Austin F. O'Brien, Ph.D.

Professional Preparation

South Dakota State University	Computer Science	B.S., 2004-2007
South Dakota State University	Computer Science	M.S., 2007-2009
South Dakota State University	Computational Statistics	Ph.D., 2010-2017

Appointments

Program Coordinator, M.S. of Computer Science. Dakota State University. 2021-present.
Associate Professor, Department of Computer Science, Dakota State University, 2021-present.
Assistant Professor, Department of Computer Science, Dakota State University, 2015-2021.
Research Assistant, Department of Statistics, South Dakota State University, 2012–2015.
Teaching Assistant/Instructor, Department of Statistics, South Dakota State University, 2010–2015.
Statistical Research/Programmer, The Mitre Corporation, 2013
Instructor, Department of Computer Science, South Dakota State University, 2009
Teaching Assistant, Department of Computer Science, South Dakota State University, 2007–2009.

Professional Awards & Honors

Ernest M. Teagarden Award for Excellence in Teaching. *Dakota State University. 2020*

Teaching Experience: *Denotes Graduate Level

New Courses Developed:

Applications of Deep Learning, Undergraduate Department of Computer Science, 2023
Special Topics-Natural Language Processing, Graduate Department of Computer Science, 2022
Special Topics-Computer Vision, Under/Graduate Department of Computer Science, 2021
Reinforcement Learning, Under/Graduate Department of Computer Science, 2020
Machine Learning Fundamentals, Undergraduate Department of Computer Science, 2019
Machine Learning for Cyber Security, Graduate Department of Computer Science, 2019
Machine Learning Fundamentals, Graduate Department of Computer Science, 2017

Courses Taught

Dakota State University: All courses delivered in person and asynchronous online.
Design and Analysis of Computer Algorithms
Special Topics-Computer Vision
Algorithms and Optimization
Data Structures, 2016-present
Object-Oriented Design, 2016
Computer Science II, 2016-present
Software Engineering, 2015-2016
Computer Science I, 2015-2019

South Dakota State University
**Modern Applied Statistics*, (Assistant). Department of Statistics, 2015
College Algebra, Department of Mathematics, 2014-2015
Introduction to Statistics, Department of Statistics, 2010-2012
Graphical User Interfaces, Department of Computer Science, 2009.
Parallel Programming, Department of Computer Science, 2009.
Computer Applications, Department of Computer Science, 2007-2009.

Publications

Nelson, T. O'Brien, A. Noteboom, C. (2023). Machine Learning Applications in Malware Classification: A Meta-analysis Literature Review. *International Journal on Cybernetics & Informatics, Vol. 12, No. 1, February 2023.*

Ofori, M., El-Gayar, O., O'Brien, A. and Noteboom, C., (2022). A deep learning model compression and ensemble approach for weed detection. *Hawaii International Conference on System Sciences*.

Stroschein, J., Tools, I.A.U.O.S., Garnet, J., Kulm, A., Nelson, T.J., O'Brien, A., Pauli, W.E., Miller, M., Cybercrime, T.P.P., Opoku-Boateng, F. and Jones, T., (2020). CLEAR CONFERENCE COMPUTER SCIENCE ACADEMIC PAPERS. *South Dakota Law Review*, *65*(3).

Chaudhary, S., O'Brien, A., Xu, S. (2020) Automated Post-Breach Penetration Testing through Reinforcement Learning. *2020 IEEE Conference on Communications and Network Security, Avignon, France, pp. 1-2.*

Dangi, B., Gamet, J., Kulm, A., Nelson, T., O'Brien, A., Pauli, W. (2019). Alert Prioritization and Strengthening: Towards an Industry Standard Priority Scoring System for IDS Analysts Using Open Source Tools and Models of Machine Learning. *South Dakota Law Review Journal.*

O'Brien, Austin, A Kernel Based Approach to Determine Atypicality. (2017). *Theses and Dissertations*. 1711. https://openprairie.sdstate.edu/etd/1711

Miller, J., Gantz, D., Saunders, C., O'Brien, A., On Parametric Models for Pairwise Comparisons.

Min, M., O'Brien, A., Shin, S. (2010). Improved PSOR Algorithm for Minimum Power Multicast Tree Problem in Wireless Ad Hoc Networks. *International Journal of Sensor Networks, Vol 8, Issue 3, 193-201.*

Min, M., O'Brien, A. (2009). Lookahead Expansion Algorithm for Minimum Power Multicasting in Wireless Ad Hoc Networks. *Wireless Algorithms, Systems and Applications*, 70-79.

O'Brien, A. (2009). Optimality of Minimum Power Broadcasting in Wireless Ad Hoc Networks. *South Dakota State University*.

Min, M., O'Brien, A., Shin, S. (2009). Partitioning-Based SOR for Minimum Energy Multicast Tree Problem in Wireless Ad Hoc Networks. *Computer Communications and Networks, 2009. ICCCN 2009. Proceedings of 18th International Conference*, 1-6.

Min, M., O'Brien, A., Shin, S. (2008). SOR Revisited: Partitioning and Recovering After Shrinking. *Computer Communications and Networks, 2008. ICCCN 2008. Proceedings of the 17th International Conference*. 1-6.

Presentations

Feb. 2023. "Artificial Intelligence: Cyber, Agriculture and Beyond", East River Electric Energize Forum. Sioux Falls, SD. Invited Talk.

Aug. 2022. "The Current State of Artificial Intelligence and Where We're Going", Danebod Folk Meeting. Tyler, MN. Invited Talk.

Nov. 2019. "Alert Prioritization and Strengthening: Towards an Industry Standard Priority Scoring System for IDS Analysts Using Open Source Tools and Models of Machine Learning". CLEAR Cyber Leaders Conference. Sioux Falls, SD. Research Paper Presentation.

Jul. 2019. "AI & Technology – Future of Workforce", Brookings Area Workforce Conference. Brookings, SD. Invited Talk.

Jul. 2019, "Machine Learning Research Opportunities", Research Experiences for Undergraduates Summer Program. Madison, SD. Invited Lecture.

Feb. 2018, “Using Atypicality to Identify Outliers”, SDSU Data Science Symposium. Brookings, SD.

Sept. 2017, “Atypicalities for Discovering Abnormalities in Multidimensional Data”, ICFIS, Minneapolis, MN, Invited Talk.

Feb. 2016, “Atypicalities for Discovering Abnormalities in Multidimensional Data”, Pittcon, Atlanta, GA, Invited Talk.

Sept. 2012, “Grapevine Phenotype Analysis,” South Dakota State University. Computational Science and Statistics Seminar, Invited Talk.

Aug. 2009, “Optimality of Minimum Power Broadcasting in Wireless Ad Hoc Networks,” South Dakota State University, Computer Science Seminar, Invited Talk.

News and Media Appearances

Mar 2023. Cordell Wright. “Looking at the Pros and Cons of Artificial Intelligence Chatbots”. Dakota New Now. Televised News Story.

Mar 2023, Brandon Paykamian. “Will AI Chatbots Raise Digital Equity Concerns for Students?”. *Government Technology Magazine*. Magazine Article.

Aug 2022, Mary Gales Askren. “DSU Students participate in Edge Learning Consortium Pilot Project”. *Madison Daily Leader*. News Article.

Conferences/Training Attended (non presenting):

GenCyber Leaders Conference, 2023
ABET Conference. 2023
CAE Community Faculty Professional Development Workshop (Attendee). *2019, 2022*.
AAAI Conference. Online *2022*. In person 2023
ACM SIGCSE Conference. *2019, 2022*
Computer Science Teachers Association Conference. *2019*.
DSU Research Symposium. Best Poster Judge. *2018-2019*.
South Dakota State University Data Science Symposium. *2018*.

CAE Faculty Teaching

Artificial Intelligence in Cybersecurity. 2023 – Palm Desert, CA. San Antonio, TX. Las Vegas, NV

Service

Curriculum Development

Artificial Intelligence M.S. Program. Dakota State University. (*Pending*)
Artificial Intelligence Specialization for the M.S. in CSC. Dakota State University. (*Pending*).
Bachelor of Science in Artificial Intelligence. Dakota State University. *2021*.
NCAE-C Cyber Workforce Development and Curriculum; Artificial Intelligence. *2020-2021*.
Minor in Artificial Intelligence. Dakota State University. *2020*.
Course development for CTE CyberNet Summer Academy. *2020-2021*.
Course development for NSF CyberTraining Summer Course. *2020*.

DSU Committees

Dakota State University ALAST Student Journal creation committee, *2019-2021*.
Ally D2L Accessibility Users Pilot Group. *2021*
Beacom College Library Committee Representative, *2015-2020*.
ABET Accreditation Committee member, *2018-present*.
University Research Committee, *2019-present*.
Faculty Award Selection Committee, *2018-present*.
General Activity Fund Committee, *2017-present*.

Faculty Hiring Committees:
Multiple, including Chair for A.I. and CSC. 2022-2023.
Chair. Game Design. *2020*.
Member. Beacom College Dean. *2020*.
Chair. Software Engineering. *2019*.
Member, several others, including Digital Arts and Design, Beacom College, Arts and Sciences, Computing Information Systems. *2016-present*.

K/12 & Teacher Camps
Antigua STEM Camp. Antigua & Barbuda. *2023*
GenCyber Coed Camp, Advanced Programming Instructor, Dakota State University, *2016-present.*
CybHER Jr. High Girls Camp, Python Instructor, Dakota State University, *2018-present*.
GenCyber Teachers Camp, Python Instructor, Dakota State University, *2018-present*.

Clubs – Coaching
Fitness Club Advisor. *2022 - Present*
Competitive Programming Club Advisor/Coach, *2017-Present*.
ICPC North American Programming Championship Coach, *2019*
Digi-Key Collegiate Coding Competition Winners, Coach, *2018-2020.*
Collegiate Penetration Testing Competition Advisor/Coach, *2017*.
ACM Regional Programming Competition Coach, *2015-2017*.
DSU Game Jam Judge, *2016-present*.

Recruiting
Swedish High School Tour. DSU Representative, 2022.
Dakota State University Job Fair. Graduate School Representative. 2021.
International Student Career Fairs. Multiple Community Colleges in CA & TX. *2019*.
Facebook Live Student Sessions. StudyUSA. *2020*.
DSU Discover Days, Assistant. *2016-present*.

Research Mentor
AI Sweden Student Exchange Summer Research. Dakota State University, *2022-Present*
DSU Honors College Thesis, Advisor, *2019-Present*
Graduate Student Research Initiative, Advisor, Dakota State University, *2019-Present*.
Undergraduate Student Research Initiative, Advisor, Dakota State University, *2019-Present*.
High School Unity Programming Project, Poudre School District, CO. *2017-2018*.

Thesis & Ph.D. Research Committees
Ahmad Abusini, Doctor of Philosophy in Cyber Defense. 2023-Present.
Jonathan Lancelot, Doctor of Philosophy in Computer Science. 2023-Present

Evan Sellers, Doctor of Philosophy in Computer Science. 2023-Present
Jason Mixon, Doctor of Philosophy in Computer Science. 2023-Present
Greg Sunderland, Doctor of Philosophy in Cyber Defense. 2023-Present
Tjada Nelson, Doctor of Philosophy in Cyber Defense. 2022-Present.
Jon Lankford, Doctor of Philosophy in Cyber Defense. 2022-Present.
Polly Wainwright, Doctor of Philosophy in Cyber Defense. 2022-Present.
Castro Mar, Doctor of Philosophy in Cyber Defense. 2022-Present.
Brian Gehrman, Doctor of Philosophy in Cyber Defense. 2022-Present.
Beulah McGree, Doctor of Philosophy in Cyber Defense. 2022-Present.
Chinyere Isaac-Heslop, Doctor of Philosophy in Cyber Defense, 2022-Present.
Femi Asabi, Doctor of Philosophy in Cyber Defense, 2022-Present.
Matthew Bradley, Doctor of Philosophy in Cyber Defense, 2022.
Justin Burr. Doctor of Philosophy in Cyber Defense. 2022.
Mike Lodder, Doctor of Philosophy in Cyber Defense. 2022.
Anthony Jairam, Doctor of Philosophy in Cyber Defense, 2021-2023.
Jude Ejiobi. Doctor of Philosophy in Cyber Defense. 2021.
Martinson Ofori. Doctor of Philosophy in Cyber Defense. 2020-2021.
Kimo Bumanglag, Doctor of Philoosphy in Cyber Defense, 2019-2022
Jonah Baron. Doctor of Philosophy in Cyber Defense. 2019-2021.
Sujita Chaudhary. Master of Science in Computer Science. 2019-2020.
Charles Frank. Doctor of Philosophy in Cyber Defense. 2017-2019.

Contact Information

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