOan Sung, "Evaluation of Interval-based Dynamic Voltage Scaling Algorithm on Mobile Linux System," Proceedings of the ACM SAC 2007 International Conference, Seoul, Korea, pp. 1141-1145, March, 2007

60. Jongmoo Choi, Seungjae Baek, and **Sung Y. Shin**, "Design and Implementation of a Kernel Resource Protector for Robustness of Linux Module Programming*", Proceedings of ACM SAC 2006 International Conference*, pp. 1477-1481, Dijon, Franc, April, 2006

61. Haklin Kimm, **Sung Y. Shin**, and Charlie Shim, "Two Approaches to Improve Java MIDP Record Management System in Wireless Devices," Proceedings of 2005 IEEE International Conference on Electro Information Technology, Lincoln, Nebraska, May, 2005

62. Charlie Shim, Jung Y. Kim, **Sung Y. Shin**, and Jiman Hong, "Using Feedback Cycle for Developing an Adjustable Security Design Metric," Lecture Note Computer Science Springer IEEE Joint ICNC'05-FSKD'05 (International Conference on Natural Computation and Fuzzy Systems and knowledge Discovery, Changsha, China, August, 2005.

63. **Sung Y. Shin**, Charlie Y. Shim, Bong Gun Cho, and Chih-Chen Hung, "Development of a Weighted Security Measure as a Design Metric," International Journal of INFORMATION, 2005 Vol. 8, No. 6, November 2015

64. Haklin Kim and **Sung Y. Shin**, "Efficient Use of Java MIDP Record Management System in Wireless Device" for 2005 IEEE Sarnoff Symposium, pp.18-19 April 2005, Nassau Inn in Princeton, NJ.

65. Junyoung Heo, Sangho Yi, Yoocun Cho, Jiman Hong and **Sung Y. Shin**, "Space-Efficient Page-Level Incremental Checkpoints, Proceedings of the ACM SAC 2005 International Conference, pp. 1558 – 1562, Vol. 2, March, 2005.

66. Dong S. Jang, **Sung Y. Shin**, Charlie Shim, and C.C. Hung, "A Comparison on Information Fusion Method for Air Target Identification," Proceedings of the ACM SAC 2005 International Conference, pp. 45-46, Vol. 1, March, 2005.

67. **Sung Y. Shin**, Su Jeong Byun, Ali Salehnia and Won Don Lee, "Enhanced *User Verification System on Telebanking Using Kernel based PCA,"* Journal of INFORMATION: An International Journal, Vol. 7, No. 1, pp. 123-136, January 2004.

68. Dong Cheon Lee, Jeong, Woo Kim, **Sung Y. Shin**, "Application of Radiometric Model for Water Resource," IEEE 2001 International Geosciences and Remote Sensing Symposium (IGARSS 2001), Sydney, Australia, July 2001, pp. 128-132.

Curriculum Vitae

Songxin Tan, Ph.D.

EDUCATION

- Ph.D in Electrical Engineering, University of Nebraska – Lincoln, 2003
- M.S. in Optics and Information Processing, Sichuan University, China, 1997
- B.S. in Optoelectronics (*Summa Cum Laude*), Sichuan University, China, 1994

ACADEMIC EXPERIENCE

- Associate Professor in EE, 2009 – Present
  Department of Electrical Engineering and Computer Science
  South Dakota State University
- Assistant Professor in EE, 2004 – 2009
  Department of Electrical Engineering and Computer Science
  South Dakota State University
- Assistant Professor, 1997 – 1999
  Department of Optoelectronics
  Sichuan University, China
- Research Assistant, 2000 – 2003
  Department of EE
  University of Nebraska-Lincoln

TEACHING

Teaching Interests

- Signals and Systems, Digital Signal Processing, Digital Image Processing, Communication Systems, Statistics and Random Process, Linear Systems Theory, Analog and Digital Control
- Electromagnetism, microwave theory
- Circuits, Microelectronics
- Photonics, Optoelectronics, Fourier Optics, Laser Principles and Applications, Fiber Optics Communications, Optical Remote Sensing

Degree Program Courses Taught

- EE 300 Intro. Electrical Engineering
- EE 316/317 Signals and Systems I / II
- EE 320/EE320L Electronics I with Lab
- EE 321/EE321L Electronics II with Lab
- EE 385 Electromagnetics
- EE 422 Engineering Economics
- EE 464/465 Senior Design I / II
- EE 470 Communication Systems
- EE 475/575 Digital Image Processing
- EE 492/592 Introduction to Fourier Optics
- EE 615 Linear System Theory
- EE 685 Microwave Theory

- EE 792 Active Sensor Systems

New Courses Developed

- EE 492/592 Introduction to Fourier Optics
- EE 792 Active Remote Sensing Sensors

Teaching Workshops and Certificates

- Completed Assessment Academy for the Institutional Program Review for Higher Learning Commission (HLC), South Dakota State University, 2016-2017
- Trained and certified for Peer Teaching Observation (PTO), South Dakota State University, 2015
- 'Online Teaching and Quality Assurance', South Dakota State University, 2010
- 'How to Engineer Engineering Education Workshop', Bucknell University, 2006
- 'Classroom Management', Chautauqua Workshop, Columbian University, 2005

RESEARCH

Research Interests

- Lidar remote sensing, airborne laser radar design and instrumentation
- Vegetation remote sensing
- Robotics vision and pattern recognition
- Optical 3D sensing, interferometry and profilometry
- Synthetic aperture radar image processing
- Digital signal processing, digital image processing
- Pedagogy

Refereed Journal Publications

- Z. Shen, **S. Tan**, and K. Siau, 'Use of mental models and cognitive maps to understand students' learning challenges', Journal of Education for Business, to appear.
- Z. Shen, **S. Tan**, and K. Siau, 'Challenges in Learning Unified Modeling Language: From the Perspective of Diagrammatic Representation and Reasoning', Communications of the Association for Information Systems, Vol. 43, pp. 545 – 565, 2018
- **S. Tan** and Z. Shen 'Hybrid Problem-Based Learning in Digital Image Processing: A Case Study', IEEE Transactions on Education, 61(2), pp. 127-135, 2018
- **S. Tan**, S. Johnson, Z. Gu, 'Laser depolarization ratio measurement of corn leaves from the biochar and non-biochar applied plots', Optics Express, 26(11), pp. 14295-14306, 2018
- **S. Tan**, R. Narayanan, and S. Shetty, 'Polarized Lidar Reflectance Measurements of Vegetation at Near-Infrared and Green Wavelengths', International Journal of Infrared and Millimeter Waves, 26(8), 1175-1194, 2005
- **S. Tan**, and R. Narayanan, 'Design and Performance of a Multiwavelength Airborne Polarimetric Lidar (MAPL) for Vegetation Remote Sensing', Applied Optics, 43(11), 2360-2368, 2004
- W. Chen, X. Su, and **S. Tan**, 'Discussion on Phase Errors Caused by Frequency Leakage in Fourier Transform Profilometry', Acta Optica Sinica, 20(10), 1429-1434, 2000
- W. Chen, X. Su, and **S. Tan**, 'Basic Requirement for Measurement System in FTP', Journal of Optoelectronics & Laser, 10(6), 535-539, 1999
- W. Chen, H. Yan, X. Su, and **S. Tan**, 'Error Caused by Sampling in Fourier Transform Profilometry', Optical Engineering, 38(6), 1029-1034, 1999
- X. Su, **S. Tan**, L. Xiang, J. Li, and T. Xian, 'Complex Object Measurement using Fourier Transform Method', Acta Optica Sinica, 18(9), 1228-1233, 1997

- **S. Tan**, and X. Su, 'Phase Unwrapping Method based on Cellular Automata and Modulation Analysis', Acta Optica Sinica, 17(1), 112-116, 1997
- **S. Tan**, and X. Su, 'Characteristics of the 3-D Distribution of Talbot Diffraction Field', Opto-Electronic Engineering, 23(2), 34-41, 1996

Refereed Conference Publications

- **S. Tan** and Z. Shen, 'Student feedback on hybrid problem-based learning in a digital image processing course', SPIE Education and Training in Optics and Photonics 2019, to appear.
- A. Haider and **S. Tan,** 'Improvement of Lidar data classification algorithm using the machine learning technique', Proc. SPIE, Lidar Remote Sensing for Environmental Monitoring, to appear.
- Z. Shen, **S. Tan**, K. Siau, 'Using Cognitive Maps of Mental Models to Evaluate Learning Challenges: A Case Study', 23rd Americas Conference on Information Systems, Boston, 2017
- **S. Tan** and A. Khan, 'Water stress detection of lilac leaves using a polarized laser', Proc. SPIE, Remote Sensing and Modeling of Ecosystems for Sustainability XII, Vol. 9610-23, 2015
- **S. Tan**, A. Haider, and J. Stoker, 'Classify Tree Species Using Polarimetric Lidar Data and Neural Networks: A Case Study', Proceedings of the International Conference on Electrical and Computer Systems, Paper No. 178, Ottawa, Ontario, Canada, 2012
- **S. Tan** and A. Haider, 'A Comparative Study of Polarimetric and non-Polarimetric Lidar in Deciduous-Coniferous Tree Classification', IEEE Geoscience and Remote Sensing Symposium '10, Vol., no, 1178-1181, 2010
- **S. Tan**, J. Stoker, and S. Greenlee, 'Detection of Foliage-Obscured Vehicle Using a Multiwavelength Polarimetric Lidar', IEEE Geoscience and Remote Sensing Symposium '07, Vol. 4423, 2503-2506, 2007
- F. Fang and **S. Tan**, 'A Robust Digital Watermarking Technique with Improved Performance under JPEG Compression', Proc. SPIE, Applications of Digital Image Processing XXIX, Vol. 6312-69, 2006
- **S. Tan**, R. Narayanan, and D. Helder, 'Polarimetric Reflectance and Depolarization Ratio from Several Tree Species Using a Multiwavelength Polarimetric Lidar', Proc. SPIE, Polarization Science and Remote Sensing II, Vol. 5888-23, 2005
- **S. Tan** and R. Narayanan, 'Theoretical Analysis of a Multiwavelength Airborne Polarimetric Lidar', Proc. of Nebraska Academy of Sciences 123rd Annual Meeting, Lincoln, NE, April 2003.
- **S. Tan** and R. Narayanan, 'A Multiwavelength Airborne Polarimetric Lidar for Vegetation Remote Sensing: Instrumentation and Preliminary Test Results', IEEE Geoscience and Remote Sensing Symposium '02, Vol. 5, 2675 -2677, 2002
- **S. Tan** and R. Narayanan, 'Description of a Multiwavelength Airborne Polarimetric Lidar for Vegetation Remote Sensing', Proc. of Nebraska Academy of Sciences 122nd Annual Meeting, Lincoln, NE, April 2002
- **S. Tan** and R. Narayanan, and James Kalshoven, 'Measurement of Stokes Parameters of Materials at 1064-nm and 532-nm Wavelengths ', Proc. SPIE, Laser Radar Technology and Applications VI, Vol. 4377, 263-271, 2001
- X. Su and **S. Tan**, 'Utilization of Cellular Automata Phase Unwrapping Method in 3-D Sensing', Proc. SPIE, Optics for Science and New Technology, Vol. 2778, 479-450, 1996

Book Chapter

S. Tan and J. Stoker. 'Multiwavelength Polarimetric Lidar for Foliage Obscured Man-Made Target Detection' in *Advances in Geoscience and Remote Sensing*, Gary Jedlovec (Ed.), ISBN: 978-953-307-005-6, *InTech*, 2009

Invited Presentations

- 'Vegetation Remote Sensing using a Multiwavelength Airborne Polarimetric Lidar', USGS EROS Data Center, Sioux Falls, SD, June 2006

- 'Active Sensor Systems in Remote Sensing', South Dakota Sate University GIS Center for Excellence, February 2006
- 'Development of a Multiwavelength Airborne Polarimetric Lidar for Vegetation Remote Sensing', USGS EROS Data Center, Sioux Falls, SD, May 2005

Funded Research Grants as PI/Co-PI

- Principal Investigator, SD Governor's Office of Economic Development Proof of Concept (i6) Fund, 'Sentinel-1 Synthetic Aperture Radar to Measure Soil Wetness under Cloudy Conditions for Crop Insurance Purposes', $25,000.
- Co-Principal Investigator, USDA NIFA Undergraduate Fellowship, 'Impact of Biochar on Lifecycles of Agricultural Chemicals and Interactions between Plants and Soil Microorganisms', $275,603.
- Principal Investigator, SDSU Scholarly Dissemination Fund, $1,000.
- Principal Investigator, SDSU Research and Scholarship Support Fund, 'Vegetation Water Stress Detection using a Laser", $5,000.
- Principal Investigator, NASA EPSCoR, 'Polarimetric Lidar Classification Using Neural Networks', $10,000.
- Principal Investigator, NASA EPSCoR, 'Vegetation Species Classification Using a Lidar', $13,608.
- Principal Investigator, NASA EPSCoR, 'Lidar Remote Sensing towards Vegetation Classification Applications', $5,000.
- Principal Investigator, USGS EROS Data Center, 'Ground Characterization of Tree Canopy Conditions using a Multiwavelength Polarimetric Lidar', $30,000.
- Principal Investigator, SD Governor's Individual Research Seed Grant Award, 'Development of a Multiwavelength Polarimetric Lidar Remote Sensing Technique for Vegetation Applications', $48,084.
- Principal Investigator, NASA EPSCoR, 'Vegetation and Other Natural Targets Remote Sensing Using a Multiwavelength Polarimetric Lidar', $9,784.

PROFESSIONAL SERVICE

Committee Service

- SDSU Faculty Senate
- SDSU Academic Affairs Committee
- SDSU Workload Committee
- SDSU Faculty Award Committee
- SDSU Library Advisory Committee
- College of Engineering Scholarship Committee
- College of Engineering Distinguish Engineer Committee
- EE ABET Assessment Committee
- EE Curriculum Committee
- EE Scholarship Committee
- EE Graduate Committee
- GIS Center for Excellence new Ph.D. Program Coordinating Committee
- Initiated and organized the EECS department research seminar series at SDSU

Journal Reviewer

- Journal of the Optical Society of America: A
- Applied Optics
- Optical Engineering
- Optics Express
- IEEE Transactions on Geoscience and Remote Sensing

- International Journal of Remote Sensing
- Journal of Electronic Imaging
- Journal of Physics D: Applied Physics
- Measurement Science and Technology
- Journal of Optics A: Pure and Applied Optics
- ISPRS Journal of Photogrammetry and Remote Sensing
- Environmental Research Letters

Professional Affiliation

- Member IEEE
- Member HKN

Dr. Siddharth Suryanarayanan
Professor & Head (effective 06/2020)
Dept. of Electrical Engineering and Computer Science (EECS)
South Dakota State University (SDSU), Brookings, SD
Voice: +1 (850) 7667132
E-mail: sid.suryanarayanan@ieee.org

Professional Preparation

Madras University, Chennai, India	Electrical & Electronics Engineering	B.E. (2000)
Arizona State University, Tempe, AZ	Electrical Engineering (EE)	M.S. (2001)
Arizona State University, Tempe, AZ	EE	Ph.D. (2004)
Arizona State University, Tempe, AZ	EE	Post-doctoral faculty associate (2004-05)

Primary Appointments

06/2020–present: Professor (with tenure) & Head, Dept. of EECS, SDSU, Brookings, SD
07/2019–06/2020: Professor (with tenure), Dept. of ECE, CSU, Fort Collins, CO
07/2014–06/2019: Associate Professor (with tenure), Dept. of ECE, CSU, Fort Collins, CO
2010–06/2014: Assistant Professor, Dept. of ECE, CSU, Fort Collins, CO
2008–2010: Assistant Professor, Div. of Engg., Colorado School of Mines (CSM), Golden, CO
2005–2008: Assistant Scholar Scientist, Florida State University (FSU), Tallahassee, FL

Other Appointments

10/2018—12/2018: D'enseignant chercheur invite (Invited Guest Professor), Université de Technologie Belfort-Montbéliard (UTBM), France (On sabbatical leave from CSU, Fall 2018 semester)
05/2018: Profesor Ordinario Titular Invitado (Invited Professor), Instituto de Energía Eléctrica, Universidad Nacional de San Juan (UNSJ), Argentina
03/2013–02/2014: Joint Appointee, Scientific Staff, National Renewable Energy Laboratory (NREL), Golden, CO
03/2012: Visiting Academic (Assistant Professor), University of Cyprus, Nicosia, Cyprus.
02/2012–01/2015: Courtesy Appointment, Department of Mechanical Engineering, CSU
10/2010–10/2014: Site Director, Center for Research and Education in Wind (CREW), CSU
09/2012–10/2014: Junior Adjunct Researcher, Power Systems Engineering Research Center (PSERC), ASU
10/2010–05/2011: Adjunct Assistant Professor, Division of Engineering, CSM

Recent Awards and Recognitions

1. (Aug. 2019) Recipient, **Distinguished Individual Service Award**, Institute of Electrical and Electronics Engineers (IEEE) Power & Energy Society (PES) Technical Committee, Atlanta, GA
2. (Nov. 2018) **2018 R&D100 Award** for home energy management system product developed under collaborative project with NREL
3. (Nov. 2017) Recipient, 2017 IEEE-Eta Kappa Nu (HKN) **C. Holmes MacDonald Outstanding Teaching Award**
4. (Jan. 2017) Walter Scott, Jr. College of Engineering (WSCOE) **Nominee for University Distinguished Monfort Professorship**, CSU
5. (Sep. 2016–Jul. 2019) **Inaugural recipient**, The Lisa and Desi **Rhoden College Professorship** in Electrical and Computer Engineering, WSCOE, CSU (term-limited)
6. (Jul. 2015) Recipient, **Outstanding Young Engineer Award** of the IEEE PES

Publications

1. Selected journal publications (from total of 40)

a. F. A. Eldali and **S. Suryanarayanan**, "A data-driven justification for dedicated dynamic pricing for residences-based plug-in electric vehicles in wind energy-rich electricity grids," *IEEE Open Access Journal of Power and Energy*, vol. 7, no. 1, pp. 51–58, Dec. 2020, doi: 10.1109/OAJPE.2019.2952813.

b. B. Celik, **S. Suryanarayanan**, T. M. Hansen, and R. Roche, "Quantifying the impact of solar photovoltaic and energy storage assets on the performance of a residential energy aggregator," *IEEE Transactions on Sustainable Energy*, vol. 11, no. 1, pp. 405–414, Jan. 2020.

c. A. Anderson and **S. Suryanarayanan**, "A comprehensive review of energy management and planning of islanded microgrids: Part 1–Optimization techniques," accepted for publication in *CSEE Journal of Power and Energy Systems*, Dec. 2019, doi: 10.17775/CSEEJPES.2019.01080.

d. T. A. Alaqeel and **S. Suryanarayanan**, "A comprehensive cost-benefit economic analysis of the penetration of Smart Grid technologies in the Saudi Arabian electricity infrastructure," *Utilities Policy, Elsevier*, vol. 60, Oct. 2019, doi: 10.1016/j.jup.2019.100933.

e. M. E. Samper, F. A. Eldali, and **S. Suryanarayanan**, "Risk assessment in planning high penetrations of solar photovoltaic installations in distribution systems," *International Journal of Electrical Power and Energy Systems*, Elsevier, vol. 104, pp. 724–733, Jan. 2019.

f. R. G. Kadavil, **S. Suryanarayanan**, P. A. Aloise-Young, S. Isley, and D. Christensen, "An application of the analytic hierarchy process for prioritizing user preferences in the design of a home energy management system," Sustainable Energy, Grids, and Networks, Elsevier, vol. 16, pp. 196–206, Dec. 2018.

g. A. Anderson and **S. Suryanarayanan**, "An enterprise systems engineering approach to electrification: Looking at the bigger picture through lifecycle analysis of community microgrids: A case study in Papua New Guinea," *IEEE Electrification Magazine*, vol. 6, no. 4, pp. 18—31, Dec. 2018.

h. T. Hansen, R. Roche, **S. Suryanarayanan**, A. A. Maciejewski, H. J. Siegel, "A partially observable Markov decision process approach to residential home energy management," *IEEE Transactions on Smart Grid*, vol. 9, no. 2, pp. 1271–1281, Mar. 2018.

i. T. A. Alaqeel and **S. Suryanarayanan**, "A fuzzy analytic hierarchy process algorithm to prioritize Smart Grid technologies for the Saudi electricity infrastructure," *Sustainable Energy, Grids and Networks*, Elsevier, vol. 13, pp. 122—133, Jan. 2018.

j. B. Celik, R. Roche, **S. Suryanarayanan**, D. Bouquain, and A. Miraoui, "Electric energy management in residential areas through coordination of multiple smart homes," *Renewable & Sustainable Energy Reviews, Elsevier*, vol. 80, pp. 260–275, Dec. 2017.

2. Books edited

a. **S. Suryanarayanan**, R. Roche, T. M. Hansen, eds., Cyber-Physical-Social Systems and Constructs in Electrical Power Engineering, The Institution of Engineering and Technology (IET), London, UK, 2016.

b. E. Kyriakides, **S. Suryanarayanan**, and V. Vittal (Editors). Electric power engineering research and education—A festschrift for Gerald T. Heydt. Power Electronics and Power Systems Series, 1st Edition, Springer International Publishing: Switzerland, 2015.

3. Selected refereed conference proceedings (from total of 68)

a. A. Algarni, **S. Suryanarayanan**, and T. Namerikawa, "Integrating demand response aggregators with negawatt trading mechanisms in electricity markets," accepted In: *Proc. 2019 North American Power Symposium*, Wichita, KS, Sep. 2019.

b. M. Sun, M. Ghorbani, E. K. P. Chong, and **S. Suryanarayanan**, "A comparison of multiple methods for short-term load forecasting," accepted In: *Proc. 2019 North American Power Sympo-*

sium, Wichita, KS, Sep. 2019.

c. J. Giraldez, M. Emmanuel, A. Hoke, and **S. Suryanarayanan**, "Impacts of voltage-based grid support functions on energy production of PV customers," In: *Proc. 2019 IEEE PES General Meeting*, Atlanta, GA, 5. pp., Aug. 2019.

d. M. Panwar, **S. Suryanarayanan**, R. Roche, and R. Hovsapian, "A performance metric for reserve management in day-ahead dispatch of electric microgrids," In: *Proc. 2019 IEEE PowerTech*, Milano, Italy, 6. pp., Jun. 2019.

e. F. A. Eldali, M. E. Samper, and **S. Suryanarayanan**, "Risk-adjusted cost ratios for quantifying improvements in wind power forecasting," In: *Proc. 2019 IEEE PowerTech*, Milano, Italy, 6. pp., Jun. 2019.

f. Y. Zheng, **S. Suryanarayanan**, A. A. Maciejewski, H. J. Siegel, T. M. Hansen, and B. Celik, "An application of machine learning for a Smart Grid resource allocation problem," In: *Proc. 2019 IEEE PowerTech*, Milano, Italy, 6. pp., Jun. 2019.

g. A. M. Jadhav, Y. Zheng, S. Suryanarayanan, and N. R. Patne, "Energy management in a multimicrogrid system with community battery energy storage," In: *Proc. 20th National Power Systems Conference*, Tiruchirappalli, India, 6 pp., Dec. 2018.

h. G. T. Heydt, V. Vittal, and **S. Suryanarayanan**, "Robustness of electric power engineering education: Enrollments and university research funding levels 1969–2018," In: *Proc. 2018 North American Power Symposium*, Fargo, ND, 6 pp., Sep. 2018.

i. J. Giraldez, P. Gotseff, A. Nagarajan, R. Ueda, J. Shindo, and **S. Suryanarayanan**, "Distribution feeder modeling for time-series simulation of voltage management strategies," In: *Proc. 2018 IEEE PES Transmission and Distribution Conference and Exposition*, Denver, CO, 5 pp., Apr. 2018.

j. S. Sharma, V. Durvasulu, B. Celik, **S. Suryanarayanan**, T. M. Hansen, A. A. Maciejewski, and H. J. Siegel, "Metrics-based assessment of sustainability in demand response," In: Proc. IEEE SmartCity 2017 Conference, Bangkok, Thailand, pp. 130–137, Dec. 2017.

4. Other significant metrics

a. Co-inventor, 1 US patent 7908103, Mar. 15, 2011

b. Co-author, 8 publications that have received best paper or high citation recognitions

c. Invited participant, US National Academy of Engineering Frontiers Symposium (2011), US National Academy of Sciences 5th Arab-American Frontiers of Science, Engineering, and Medicine Symposium (2017)

d. Inductee, Fulbright Specialist Program Roster, U.S. Department of State's Bureau of Educational and Cultural Affairs (2017—2020)

e. > $3.5 generated in sponsored research projects as PI or co-PI

f. 2748 citations, h-index 26 (on Google Scholar 4/18/2020)

g. 7 book chapters and 40 non-referred reports and other publications

h. 71 invited lectures in domestic and international venues

i. Associate Editor
   a. IEEE Transactions on Power Systems (2019-present)
   b. IEEE Transactions on Power Delivery (2012-2017)

j. 45 instances of conference committees and chair positions and 24 instances of panelist functions

k. Invited reviewer or panelist for funding agencies such as the US National Science Foundation, Dept. of Energy, Advanced Research Projects Agency-Energy (ARPA-E)

Education Activities

1. Courses designed, developed, and delivered

a. ECE 508 Introduction to Power System Markets Fall 2010–2013, 2017, 2019, CSU
b. ECE 565 Electric Power Engineering Spring 2013–2018, CSU
c. ECE 566 Grid Integration of Wind Energy Conversion Systems Fall 2014, 2016 CSU
d. ECE 622 Energy Networks and Power Distribution Grids Spring 2018 CSU
e. ECE 623 Electric Power Quality Spring 2012, 2014, 2016, CSU
f. EGGN 580 Electric Power Quality Spring 2008, 2010, CSM
g. EGGN 587 Introduction to Power Systems Market Operations Fall 2008, 2009, CSM

2. Courses 'In charge of'

a. EGGN 487 Design of Advanced Energy Systems and Laboratory Spring 2009, 2010, CSM
b. EGGN 504/604 Energy Systems Seminar Fall 2008, CSM

3. Ph.D. dissertation students supervised

a. Alexander Anderson, "A System Engineering Approach to Community Microgrid Electrification and Sustainable Development in Papua New Guinea," Dissertation, Systems Engineering, Dec. 2019, CSU
b. Fathalla Eldali, "A Data-Driven Approach for Maximizing Available Wind Energy through a Dedicated Pricing Mechanism for Charging Residential Plug-In Electric Vehicles," Dissertation, Electrical Engineering, Aug. 2019, CSU
c. Sulaiman Almohaimeed, "Reducing Carbon Dioxide Emissions from Electricity Sector Using Demand Side Management," Dissertation, Electrical Engineering, Aug. 2019, CSU
d. Turki Alaqeel, "An Econometric Framework for Electricity Infrastructure Modernization in Saudi Arabia," Dissertation, Electrical Engineering, May 2017, CSU
e. Mayank Panwar, "Operation of Electric Microgrids Under Uncertainty," Dissertation, Electrical Engineering, Sep. 2016, CSU
f. Manish Mohanpurkar, "Computation of Loop Flows in Electric Grids with High Wind Energy Penetration," Dissertation, Electrical Engineering, Dec. 2013, CSU

4. M.S. thesis students supervised

a. Rahul Kadavil, "An Open Source Interface for Distribution System Modeling in Power System Co-simulation Applications and Two Algorithms for Populating Feeder Models," Thesis, Electrical Engineering, Sep. 2016, CSU
b. Sulaiman Almohaimeed, "Steady State Analysis of an Impact of Climate Change on Distribution Transformers," Thesis, Electrical Engineering, May 2016, CSU
c. Pawan Singh, "Real Time Modeling and Simulation of Distribution Feeder and Distributed Resources," Thesis, Electrical Engineering, Dec. 2015, CSU
d. Mayank Panwar, "Reliability Quantification and Visualization for Electric Microgrids," Thesis, Electrical Engineering, Dec. 2012, CSU
e. Sudarshan Natarajan, "Some Aspects of the Computational Complexity in the Design of Islanded Microgrids, Design and Analysis of Blackstart Sequences for a Notional Microgrid," Thesis, Electrical Engineering, May 2012, CSU
f. Joseph Palchak, "Energy Management of a University Campus Utilizing Shortterm Load Forecasting with an Artificial Neural Network," Thesis, Electrical Engineering, May 2012, CSU
g. Julieta Giraldez, "Planning Distribution System Resource Islands Considering Reliability, Cost and the Impact of Penetration of Plug-in Hybrid Electric Vehicles," Thesis, Electrical Engineering, May 2011, CSM
h. Peng Zhao, "A Cyber Physical System Enabled Efficient Building Energy Management System Through a Multi-agent Decision Making Control Methodology," Thesis, Electrical Engineering, Aug. 2010, CSM

i. Josune Armas, "A Customer Driven Energy Management System for a Distributed Energy Resource Installation Incorporating Local Energy Storage and a Photovoltaic Source," Thesis, Electrical Engineering, May 2010, CSM
j. Hilary Brown, "Implications of the Smart Grid Initiative on Distribution System Engineering: Improving Reliability of Islanded Distribution Systems with Distributed Generation Sources," Thesis, Electrical Engineering, May 2010, CSM

5. M.S. and Ph.D. students currently being supervised

a. Abdullah Algarni, Electrical Engineering, CSU (completed Preliminary Exam in Spring 2020)
b. Robert Baker, Systems Engineering, CSU
c. Julieta Giraldez, Systems Engineering, CSU (completed Preliminary Exam in Fall 2019)
d. Tanveer Hussain, Electrical Engineering, CSU (completed Qualifying Exam in Spring 2020)

6. Foreign scholarship programs support acknowledgement

a. Abdullah Algarni, Umm Alqura University Scholarship, Govt. of Saudi Arabia, Managed by the Cultural Mission of the Royal Embassy of Saudi Arabia (SACM), Period of scholarship: 12/30/2013–12/29/2020, Project involvement: NSF Award ECCS–1608898
b. Sulaiman Almohaimeed, Saudi Arabia Government Scholarship Program, Ministry of Education, Govt. of Saudi Arabia, Managed by SACM, Period of scholarship: circa 08/2015–08/2019.
c. Fathalla Eldali, The Libyan North American Scholarship Program (LNSP), The Libyan High Ministry of Higher Education and Scientific Research (MHESR), Managed by the Canadian Bureau of International Education (CBIE), Period of scholarship: circa 08/2014–08/2019, Project involvement: NSF Award ECCS–1608898 and INL contract for Real time power systems modeling and analysis research.
d. Turki Alaqeel, Electrical Engineering King Abdullah Scholarship Program, Ministry of Education, Govt. of Saudi Arabia, Managed by SACM, Period of scholarship: circa 2013–08/2017.

7. Other significant information

a. 2 instances of serving as primary research supervisor of dissertation researchers at CSU and UTBM
b. 2 short courses developed and delivered in Argentina and France
c. 20 senior design teams, independent study courses, and honors theses supervised at CSU
d. 16 postdoctoral fellows and visiting international students/scholars supervised at CSU and CSM

Service Activities

a. Selected service activities to professional field

a. Chair/vice-chair/secretary (2018/2016/2014), Power & Energy Education Committee (PEEC), IEEE PES
b. Reviewer for numerous IEEE and other journals and conferences

b. Selected service activities to academic field

a. Dept. of ECE representative, Faculty Council, CSU (2016—present)
b. WSCOE representative, Faculty Council Committee on Scholarship, Research, & Graduate Education, CSU (2013—2019)
c. Member, Dept. of ECE committees on promotion & tenure and curriculum (circa 2014—present)
d. Faculty advisor to CS chapters of IEEE/IEEE-HKN (2013/2015—present)

c. Selected service activity to society at large

a. Advisory Boards: Fossil Ridge High School Science Technology Engineering and Mathematics (STEM) Academy, Fort Collins, CO (2018—present)

For Detailed CV Visit Link

CURRICULUM VITAE

April 16, 2020

PERSONAL DATA

Reinaldo Tonkoski
Department of Electrical Engineering and Computer Science
South Dakota State University, Brookings, SD 57007-2222
Telephone (605) 688-6298, Fax (605) 688-4401,
E-mail: tonkoski@ieee.org
University Profile: https://www.sdstate.edu/directory/reinaldo-tonkoski
Google Scholar Profile: https://scholar.google.com/citations?user=0CyyBNYAAAAJ&hl=en
LinkedIn Profile: https://www.linkedin.com/in/tonkoski/

PROFESSIONAL

2018-Present	Associate Professor Electrical Eng. and Computer Science (EECS), SDSU, Brookings, SD
2019	Visiting Summer Faculty Electric Power Systems Research Department, Sandia National Laboratories, Albuquerque, NM
2012-2018	Assistant professor Electrical Eng. and Computer Science (EECS), SDSU, Brookings, SD
2009 – 2010	Visiting Fellow Natural Resources Canada – Canmet ENERGY, Varennes, QC Grid Integration of Renewable Energy Systems

EDUCATION

2006 - 2011	PhD. in Electrical Engineering. Concordia University, Montreal, QC Ph.D. Thesis Title: Impact of High Penetration of Photovoltaics on Low Voltage Systems and Remedial Actions Advisor: Dr. Luiz A. C. Lopes.
2004 – 2006	Master's in Electrical Engineering. Pontifícia Universidade Católica do Rio Grande do Sul, PUCRS, Rio Grande do Sul, Brazil. Master's Dissertation Title: Estudo da Utilização de PFCs Na Minimização De Harmônicos Em Aerogeradores *("Study and Implementation of PFCs for Harmonic Mitigation in Wind Generators")* Advisor: Dr. Fernando Soares dos Reis. Scholarship from: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, CAPES, Brazil.
1998 - 2003	BSc. in Control and Automation Engineering. Pontifícia Universidade Católica do Rio Grande do Sul, PUCRS, Rio Grande do Sul, Brazil. Final Project Title: Plataforma para o Desenvolvimento de Estratégias de Controle para Reatores Eletrônicos. *("Electronic Ballast Design System")* Advisor: Dr. Fernando Soares dos Reis. Scholarship from: Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPQ, Brazil.

COMPLEMENTARY EDUCATION

2001 University Extension Program on Communities Exchange. (Hours: 1040h)
Pontifícia Universidade Católica do Rio Grande do Sul, PUCRS,
Rio Grande do Sul, Brazil.

2001 University Extension in Dévelopment Communautaire et Rel. Interculturelles.
Cègep Marie Victorin & Canada World Youth, CWY, Montreal, QC, Canada.

1996 JA Company Program.
JR Achievement, JA, Rio Grande do Sul, Brazil.

RESEARCH TOPICS

1 Grid Integration of Renewable Energy Systems
2 Voltage and Frequency Control in Power Systems
3 Power Quality
4 Power Electronics
5 Power Hardware-in-the-Loop and Real Time Simulations of Power Systems

HONORS, AWARDS AND FELLOWSHIPS

2019 Jerome J. Lohr College of Engineering Distinguished Researcher 2019.

2017 Excellence in Advising Award 2017, Electrical Engineering and Computer Science Department, South Dakota State University.

2017 Best paper award in the IEEE ICIT 2017, Toronto, Canada.

2014 Best paper award in the smart grid track at the IEEE/IAS International Conference on Industry Applications - INDUSCON 2014.

2014 Reliable and Resilient Microgrids for Data Centers, Duration: 05/2014-04/2015, 2014 Microsoft Research Award for the Software Engineering Innovation Foundation (SEIF), $40,000.00.

2002 Destaque no III Salão de Iniciação Científica PUCRS (Distinction on the III Undergraduate Scientific Meeting, PONTIFÍCIA UNIVERSIDADE DO RIO GRANDE DO SUL, PUCRS).

2007 Teaching Fellowship, Awarded by Electrical and Computer Engineering Department, CONCORDIA UNIVERSITY, Canada

2007 Awarded Concordia University International Tuition Fee Remission Award

2010 IEEE IES Student Travel Grant to participate in the ISIE'2010 (Conference of the IEEE Industrial Electronics Society) to be hold in Bari, Italy. 8 Scholarships were granted among 35 students.

TEACHING EXPERIENCE

2012-Current SOUTH DAKOTA STATE UNIVERSITY, USA, Faculty:
EE430/L – Electromechanical Systems
EE434/L – Power Systems Analysis
EE731/L – Advanced Power Electronics
EE732/L – Modeling and Control of Power Electronics Systems
EE792 – Wind Energy Systems
EE436/536/L – Photovoltaic Systems Engineering

2006-2010 CONCORDIA UNIVERSITY, Canada - Teaching Assistant:
ELEC 331 – Fundamentals of Electrical Power Engineering (Tutor),
ELEC 6411/433 – Power Electronics I (Marker)

RESEARCH/SCHOLARSHIP SUPPORT

Approximate Total Grants and Contracts: $ 1,607,426

- Shirazi, M. (Lead Institution PI -UAF), Tonkoski, R. (Lead PI @ SDSU), Hansen, T. M. (Co-PI SDSU), et al. "Development and Validation of Models to Assess Dynamic Response of Converter-Dominated Power Systems across Multiple Spatiotemporal Scales," Sponsored by Department of Energy (Lead Institution University of Alaska Fairbanks), SDSU portion $ 592,899 - Total Project ~$3,000,000 (Aug. 15, 2019 to Aug. 14, 2021).
- Ni, Z. (PI), Tonkoski, R. (Co-PI), "Collaborative Research: CyberTraining: Implementation: Small: Multi-disciplinary Training of Learning, Optimization and Communications for Next Generation Power Engineers," Sponsored by NSF, Federal, $ 299,876. (September 15, 2019 - August 31, 2023).
- Tonkoski, R. (PI), "DCL:MRI: Acquisition of a Microgrid Cyber-Physical Testbed for Advanced Energy Management Systems, (Supplement)" Sponsored by NSF, Federal, $24,973. (September 15, 2019 - August 31, 2020).
- Tonkoski, R. (Co-PI), Hansen, T. M. (PI), "Battery Energy Storage System-based Virtual Inertia for a Resilient Power Grid," Sponsored by SDSU Office of Academic Affairs and Office of Research and Economic Development: Research, Scholarship and Creative Activity (RSCA) Challenge Fund, Award: $32,105, (Aug. 19, 2019 to Aug. 18, 2020).
- Tonkoski, R. (PI), Michael, S. K. (Co- PI), Doom, J. J. (Co- PI), Ni, Z. (Co-PI), Hansen, T. M. (Co-PI), "MRI: Acquisition of a Microgrid Cyber-Physical Testbed for Advanced Energy Management Systems," Sponsored by NSF, Federal, $360,516. (September 15, 2017 - August 31, 2020).
- Tonkoski, R., "Honolulu Authority for Rapid Transportation (HART) Voltage Regulation Study," Sponsored by Lea+Elliott, Inc., Private, $61,580. (August 14, 2017 - August 13, 2019).
- Tonkoski, R., "Development of Reliable and Sustainable Microgrids - Year 2 Continuation Proposal," SDBoR Competitive Research Grant Program FY15, State, $96,200.00. (August 22, 2015 - August 21, 2016).
- Tonkoski, R., "Development of Reliable and Sustainable Microgrids," SDBoR Competitive Research Grant Program FY15, $86,777.00. (August 22, 2014 - August 21, 2015).
- Tonkoski, R. (PI), Sun, (Co-PI) "Reliable and Resilient Microgrids for Data Centers", 2014 Microsoft Research Award for the Software Engineering Innovation Foundation (SEIF), $40,000.00 (May, 2014 - April, 2015).
- Tonkoski, R., "Development of a Power Management System for Data Centers with High Penetration of Photovoltaics", SDSU 2014 Research/Scholarship Support Fund, $ 7,500.00, (April, 2014 - May, 2015).
- Developing a Sustainable Power Management System for Rural Microgrids, Duration: 10/2013-04/2014, SDSU Academic & Scholarly Excellence Awards, $ 5,000.00, (October, 2013 - April, 2014).

OTHER PROFESSIONAL ACTIVITIES, MEMBERSHIPS, AND INVITED TALKS

- Associate Editor IEEE Access (October/2018- current)
- Editor IEEE Transactions on Sustainable Energy (January/2019- current)
- Editor IEEE Latin America Transactions (May/2019- current)
- Peer Reviewer for the U.S. Department of Energy's Office of Electricity Delivery and Reliability Energy Storage Program (2016, 2017, and 2018)
- Peer Reviewer for NSF Programs since 2015
- IEEE Siouxland Section Chair (May/2017- December/2018)
- IEEE Senior Member (S'04–M'11–SM'18)
- IEEE HKN Member
- IEEE PES Scholarship Plus Initiative Reviewer – Region 4 (May/2017- Current)
- Chair of the EECS Department Head Search Committee (Fall/19)
- SDSU Faculty Senator (Fall/18-Present)
- Dean's Faculty Advisory Committee Member (Fall/18-Present)
- Environmental Stewardship and Sustainability Committee (Co-Chair: AY17/18 and member Fall 18-

Present)
- IEEE GOLD Montreal Chair (May/2009- May/2010)
- Secretary of IEEE Canada EPEC 2009 (Electrical Power and Energy Conference 2009)
- Advisor of SDSU's IEEE Student Branch (September/2015-Current)
- Reviewer for the following Journals (most frequent):
    IET Journal of Renewable Power Generation
    IEEE Transactions on Sustainable Energy
    IEEE Transactions on Smart Grid
    IEEE Transactions on Power Delivery
    IEEE Power Engineering Letters
    IEEE Transactions on Power Systems
    IEEE Transactions on Power Electronics
    IEEE Transactions on Industrial Electronics
    IEEE Journal of Photovoltaics

INVITED PRESENTATIONS

1. Panel Speaker: IEEE PES GM 2019, Microgrid Stability Definitions, Analysis, and Modeling, " Stability analysis techniques and tools", August 6,2019, Atlanta, MA.
2. Panel Speaker: IEEE Powertech 2019, Microgrid Stability Definitions, Analysis, and Modeling, "Models and tools for stability studies", June 27, 2019, Milan, Italy.
3. Panel Speaker: IEEE EIT 2019, Market, Policy, and Operation Considerations to Enable a Sustainable and Resilient Grid, "Frequency Control in 100% Renewable Grid", May, 20, 2019, Brookings, SD.
4. Panel Speaker: IEEE ISGT 2019 Panel: Energy Management in a 100% Renewable Grid, Presentation Title: Virtual Inertia for Stability in 100% Renewable Grid, February 19, 2019, Washington DC.
5. S.D. Rural Electric Member Services Association Meeting Fall 2018, "Trends in Energy Systems", October 24, 2018, Brookings, SD.
6. 2018 Grid of The Future Workshop, "Voltage Control Strategies for Distribution Systems with High Penetration of Photovoltaics", August 22, 2018, Albuquerque, NM.
7. 2018 Tau Beta Pi District 11 Conference, "Graduate Degrees in Electrical Engineering: Power and Energy Systems," Tau Beta Pi, April 2018, Brookings, SD.
8. Green Drinks, "Beyond Lovers and Haters: The Energy Source that is Changing the Electricity Grid," Brookings Sustainability Council, January 25, 2018, Brookings, SD.
9. Missouri S&T, "Voltage and Frequency Control in Microgrids", October 25, 2017, Rolla, MO.
10. NREL, "Power Research Program at SDSU," November 4, 2016, Brookings, SD.
11. South Dakota Regional Power (SoDaRP) Conference, "Power Research Program at SDSU," October 3, 2016, Brookings, SD.
12. Panel Speaker: IEEE PES GM 2016, Microgrid Stability Workgroup, "Synthetic Inertia on Power Systems: A review of the main applications and findings", July 19, 2016, Boston, MA.
13. NDSU Mini-Symposium on Power and Power Electronics, Current Research Projects at SDSU, Oc-tober 28, 2015, Fargo, ND.
14. John Deere Power Electronics Group, Power Electronics at SDSU, October 15,2015, Fargo, ND
15. NREL, "Renewable Energy Systems Integration and Microgrids at South Dakota State University", September 30, 2014, Golden, CO.
16. Pontifical Catholic University of Rio Grande do Sul, "Renewable Energy Integration Challenges", December 17, 2014, Porto Alegre, Brazil.

PUBLICATIONS

Journal Papers and Significant Reports

1. R. MAHAT, K. DUWADI, F. B. D. REIS, R. FOURNEY, **R. TONKOSKI**, AND T. M. HANSEN, "A Long-Term Techno-Economic Analysis of PV Inverter Controllers for Preventing Overvoltage in Low-Voltage Grids," *Renewable Energy*, (under review), 2019.

2. BHATTARAI, B.; PAUDYAL, S.; LUO, Y.; MOHANPURKAR, M.; CHEUNG, K. W.; **TONKOSKI, R.**; HOVSAPIAN, R.; MYERS, K.; ZHANG, R.; ZHAO, P.; MANIC, M.; ZHANG, S.; ZHANG, X., 'Big Data Analytics

in Smart Grids: State-of-the-Art, Challenges, Opportunities, and Future Directions', IET Smart Grid, 2019, DOI: 10.1049/iet-stg.2018.0261.

3. SUN, H.; GUO, Q.; QI, J.; AJJARAPU, V.; BRAVO, R.; CHOW, J.; LI, Z.; MOGHE, R.; NASR-AZADANI, E.; TAMRAKAR, U.; TARANTO, G. N.; **TONKOSKI, R.**; VALVERDE, G.; WU, Q.; YANG, G., "Review of Challenges and Research Opportunities for Voltage Control in Smart Grids", IEEE Transactions on Power Systems, vol. TBD, no. TBD, pp. TBD, 2019.

4. M. FARROKHABADI, C. A. CAÑIZARES, J. W. SIMPSON-PORCO, E. NASR-AZADANI, L. FAN, P. A. MENDOZA ARAYA, **R. TONKOSKI**, U. TAMRAKAR, N. HATZIARGYRIOU, D. LAGOS, R. W. WIES, M. PAOLONE, M. LISERRE, L. MEEGAHAPOLA, M. KABALAN, A. H. HAJIMIRAGHA, D. PERALTA, M. ELIZONDO, K. P. SCHNEIDER, F. TUFFNER, J. REILLY, "Microgrid Stability Definitions, Analysis, and Modeling", IEEE PES Power System Dynamic Performance Committee Technical Report, April, 2018.

5. TAMAKAR, U.; SHRESTHA, D.; MALLA, N.; NI, Z.; HANSEN, T.; TAMAKAR, I.; **TONKOSKI, R.**, "Comparative Analysis of Current Control Techniques to Support Virtual Inertia Applications", *Applied Sciences,* vol. 08, no. 18, pp. 2695, 2018.

6. SHRESTHA, B.; TAMRAKAR, U.; HANSEN, T.; BHATTARAI, B.P; **TONKOSKI, R.**, "Efficiency and Reliability Analyses of AC and 380V DC Distribution in Data Centers", *IEEE Access*, vol. 6, pp. 63305-63315, 2018.

7. TAMAKAR, U.; SHRESTHA, D.; MAHARJAN, M.; BHATTARAI, B.P.; HANSEN, T.; **TONKOSKI, R.**, "Virtual Inertia: Current Trends and Future Directions", *Applied Sciences,* vol. 07, no. 07, pp. 654, 2017.

8. MALLA, N.; TAMRAKAR, U; SHRESTHA, D.; NI, Z.; **TONKOSKI, R.**, "Online Learning Control for Harmonics Reduction based on Current Controlled Voltage Source Power Inverters," *IEEE/CAA Journal of Automatica Sinica*, vol. 4, no. 3, pp. 447-457, 2017.

9. SHAKYA, A.; MICHAEL, S.; SAUNDERS, C.; ARMSTRONG, D.; PANDEY, P.;CHALISE, S.; **TONKOSKI, R.**, "Solar Irradiance Forecasting in Remote Microgrids using Markov Switching Model," *IEEE Transactions on Sustainable Energy*, vol. 08, no. 03, pp. 895-905, 2017.

10. CHALISE, S.; ATIA, H.R.; POUDEL, B.; **TONKOSKI, R.**, "Impact of Active Power Curtailment of Wind Turbines Connected to Residential Feeders for Overvoltage Prevention," *IEEE Transactions on Sustainable Energy*, vol.07, no.02, pp.471-479, 2016.

11. CHALISE, S.; STERNHAGEN, J.; **TONKOSKI, R.**, "Energy Management of Remote Microgrids Considering Battery Lifetime," *The Electricity Journal*, vol. 29, no.6, pp.1-10, 2016.

12. SHARMA, S., TAMRAKAR, U., **TONKOSKI, R.,** GALIPEAU, D., Load Management for Grid-Connection of Household Photovoltaic Systems without Net-Metering, (2014) *International Journal on Energy Conversion (IRECON)*, 2(6), pp. 190-197,2014.

13. **TONKOSKI, R.;** TURCOTE, D.; EL-FOULY, T. Impact of High PV Penetration on Voltage Profiles in Residential Neighbourhoods. *IEEE Transactions on Sustainable Energy*, Vol. 3, No. 3, 2012 ***(Highly Cited Paper = As of October 2018, this highly cited paper received enough citations to place it in the top 1% of the academic field of Engineering based on a highly cited threshold for the field and publication year based on Web of Science)***

14. **TONKOSKI , R.**; LOPES, L. A. C.; EL-FOULY, T. Coordinated Active Power Curtailment of Grid Connected PV Inverters for Overvoltage Prevention. *IEEE Transactions on Sustainable Energy*, Vol. 2, No. 2, 2011 ***(Highly Cited Paper = As of October 2018, this highly cited paper received enough citations to place it in the top 1% of the academic field of Engineering based on a highly cited threshold for the field and publication year based on Web of Science)***

15. **TONKOSKI , R.**; LOPES, L. A. C. Overvoltage Prevention in Residential Feeders with High Penetration of Photovoltaics. *IEEE Canadian Review*, No. 66, 2011.

16. **TONKOSKI , R.**; LOPES, L. A. C. Impact of Active Power Curtailment on Overvoltage Prevention and Energy Production of PV Inverters Connected to Low Voltage Residential Feeders. Renewable Energy, Vol. 36 No. 12, 2011.

17. SANTOS, A.; TOSS, M.; SOUZA, R. R. N., **TONKOSKI, R.**, DOS REIS, F. S. A Influência Do Reator Eletrônico Com Partida Programada Na Vida Útil Da Lâmpada Fluorescente T5. *Eletrônica de Potência (Florianópolis)*, v. 14, p. 157-164, 2009.

18. **TONKOSKI , R**.; LOPES, L. A. C.; ALÉ, J. V.; ADEGAS, F. D.; SOUZA, R. R. N.; ISLAM, S.; TAN, K. ; LIMA, J. C. M.; DOS REIS, F. S. Mitigação do Conteúdo Harmônico em Aerogeradores Usando um PFP Elevador de Chave Única. *Eletrônica de Potência (Florianópolis)*, v. 12, p. 269-276, 2007.

Books

TONKOSKI, R. Impact of High Penetration of Photovoltaics on Low Voltage Systems: LAP LAMBERT Academic Publishing, ISBN 978-3-8484-9356-2 2014.

Conference Proceedings - Full Papers (Most Recent)

1. TAMRAKAR, U.; HANSEN, T. M; COPP, D. A; **TONKOSKI, R.**, "Model Predictive Frequency Control of Low Inertia Microgrids," in 2019 IEEE 28th International Symposium on Industrial Electronics (ISIE), pp. 2111-2116, Vancouver, 2019.

2. INGALALLI, A.; TAMRAKAR, U.; HANSEN, T. M; **TONKOSKI, R.**, "Modeling Hydro Power System Frequency Dynamics for Virtual Inertia Emulation," in 2019 IEEE 28th International Symposium on Industrial Electronics (ISIE), pp. 2565-2570, Vancouver, 2019.

3. DOS REIS, F. B; DUWADI, K.; FOUTNEY, R.; **TONKOSKI, R.**; HANSEN, T. M; KHAN, M. A. I.; PAUDYAL, S., "Impact of Residential Load Models for Overvoltage Prevention Studies in PV-Rich LV Grids," in 2019 IEEE PowerTech, Milan, 2019.

4. LUNA, A.; TAMRAKAR, U.; HANSEN, T. M.; **TONKOSKI, R.**; "Frequency response in grids with high penetration of renewable energy source," in 2018 North American Power Symposium, pp. 1–5, Fargo, 2018.

5. BAJRACHARYA, A.; KHAN, M. R. A.; MICHAEL, S.; **TONKOSKI, R.**; "Forecasting data center load using hidden Markov model," in 2018 North American Power Symposium, pp. 1–5, Fargo, 2018..

6. TAMRAKAR, U.; LUNA, A.; DOS REIS, F. B.; SHRESTHA, D.; FOURNEY, R.; and **TONKOSKI, R.**, "Virtual inertia emulation using commercial off-the-shelf inverters," in IEEE Energy Conversion Congress and Exposition (ECCE) 2018, pp. 1–5, Portland, 2018.

7. BHATTARAI, B. P.; PAUDYAL, S.; MYERS, K. S.; TURK, R. J.; and **TONKOSKI, R.**, "Model predictive optimal dispatch of behind-the-meter energy storage considering onsite generation uncertainties," in IEEE Power and Energy Society (PES) General Meeting, 2018, IEEE, 2018, pp. 1–5, Portland, 2018.

8. PAUDYAL, S.; BHATTARAI, B. P.; **TONKOSKI, R.**; S. DAHAL; and CEYLAN, O., "Comparative study of active power curtailment methods on PVs for preventing overvoltage on distribution feeders," in IEEE Power and Energy Society (PES) General Meeting, 2018, IEEE, 2018, pp. 1–5, Portland, 2018.

9. ULLAH, M. H.; CHALISE, S.; TAMRAKAR, U.; and **TONKOSKI, R.**, "Impact of battery operating conditions on remote microgrid's energy management system," in 2018 IEEE Power Energy Society General Meeting, pp. 1–5, Portland, 2018.

10. TANDUKAR, P.; BAJRACHARYA, L.; HANSEN, T. M.; FOURNEY, R.; TAMRAKAR, U.; and **TONKOSKI, R.**, "Realtime operation of a data center as virtual power plant considering battery lifetime," in IEEE SPEEDAM 2018, pp. 1–5, Amalfi, 2018.

11. TANDUKAR, P.; SHAKYA, A.; HANSEN, T. M.; FOURNEY, R.; **TONKOSKI, R.**, “Genitor Based Energy Management System for Remote Microgrids Considering Battery Lifetime,” In Electrical Energy Storage Applications and Technologies (EESAT) Conference. San Diego, 2017.

12. ADHIKARI, P.; PRAJAPATI, S.; TAMRAKAR, I.; TAMRAKAR, U.; **TONKOSKI, R.**, “Parallel Operation of Virtual Synchronous Machines with Frequency Droop Control,” In 2017 7th International Conference on Power Systems. Pune, 2017.

13. MAHARJAN, M.; TANDUKAR, P.; BAJRACHARYA, A.; SHRESTHA, D., TAMRAKAR, U.; **TONKOSKI, R.**, “SEPIC converter with wide bandgap semiconductor for PV battery charger,” In 14th Brazilian Power Electronics Conference (COBEP) 2017, Juiz de Fora, 2017.

14. DOS REIS, F., CABRAL, H. G.; DUTRA, S. C. A.; NERY, E. G.; VIEIRA, V. A.; PAN, A. C.; DOS REIS, F. B.; **TONKOSKI, R.**, “The D-Converter in CCM: Analysis, Design And Results,” In 14th Brazilian Power Electronics Conference (COBEP) 2017, Juiz de Fora, 2017.

15. TAMRAKAR, U.; MALLA, N.; SHRESTHA, D.; NI, Z.; **TONKOSKI, R.**, “Design of Online Supplementary Adaptive Dynamic Programming for Current Control in Power Electronic Systems,” IEEE Energy Conversion Congress & Expo (ECCE), Cincinnati, Ohio, 2017.

16. MAHARJAN, M.; TAMRAKAR, U.; MALLA, N.; NI,Z.; HANSEN, T.; **TONKOSKI, R.**, “Adaptive Droop-Based Active Power Curtailment Method for Overvoltage Prevention in Low Voltage Distribution Network,” in IEEE International Conference on Electro Information Technology (EIT), Lincoln, NE, 2017.

17. MAHARJAN, M.; TAMRAKAR, U.; BAJAGAIN, S.; HANSEN, R.; **TONKOSKI, R.** "A Steady-State Equivalent Model of Solid State Transformers for Voltage Regulation Studies," in the IEEE PES General Meeting 2017, Chicago, 2017.

18. SHRESTHA, D.; TAMRAKAR, U.; NI, Z, **TONKOSKI, R**., “Experimental Verification of Virtual Inertia in Diesel General based Microgrids,” in 18th IEEE International Conference on Industrial Technology, Toronto, 2017. ***Best paper award ICIT 2017.***

19. DURVASULA, V.; HANSEN,T.; **TONKOSKI, R.**, “Classification of Generators Participating in the Bulk-Power Market”, in 18th IEEE International Conference on Industrial Technology, Toronto, 2017.

20. SHRESTHA, B.; HANSEN, T.; **TONKOSKI, R.,** “Reliability analysis of 380V DC distribution in data centers,” in IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT), Minneapolis,MN, 2016, 5 pp.

21. POUDEL, S.; NI, Z.; HANSEN, T.; **TONKOSKI, R.**, “Cascading failures and transient stability experimental analysis in power grid security,” in IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT), Minneapolis,MN, 2016, 5 pp.

22. SHAKYA, A.; MICHAEL, S.; SAUNDERS, C.; ARMSTRONG, D.; PANDEY, P.;CHALISE, S.; **TONKOSKI, R.**, " Using Markov Switching Model for Solar Irradiance Forecasting in Remote Microgrids," in IEEE Energy Conversion Congress and Expo (ECCE) Milwaukee, WI, 2016, 7 pp.

23. NEPAL, S.; SHAKYA, A.; FOURNEY, R.; STERNHAGEN, J.; **TONKOSKI, R.** "Development of Real-time Control of Commercial Off-The-Shelf Inverter/Charger for Energy Management of Microgrids," in IEEE PES General Meeting 2016, Boston, 2016, 5 pp.

24. BAJRACHARYA, L.; AWASTHI, S.; CHALISE, S.; HANSEN, T.; **R. TONKOSKI**, "Economic Analysis of a Data Center Virtual Power Plant Participating in Demand Response," in IEEE PES General Meeting 2016, Boston, 2016, 5pp.

25. MALLA, N.; SHRESTHA, D.; NI, Z.; **TONKOSKI**, **R.** " Supplementary Control for Virtual Synchronous Machine based on Adaptive Dynamic Programming," in IEEE World Congress on Computational Intelligence (IEEE WCCI), Vancouver, 2016, pp.1998-2005.

26. ULLAH, M. H.; CHALISE, S.;**TONKOSKI, R**.; “Feasibility Study of Energy Storage Technologies for Remote Microgrid’s Energy Management Systems”, in 23rd International Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM), 2016, pp. 689-694.

27. TAMRAKAR, U.; **TONKOSKI, R**.; NI. Z; HANSEN, T. and TAMRAKAR, I., "Current control techniques for applications in virtual synchronous machines," IEEE 6th International Conference on Power Systems (ICPS), New Delhi, 2016, 6 pp.

28. SHRESTHA, D.; TAMRAKAR, U.; MALLA, N.; NI, Z.; **TONKOSKI, R.** ,“Reduction of energy consumption of virtual synchronous machine using supplementary adaptive dynamic programming,” in IEEE International Conference on Electro Information Technology (EIT), Grand Forks, ND, 2016, pp. 0690-0694.

29. KAFLE, L.; NI, Z.; **TONKOSKI, R.**, Qiao, Q., “Frequency control of isolated micro-grid using a droop control approach,” in IEEE International Conference on Electro Information Technology (EIT), Grand Forks, ND, 2016, pp. 0690-0694.

30. TAMRAKAR, U.; LAURSEN, E.; MAHARJAN, M.; GENT, S.; **TONKOSKI, R**., "Modeling of photobioreactors for remote microgrids," IEEE 6th International Conference on Power Systems (ICPS), New Delhi, 2016, pp. 0686-0689.

31. ATIA, H.; SHAKYA, A.; TANDUKAR, P.; TAMRAKAR, U.; HANSEN, T.; **TONKOSKI, R**., "Efficiency analysis of AC coupled and DC coupled microgrids considering load profile variations," IEEE 6th International Conference on Power Systems (ICPS), New Delhi, 2016, pp. 0695-0699.

32. TAMRAKAR, U.; GALIPEAU, D.; TAMRAKAR, I.; **TONKOSKI, R.**, "Improving transient stability of photovoltaic-hydro microgrids using virtual synchronous machines," in PowerTech, 2015 IEEE Eindhoven , vol., no., pp.1-6, June 29 2015-July 2, 2015.

33. AWASTHI, S.R.; CHALISE, S.; **TONKOSKI, R.**, "Operation of datacenter as virtual power plant," in Energy Conversion Congress and Exposition (ECCE), 2015 IEEE , vol., no., pp.3422-3429, 20-24 Sept. 2015.

34. CHALISE, S.; GOLSHANI, A.; AWASTHI, S.R.; SHANSHAN MA; SHRESTHA, B.R.; BAJRACHARYA, L.; WEI SUN; **TONKOSKI, R.**, "Data center energy systems: Current technology and future direction," in Power & Energy Society General Meeting, 2015 IEEE , vol., no., pp.1-5, 26-30 July 2015

35. CHALISE, S.; **TONKOSKI, R**. Day Ahead Schedule of Remote Microgrids with Renewable Energy Sources Considering Battery Lifetime. IEEE/IAS International Conference on Industry Applications - INDUSCON 2014. ***Best paper award in the smart grid track.***

36. CHALISE, S.; POUDEL, B.; **TONKOSKI, R**.; Overvoltages in LV Rural Feeders with High Penetration of Wind Energy. In: IEEE Power Engineering Society General Meeting 2013 (IEEE PES GM 2013), Vancouver, 2013.

37. DOS REIS, F.; DE LIMA, J.C.M. ; DOS REIS, F.S. ; **TONKOSKI, R.** Development of a flexible public lighting system.In: 39th Annual Conference of the IEEE Industrial Electronics Society, (IECON 2013), Vienna, 2013.

38. GURUNG, A.; **TONKOSKI, R**.; GALIPEAU, D., TAMRAKAR, T. Feasibility Study of Photovoltaic-Hydropower Microgrids. In: In: Fifth International Conference on Power and Energy Systems (ICPS 2013), Kathmandu, 2013.

39. CHALISE S., DOS REIS, F. B., STERNHAGEN J.; **TONKOSKI, R.;** Power Management Strategies for Microgrids with High Penetration of Renewables. In: Fifth International Conference on Power and Energy Systems, Kathmandu, 2013.

40. BHANDARI, Y.; CHALISE S., STERNHAGEN J.; **TONKOSKI, R**.; Reducing Fuel Consumption in Microgrids Using PV, Batteries, and Generator Cycling. In: 2013 IEEE International Conference on Electro/Information

Technology (EIT), Rapid City, 2013

41. ELAMARI, K.; LOPES, L.; **TONKOSKI , R.**; Using Electric Water Heaters (EWHs) for Power Balancing and Frequency Control in PV-Diesel Hybrid Mini-Grids. Accepted at: World Renewable Energy Congress 2011 (WREC 2011), Sweden, 2011.

42. **TONKOSKI , R.**; LOPES, L. Enhanced Part Load Operation of Diesel Hybrid Mini-Grids With High Penetration of Photovoltaics. In: III CBENS - III Brazilian Conference on Solar Energy, Belem, 2010.

43. **TONKOSKI , R.**; LOPES, L.; EL-FOULY, T. Droop-based Active Power Curtailment for Overvoltage Prevention in Grid Connected PV Inverters. In: IEEE ISIE 2010 - Conference of the IEEE Industrial Electronics Society, Bari, 2010.

44. **TONKOSKI , R.**; LOPES, L.; TURCOTTE, D. Active Power Curtailment of PV Inverters in Diesel Hybrid Mini-grids. In: IEEE EPEC 2009 - Electrical Power and Energy Conference, Montreal, 2009.

45. **TONKOSKI , R.**; LOPES, L. and DOS REIS, F. S. A Single-Switch Three-Phase Boost Rectifier to Reduce the Generator Losses in Wind Energy Conversion Systems. In: IEEE EPEC 2009 - Electrical Power and Energy Conference, 2009, Montreal, 2009.

46. LOPEZ, H. F. M.; VIERO, R. C.; ZOLLMANN, C.; **TONKOSKI , R.;** RECKZIELGEL, L.; GOMES, H.; DOS REIS, F. S. Analog Signal Processing for Photovoltaic Panels Grid-Tied by Zeta Converter. In: IEEE EPEC 2009 - Electrical Power and Energy Conference, 2009, Montreal, 2009.

47. LOPEZ, H. F. M.; VIERO, R. C.; ZOLLMANN, C.; RECKZIELGEL, L.; **TONKOSKI , R.**; DOS REIS, F. S. Low Power Solar System Grid-Tied With MPPT Based on Temperature Compensation. In: IEEE EPEC 2009 - Electrical Power and Energy Conference, 2009, Montreal, 2009.

48. **TONKOSKI , R.**; LOPES, L. Voltage Regulation in Radial Distribution Feeders with High Penetration of Photovoltaic. In: IEEE Energy 2030 – Conference on Global and Sustainable Energy Infrastructure, 2008, Atlanta. CD, 2008. v. 01.

49. DOS REIS, F.S.; LIMA, J.C.M.; **TONKOSKI, R.**; SOUZA, R.R.N.; ALE, J.V.; PELLISSARI, F.P.; FERREIRA, F.A.L.; KRUSE, A.B.; BOATTINI, O.D.; ISLAM, S.; NAYAR, C. A Low Voltage Electronic Ballast Designed For Hybrid Wind-Solar Power Systems. In: IEEE International Symposium on Industrial Electronics - ISIE 2007, 2007, Vigo. IEEE International Symposium on Industrial Electronics - ISIE 2007. Vigo : CD, 2007. v. 01.

50. SOUZA, R.R.N.; COUTINHO, D.F.; **TONKOSKI, R.**; SILVA, S.L.C.; TELLO, M.; CANALLI, V.M.; DIAS, G.A.D.; LIMA, J.C.M.; SARMANHO, U.A.S.; MAIZONAVE, G.B.; ADEGAS, F.D.; CECCON, G.B.; DOS REIS, F.S.; RIBEIRO, P. Nonlinear Loads Parameters Estimation and Modeling. In: IEEE International Symposium on Industrial Electronics - ISIE 2007, 2007, Vigo. IEEE International Symposium on Industrial Electronics - ISIE 2007. Vigo : CD, 2007. v. 01.

Graduate Advisees

Ph.D. Students

Current

1. Nischal Guruwacharya (September 2019 - Present) - Dissertation Topic: Models of Converter Dominated Power Systems

Completed

1. Santosh Chalise (July 2012 - April 2016). - Dissertation Topic: Power Management of Remote Microgrids Considering Battery Lifetime - Currently at OATI (Open Access Technology International) Inc.
2. Ujjwol Tamrakar (January 2016 – March 2020) - Dissertation Topic: Virtual Inertia in Microgrids - Currently at Sandia National Laboratories

M.Sc. Students

Current

1. Robert Haar (September 2017 - Present) (Thesis Co-Advisor with Dr. Marco Ciarcia) Dissertation Topic: Models of Boom Height Control.
2. Niranjan Bhujel (September 2019 - Present) - Dissertation Topic: Models of Converter Dominated Power Systems

Completed

1. Abhilasha Bajracharya (September 2017 - August 2019) - Thesis Topic: Intra-Day Solar Irradiance Forecasting For Remote Microgrids Using Hidden Markov Model - Currently at OATI.
2. Prajina Tandukar (Thesis Co-Advisor with Dr. Timothy Hansen and Dr. Robert Fourney) (September 2015 - June 2017) - Thesis Topic: Energy Management System Considering Battery Lifetime - Currently at Intralox
3. Manisha Maharjan (September 2015 - July 2017) - Thesis Topic: Adaptive Droop-Based Active Power Curtailment Method for Overvoltage Prevention in Low Voltage Distribution Network - Currently Ph.D. Student at North Dakota State University
4. Shaili Nepal (Thesis Co-Advisor with Dr. Robert Fourney) (September 2013 - April2016) - Thesis Topic: Development of Microgrid Test Bed for Testing Energy Management System - Currently at Siemens
5. Dipesh Shrestha (January 2015 - December 2016) - Thesis Topic: Virtual Inertia Emulation to Improve Dynamic Frequency Stability Of Low Inertia Microgrids – Currently at Primus Power Corporation
6. Ali Alruwaili (September 2014 - September 2016) - Thesis Topic: The Impact Of Different Battery Technologies For Remote Microgrids - Currently at Saudi Electricity Company (SEC)
7. Riaz Khan (Thesis Co-Advisor with Dr. Semhar Michael) (September 2014 - August2016) - Thesis Topic: Data Center Load Forecast Using Hidden Markov Models - Currently pursuing M.Sc. in Data Science at SDSU
8. Habib Ullah (September 2014 - August 2016) - Thesis Topic: Feasibility Study of Energy Storage Technologies for Remote Microgrid's Energy Management System - Currently Ph.D. Student at University of Colorado Denver
9. Bijen Shrestha (September 2014 - August 2016) - Thesis Topic: Efficiency and Reliability Analyses of AC and 380V DC Data Centers - Currently at Amazon Web Services
10. Ayush Shakya (Thesis Co-Advisor with Dr. Semhar Michael) (September 2014 - August 2016) - Thesis Topic: Implementation of Solar Irradiance Forecasting using Markov Switching Model and Energy Management System - Currently at General Electric (GE) Inc.
11. Ujjwol Tamrakar (September 2013 - July 2015) - Thesis Topic: Improving Transient Stability of Photovoltaic-Hydro Microgrids using Virtual Synchronous Machines - Currently Ph.D. Student at SDSU and Intern at Lea Elliot Inc.
12. Shekhar Awasthi (September 2013 - September 2015) - Operation of Data Centers As Virtual Power Plants - Currently at OATI (Open Access Technology International) Inc.
13. Prakash Pandey (September 2012 - July 2015) - Thesis Topic: Solar Irradiance Forecasting Using Markov Switching Model for Energy Management of Remote Microgrids- Currently at OATI (Open Access Technology International) Inc.
14. Md Arifur Rahman (Research Paper Advisor (Option B))(September 2012 - June 2014)- Thesis Topic: Modeling of Diesel Generator For Microgrids - Currently at ThermoFisher Scientific
15. Pratiksha Tiwari (Thesis Co-Advisor with Dr. David Galipeau) (September 2012 -November 2014) - Thesis Topic: Integration Of Photovoltaics with Micro-Hydro Systems - Currently at OATI (Open Access Technology International) Inc.
16. Binod P. Poudel (May 2012 - April 2014) - Thesis Topic: Overvoltage Prevention In Low Voltage Rural Distribution Network With High Penetration Of Wind Energy -Currently at BTI Solutions Inc.
17. Yogesh Bhandari (May 2012 - December 2013). - Thesis Topic: Power Management of Remote Microgrids Considering Battery Lifetime - Currently at Cummins Inc.
18. Sangita Sharma (Thesis Co-Advisor with Dr. David Galipeau) (February 2012 - May2012). - Thesis Topic: Optimization of Small Grid-tied and Off-grid PV Systems with Energy Management - Currently at Tesla

Yue Zhou

Contact Information

Phone: 605-688-4393
E-mail: yue.zhou@sdstate.edu
Address: DEH229, South Dakota State University
Brookings, SD 57007

Professional Experience

Jan. 2018-Present	Assistant professor, Electrical Engineering and Computer Science South Dakota State University, Brookings, SD, USA

Education and Training

Jan. 2016-Dec. 2017	Massachusetts Institute of Technology, Cambridge, MA, USA Postdoctoral Associate in School of Engineering Advisor: Prof. Brian L. Wardle
Aug. 2011-Dec. 2015	the Pennsylvania State University, State College, PA, USA Ph.D. in Electrical Engineering Advisor: Prof. Qiming Zhang, Distinguished Professor in Engineering
Sep. 2008-Jul. 2011	Nanjing University, Nanjing, China M.S. in physics Advisor: Prof. Zhiguo Liu
Sep. 2004-Jul. 2008	Nanjing University, Nanjing, China B.S. in Honors School

Research Interests

- Advanced nano/micro electronic devices
- Micro/Nanofabrication
- Advanced manufacturing
- Energy harvesting and storage
- Electric propulsion, ionic rocket

Teaching

Fall 2019	**EE 360: Electronic Devices** Electrical Engineering, South Dakota State University
Spring 2018, 2019 2020	**EE460/560: Sensors and Measurements** Electrical Engineering, South Dakota State University Evaluation rates: 2018: Course: **4.0/5**; Teacher: **4.2/5** 2019: Course: **4.3/5**; Teacher: **4.6/5**

Fall 2018, 2019	**EE 792: Energy Storage and Conversion** Electrical Engineering, South Dakota State University Evaluation rates: 2018: Course: **4.8/5**; Teacher: **5.0/5**
Spring 2017	**16.20: Structural Mechanics,** Guest lecture Mechanical Engineering, Massachusetts Institute of Technology

Teaching Workshop Attended

National Effective Teaching Institute 1(NETI-1), August, 2018, Philadelphia, PA, USA.

Current Students

Wei He (Ph.D.)
Rajesh Pathak (Ph.D.)
Ke Chen (Ph.D.)
Jyotshna Pokharel (Ph.D.)
Ezaldeen Adhamash (Ph.D.)
Tahmid Alam (Master)
Mominul Islam (Master)

Professional Activities and Services

- Co-chair and treasurer in IEEE conference on Electro Information Technology, 2019
- Session chair in IEEE conference on Electro Information Technology, 2019
- Member of Institute of Electrical and Electronics Engineers
- Member of Electrochemical Society.
- Member of Material Research Society
- Member of International Society for Optics and Photonics
- Review of Journals: Advanced Materials; Nano Energy; Electrochimica Acta; Sensors and Actuators A: Physical; Nanotechnology; Journal of Applied Electrochemistry; Journal of Alloy and Compounds; Journal of Physics D: Applied Physics; International Journal of Electrochemical Science; International Journal of Modern Physics B; Physical Review Applied; European Polymer Journal; ACS Sustainable Chemistry & Engineering.

Selective service in University

- Undergraduate student advisor, 2018~present
- Co-organizer of Device seminars in the department
- Treasurer of SDSU Chinese Community Association

Thesis Committee

Khalid Emshadi (Electrical Engineering, Ph.D., 2019)
Raja Sekhar Bobba (Electrical Engineering, Ph.D., 2019)
Shuva Paul (Electrical Engineering, Ph.D., 2019)

Sally Mabrouk (Electrical Engineering, Ph.D., 2018)
Salem Abdulkarim (Electrical Engineering, Ph.D., 2018)

Andre Luna (Electrical Engineering, Master, 2019)
Chungyup Lee (Computer Science, Master, 2019)
Raju Ghimire (Electrical Engineering, Master, 2018)
Md Ataul Mamun (Electrical Engineering, Master, 2018)
Tamal Roy (Electrical Engineering, Master, 2018)

Scholarships & Honors

- ♦ *2015* Melvin P. Bloom Memorial Outstanding Doctoral Research Award
- ♦ *2014* Appreciation rewards for ISE 15 meeting
- ♦ *2011* Penn State University EE Department Fellowship
- ♦ *2010* Outstanding research scholarship
- ♦ *2008* Excellent Youth League Worker
- ♦ *2007* National Scholarship
- ♦ *2007* People's Scholarship
- ♦ *2006* People's Scholarship
- ♦ *2005* Scholarship donated by North America Alumni

Research Grants

- "Development of Novel Solid Polymer Electrolytes for Safe and High Performance Lithium Ion Batteries (Year 2 Continuation Project)"
  SDBOR Competitive Research Grant Aug. 2019-Aug. 2020
  Role: Single PI $89,908

- "Development of Novel Solid Polymer Electrolyte for Safe and High Performance Lithium Ion Batteries"
  SDBOR Competitive Research Grant Aug. 2018-Dec. 2019
  Role: Single PI $74,386

- "Development of Biomass-derived Aerogel for Energy Storage Applications"
  USDA-NIFA-Sun Grant May. 2019-May. 2020
  Role: Single PI $25,000

- "IUCRC: Center for Solid-State Green Electric Power Generation and Storage (CEPS)"
  NSF Jan. 2019-Dec. 2019
  Role: Co-PI $15,000

- "N/MEMS Chip-scale Supercapacitor Development".
  Analog Devices. Jan. 2017-Dec. 2018
  Role: Writing, senior personnel at MIT $200,000

Publications

([#]My students, *Corresponding author, [†]Equal contribution)

1. [#]**K. Chen**, R. Pathak, A. Gurung, K. M. Reza, N. Ghimire, J. Pokharel, A. Baniya, W. He, J. J. Wu, Q. Qiao, and Y. Zhou*, "Copper-clad Lithiophilic Current Collector for Dendrite-Free Lithium Metal Anode", **Journal of Materials Chemistry A,** 8,1911 (2020).

2. [#]**R. Pathak**, K. Chen, A. Gurung, K. M. Reza, B. Bahrami, J. Pokharel, A. Baniya, W. He, F. Wu, Y. Zhou*, Q. Qiao*, K. Xu[*], "Fluorinated Hybrid Solid Interface for Dendrite-Free Lithium Deposition", **Nature Communications**, 11,1 (2020).

3. [#]**R. Pathak**, K. Chen, A. Gurung, K. M. Reza, B. Bahrami, F. Wu, A. Chaudhary, N. Ghimire, B. Zhou, W. Zhang, Y. Zhou*****, Q. Qiao*, "Ultrathin Bilayer of Graphite/SiO_2 as Solid Interface for Reviving Li Metal Anode" **Advanced Energy Materials**, 1901486 (2019).

4. [#]**K. Chen**, R. Pathak, A. Gurung, E. Adhamash, B. Bahrami, Q. He, A. Smirnova, J. J. Wu, Q. Qiao and Y. Zhou*, "Flower-Shaped Lithium Nitride as a Protective Layer via Facile Plasma Activation for Stable Lithium Metal Anodes", **Energy Storage Materials**, 18, 389 (2019).

5. [#]**R. Pathak**, A. Gurung, H. Elbohy, K. Chen, K. M. Reza, B. Bahrami, S. Mabrouk, R. Ghimire, **Y.** Zhou*, Q. Qiao*, "Self-recovery in Li-metal hybrid lithium-ion batteries via WO_3 reduction", **Nanoscale**. 10, 15956-15966 (2018).

6. S. Lu, M. Hummel, Z. Gu, Y. Gu, Z. Cen, L. Wei, Y. Zhou, C. Zhang, C. Yang, "Trash to treasure: A novel chemical route to synthesis of NiO/C for hydrogen production" **International Journal of Hydrogen Energy**, 44, 16144 (2019).

7. Y. Zhou, X. Wang, L. Acauan, E. Kalfon‐Cohen, X. Ni, Y. Stein, K. K. Gleason, B. L. Wardle, "Ultrahigh‐Areal‐Capacitance Flexible Supercapacitor Electrodes Enabled by Conformal P3MT on Horizontally Aligned Carbon‐Nanotube Arrays", **Advanced Materials**, 1901916 (2019).

8. X. Ni, C. Furtado, E. Kalfon-Cohen, Y. Zhou, G. A. Valdes, T. J. Hank, P. P. Camanho, B. L. Wardle, "Static and fatigue interlaminar shear reinforcement in aligned carbon nanotube-reinforced hierarchical advanced composites", **Composites Part A: Applied Science and Manufacturing**, 120, 106 (2019)

9. C. Wang, T. Wang, J. Liu, Y. Zhou, D. Yu, F. Han, Q. Li, J. Chen, Y. Huang, "Hydrothermal synthesis of a silk-cocoon structured cobalt polysulfide as an efficient catalyst for hydrogen evolution reaction", **Energy and Environmental Science**, 11, 2467-2475 (2018).

10. Y. Zhou, Y. Hou, Q. Li, L. Yang, Y. Cao, K. H. Choi, Q. Wang, Q. M. Zhang, "Biocompatible and Flexible Hydrogel Diode‐Based Mechanical Energy Harvesting", **Advanced Materials Technologies**, 1700118 (2017).

11. Y. Hou[†], Y. Zhou[†], L. Yang[†], Q. Li, Y. Zhang, L. Zhu, M. Hickner, Q. M. Zhang, Q. Wang, "Flexible

Ionic Diodes for Low-Frequency Mechanical Energy Harvesting", **Advanced Energy Materials**, 1601983 (2016). (†These authors equally contributed to this work)
Highlighted in Science Daily: https://www.sciencedaily.com/releases/2016/12/161215105505.htm

12. L. Yang, X. Qian, C. Koo, Y. Hou, T. Zhang, Y. Zhou, M. Lin, J. Qiu, Q. M. Zhang, "Graphene enabled percolative nanocomposites with large electrocaloric efficient under low electric fields over a broad temperature range", **Nano Energy**, 22, 467 (2016).

13. C. Welsh, Y. Zhou, M. Ghaffari, M. Lin, Chong Min Koo, Q. M. Zhang, "Giant strain response in ionic nanoporous graphene actuator with hierarchical structures", **IEEE Transactions on Dielectrics and Electrical Insulation**, 22, 1389 (2015).

14. Z. Cheng, M. Lin, S. Wu, Y. Thakur, Y. Zhou, D. Jeong, Q. Shen, Q. M. Zhang, "Aromatic poly (arylene ether urea) with high dipole moment for high thermal stability and high energy density capacitors", **Applied Physics Letters**, 106, 202902 (2015).

15. M. Zhang, Q. Li, D. Fang, I. Ayhan, Y. Zhou, L. Dong, C. Xiong, Q. Wang, "NiO hierarchical hollow nanofibers as high-performance supercapacitor electrodes", **RSC Advances**, 5, 96205 (2015).

16. Y. Zhou, H. Xu, N. Lachman, M. Ghaffari, K. K. Gleason, B. L. Wardle, Q. M. Zhang, "Advanced asymmetric supercapacitor based on conducting polymer and aligned carbon nanotubes with controlled nanomorphology", **Nano Energy**, 9, 176 (2014).

17. Y. Zhou, N. Lachman, M. Ghaffari, H. Xu, D. Bhattacharya, P. Fattahi, B. L. Wardle, Q. M. Zhang, "A high performance hybrid asymmetric supercapacitor via nano-scale morphology control of graphene, conducting polymer, and carbon nanotube electrodes", **Journal of Materials Chemistry A**, 2, 9964 (2014).

18. N. Lachman †, H. Xu†, Y. Zhou†,M. Ghaffari, D. Bhattacharya, K. K. Gleason, B. L. Wardle, Q. M. Zhang, "Tailoring thickness of conformal conducting polymer decorated aligned carbon nanotube electrodes for energy storage", **Advanced Materials Interface**, 1, 7(2014). (†These authors equally contributed to this work)

19. Y. Zhou, M. Ghaffari, M. Lin, H. Xu, H. Xie, C. M. Koo, Q. M. Zhang, "High performance of supercapacitor based on aligned activated graphene with extremely wide temperature range", **RSC Advances**, 5, 71699 (2015).

20. H. Ye, X. Qian, D.Jeong, S. Zhang, Y. Zhou, W. Shao, L. Zhen, Q. M. Zhang, "Giant electrocaloric effect in BaZr0. 2Ti0. 8O3 thick film", **Applied Physics Letters**, 105, 152908 (2014).

21. M. Ghaffari, Y. Zhou, M. Lin, C. M. Koo, Q. M. Zhang, "High electromechanical reponses of ultra-high-density aligned nano-porous microwave exfoliated graphite oxide/polymer nano-composites ionic actuators", **International Journal of Smart and Nano Materials**, 5, 114 (2014).

22. Y. Zhou, M. Ghaffari, M. Lin, E. M. Parsons, Y. Liu, B. L. Wardle, Q. M. Zhang, "High volumetric electrochemical performance of ultra-high density aligned carbon nanotube supercapacitors with

controlled nanomorphology", **Electrochimica Acta**, 111,608 (2013).

23. M. Ghaffari, S. Kosolwattana, Y. Zhou, N. Lachman, M. Lin, D. Bhattacharya, K. K Gleason, B. L Wardle, Q. M. Zhang, "Hybrid supercapacitor materials from poly (3, 4-ethylenedioxythiophene) conformally coated aligned carbon nanotubes", **Electrochimica Acta**, 112, 522 (2013).

24. S. Wu, Q. Burlingame, W. Li, M. Lin, Y. Zhou, Q. Chen, A. Payzant, K. Xiao, Q. M. Zhang, "Aromatic Polythiourea with Ultrahigh Breakdown Strength for High Energy Density and Low Loss Capacitor Applications", **MRS Proceedings**, 1499, mrsf12-1499-n05-65 (2012).

25. Y. Zhou, J. Yin, J. Yin, H. Xu, Y. Xia, Z. Liu, A. Li, Y. Gong, L, Pu, F. Yan, Y. Shi, "A $TiAl_2O_5$ nanocrystal charge trap memory device", **Applied Physics Letters**, 97, 143504 (2010).

26. L. Shi, Y. Zhou, J. Yin, Z. Liu, "Characterization upon potential properties of HfO_2 stabilized by Y_2O_3 films as cubic phase", **Journal of applied physics**, 107, 014104 (2010).

27. Z. Ge, Y. Zhou, J. Yin, Y. Gong, S. Lv, Y. Xia, Z. Liu, "UV emission of tetragonal ZrO_2 nanocrystals embedded in $ZrSiO_4$ amorphous", **Modern Physics Letters B**, 24, 2477 (2010).

28. S. Lv, Z. Ge, Y. Zhou, B. Xu, L. Gao, J. Yin, Y. Xia, Z. Liu, "A Charge-Trap Memory Device with a Composition-Modulated Zr-Silicate High-k Dielectric Multilayer Structure", **Chinese Physics Letters**, 27, 068502 (2010).

Books and Book Chapters

1. Y. Zhou*****, M. Ghaffari, C. Welsh, Q. M. Zhang, Ionic Electroactive Actuators with Giant Electromechanical Response, Chapter for Advances in Ionic Polymer Metal Composites. Royal Society of Chemistry (2014).

2. Q. M. Zhang, M. Ghaffari, S. G. Lu, Y. Zhou, C. M, Koo, J. Michalenko, Advanced electroactive polymers (EAPs) with high electroactuation strain and ultra-elastic energy density, Book Chapter. Wiley (2014).

3. Y. Zhou***,** Q. M. Zhang, High Volumetric Performance Supercapacitors with Controlled Nanomorphology, Chapter for Supercapacitor Design and Applications. InTech (2016).

Patents

1. C. Kyounghwan (Sponsor), Q. M. Zhang (PI), Y. Zhou, Q. Wang and Q. Li, "Energy harvesting device using electroactive polymer nanocomposites". US. Patent Application No. 62/268,911 (2015).

2. B. L. Wardle (PI), L. Acauan, and Y. Zhou, "Separators Comprising Elongated Nanostructures and Associated Devices and Methods, Including Devices and Methods for Energy Storage and/or Use." US. Patent Application No. 16/203,374 (2019).

3. P. C. Lozano (PI), B. L. Wardle (PI), Y. Zhou, M. D. Canonica and D. Krejci, "Materials and Methods for Ion Acceleration". (Pending)

Invited Talks, Contributed Presentations

1. Y. Zhou, "High-Performance Energy Storage Devices Enabled by Advanced Composite Materials", Massachusetts Institute of Technology, Dec. 4, 2019, Cambridge, MA, USA. (Invited talk)

2. Y. Zhou, "Oxidative Chemical Vapor Deposition Enabled Poly(3-methylthiophene) Coating on Horizontally Aligned Carbon Nanotubes for Flexible Supercapacitors with Ultrahigh Areal Capacitance", MRS Fall meeting, December, 2019, Boston, MA, USA

3. Ke Chen, Rajesh Pathak, Behzad Bahrami, Md Tawabur Rahman, Huitian Lu, Qiquan Qiao, Yue Zhou, IEEE conference on Electro Information Technology, May, 2019, Brookings, SD, USA

4. K. Chen, R. Pathak, Q. Qiao, and Y. Zhou, "Plasma Enhanced Formation of Lithium Nitride As Artificial SEI Layer for Lithium Metal Batteries", 235th ECS conference, May, 2019, Dallas, TX, USA.

5. R. Pathak, K. Chen, Q. Qiao, and Y. Zhou, "Self-Recovery of Capacity in Lithium Metal Hybrid Lithium Ion Battery", 235th ECS conference, May, 2019, Dallas, TX, USA.

6. Y, Zhou, "Advanced Electronic Materials for High Performance Energy Storage and Energy Harvesting Devices", Beijing Jiaotong University, July, 2018, Beijing, China. (Invited Seminar)

7. Y. Zhou, E. Kalfon-Cohen, Y. Stein, X. Ni and B. L. Wardle, "Wearable and Flexible Supercapacitors with Unique Nanostructure", 21st International Conference on Composite Materials, August, 2017, Xi'an, China.

8. Y. Zhou, B. L. Wardle, Q. M. Zhang, "High Performance Asymmetric Supercapacitor Based on Conducting Polymer and Aligned Carbon Nanotubes", MRS Fall Meeting, November, 2015, Boston, MA, USA.

9. Y. Zhou, Q. M. Zhang, "Multifunctional Materials", MRS Fall Meeting, November, 2015, Boston, MA, USA. (Invited Talk)

10. Y. Zhou, H. Xu, N. Lachman, M. Ghaffari, B. L. Wardle, and Q. M. Zhang, "Asymmetric Supercapacitor with Controlled Nanomorphology", 15th International Symposium on Electrets (ISE) meeting, August, 2015, Baltimore, MD, USA. (Invited Talk)

11. C. Welsh, Y. Zhou, M. Ghaffari, M. Lin, C.Koo, Q. M. Zhang, "Giant strain response in ionic nanoporous graphene actuator with hierarchical structures", 15th International Symposium on Electrets (ISE) meeting, August, 2015, Baltimore, MD, USA.

12. Y. Zhou, Q. M. Zhang, "Ultra-High Energy and Power Density Energy Storage Devices with Controlled Morphology", December, 2014, Nanjing, China. (Invited Talk)

13. Y. Zhou, M. Ghaffari, S. Liu, Y. Liu, Q. M. Zhang, "Electroactive Polymer Actuators with Giant Electromechanical Response", SPIE Smart structures/NDE, March, 2014, San Diego, CA, USA. (Invited Talk)

14. Y. Zhou, N. Lachman, M. Ghaffari, H. Xu, B. L. Wardle, and Q. M. Zhang, "Nano-scale Morphology Control of Graphene, Conducting Polymer, and Carbon Nanotube Electrodes for High Performance Energy Storage", 224th ECS meeting, October, 2013, San Francisco, CA, USA.

15. M.Ghaffari, Y. Zhou, M. Lin, T. Kim, R. S Ruoff, Q. M. Zhang, "High Volumetric Performance Aligned Nano-Porous Graphene-Based Electrochemical Capacitors", 224th ECS meeting, October, 2013, San Francisco, CA, USA.

16. Y. Zhou, B. L. Wardle, Q. M. Zhang, "High volumetric performance supercapacitor with controlled morpholgoy ", TechConnect World & National Innovation Summit, May, 2013, Washington, DC, USA.

17. Y. Zhou, M. Ghaffari, N. Lachman, D. Bhattacharyya, K. K. Gleason, B. L. Wardle, Q. M. Zhang, "Tailored Aligned-Carbon Nanotube Nanocomposites for Energy Storage", ICCM 2013, July, Ottawa, Canada.

18. Y. Zhou, M. Ghaffari, B. L. Wardle, Q. M. Zhang, "Densified Aligned Carbon Nanotube Supercapacitors", Center for Dielectrics and Piezoelectrics Spring Meeting, March, 2013, State college, PA, USA.

19. Y. Zhou, R. Zhao, Y. Liu, M. Ghaffari, M. Lin, Q. M. Zhang, "Equivalent Circuit Modeling of Ionomer and Ionic Polymer Conductive Network Composites", 44th International Union of Pure and Applied Chemistry Polymer Congress, June, 2012, Blacksburg, VA, USA.

20. M. Ghaffari, R. Zhao, Y. Liu, Y. Zhou, J. Cheng, R. de Villoria, B. L. Wardle, Q.M. Zhang, "Ultra-high density aligned Carbon-nanotube with controled nano-morphology for supercapacitors ", APS March meeting, February, 2012, Boston, Massachusetts, MA, USA.

21. Y. Zhou, Y. Liu, M. Ghaffari, M. Lin, B. L. Wardle, Q. M. Zhang, "Supercapacitor Using Aligned Carbon Nanotubes", MRS Fall Meeting, November, 2012, Boston, MA, USA.