Rileigh **Bandy**

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Research Interests

Uncertainty Quantification and Validation

- Oscillating chemical, ecological, and epidemic systems
- Discrepancy between high-fidelity and low-fidelity models
- Development of data-driven models that adhere to physical constraints
- Calibration and validation techniques

Education

The University of Colorado, Boulder

August 2019 - May 2024 (Expected)

Ph.D., Computer Science — *3.970/4.0 GPA*

- Advisor: Rebecca Morrison, Ph.D.
- CS Coursework: Validation and Uncertainty Quantification, Probabilistic Models of Human and Machine Learning, Chaotic Dynamics, Dynamic Models in Biology, Spatial Statistics, High-Performance Scientific Computing, Theory of Computation, Data Mining, and Ethical Hacking

The University of Colorado, Boulder

May 2022

M.S., Computer Science — *3.970/4.0 GPA*

The University of Texas at Austin

August 2015 - May 2019

B.S., Computer Science — *3.67/4.0 GPA*

- Texas Interdisciplinary Plan Scholar
- CS Coursework: Practical Applications of Natural Language Processing, Software Engineering, Computer Networks, Software Design, Algorithms, Operating Systems, Computer Architecture, and Data Structures

KTH Royal Institute of Technology

August 2018 - January 2019

Study Abroad Exchange

- CS Coursework: Statistical Methods in Applied Computer Science, Machine Learning, Artificial Intelligence, and Computer Security

Research Experience

Sandia National Laboratory

Albuquerque, NM

Research and Development CS Intern - Optimization & Uncertainty Quantification (Org: 1463) — *May 2022 - Present*

- Calibrated and validated a neural-network-corrected compartmental disease model.
- Investigated how calibration data and the neural network architecture affected the validation time horizon.

University of Texas at Austin

Austin, TX

Research Fellow - Section of Computational Materials, under Graeme Henkelman, Ph.D. — *June 2016 - August 2016, May 2018 - June 2018, and June 2019 - August 2019*

- Contributed to the Transition State Atomic Simulation Environment (TSASE) software library global optimization methodology. (http://theory.cm.utexas.edu/tsase/)
- Helped create a database for sharing collaborative results. (http://fri.oden.utexas.edu/ fri/fridb_GO/server.py)
- Experienced in reading and interpreting peer-reviewed literature.

Institute of Pure and Applied Mathematics

Los Angeles, CA

REU Participant - Research in Industry Projects for Students, Industry Sponsor: HRL Laboratories, LLC — *June 2018 - August 2018*

- Employed a data science approach and machine learning to simulated additive manufacturing.

Industry Experience

Electric Reliability Council of Texas

Taylor, TX

Cybersecurity Intern — *May 2017 - December 2017*

- Improved the company's security posture through the creation of an automated Open-Source Intelligence program that alerts security analysts of threats to the company or its personnel on the Clearnet and dark web.
- Created educational phishing exercises.

Service Activities

Boulder "I Have a Dream" Foundation *Boulder, CO*

Post Secondary Volunteer Tutor *March 2021 - Present*

- Tutored post-secondary students in STEM subjects.

Access and Inclusion Peer Mentoring Program *Boulder, CO*

Graduate Mentor *October 2020 - May 2022*

- Served as a mentor for first-year undergraduate underrepresented minority students in Engineering.
- Met regularly with my mentee to answer questions and provide support as they transitioned to college.

Computational Materials Freshman Research Initiative (FRI) Lab *Austin, TX*

Peer Mentor *August 2016 - May 2019*

- Facilitated high school students in the lab's summer program code for the first time.
- Held lab hours for undergraduate students in the FRI course.
- Helped create and grade assignments for the FRI course.

Presentation

- Model Correction and Validation of Reduced Lotka-Volterra Models. MS 104 session presented at SIAM Conference on Uncertainty Quantification; April 14th, 2022; Atlanta, GA.
- Model Correction and Validation of Reduced Lotka-Volterra Models. Poster session presented at SIAM Conference on Applications of Dynamical Systems; May 26th, 2021; Virtual.
- Investigating Methodology for Global Optimization. Poster session presented at the American Association for the Advancement of Science (AAAS) Annual Meeting; February 18th, 2018; Austin, TX.
- Investigating Methodology for Global Optimization. Poster session presented at: Institute of Pure and Applied Mathematics workshop on Optimization and Optimal Control for Complex Energy and Property Landscapes; October 2nd, 2017; Los Angeles, CA.

Awards & Distinctions

2020	**Recipient**, Dean's Summer Research Fellowship	*Boulder, CO*
2018	**Winner of the Student E-Poster Competition in the Technology, Engineering, and Math category**, the American Association for the Advancement of Science (AAAS) annual meeting	*Austin, TX*
2018	**Recipient**, Chevron Scholarship	*Austin, TX*
2018	**Recipient**, Swedish Excellence Endowment to study abroad at KTH Royal Institute of Technology	*Stockholm, Sweden*