ATTICUS REX

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EDUCATION

Georgia Institute of Technology **May 2024 - Present**
Ph.D. Candidate in Computational Science & Engineering Atlanta, GA
Awards: National Science Foundation - Graduate Research Fellow

Virginia Tech **May 2023**
B.S. in Mechanical Engineering, B.S. in Computational Modeling & Data Analytics Blacksburg, VA
Awards: Summa Cum Laude, Honors Laurate Diploma

EXPERIENCE

Air Force Research Lab **May 2025 – Aug 2025**
Graduate Research Intern Wright-Patterson AFB, Dayton, OH

- Applied multi-fidelity surrogate modeling algorithms to approximate of flame speed and turbulent transonic aircraft engine velocity data. Gave machine learning and uncertainty quantification talks.
- Results published in 2025 High-Performance Computing symposium proceedings.

Georgia Institute of Technology **Aug 2023 – Present**
Graduate Teaching Assistant Atlanta, GA

- AE 4803 – Foundations of Scientific Machine Learning: contributed to curriculum development, delivered lectures, conducted oral assessments, held office hours, and created assessments. Supervisor: Elizabeth Qian, Ph.D.
- CSE 6040 – Graduate Computing for Analytics: proctoring, office hours & live-coding sessions.

Cox Communications **May 2024 – Aug 2024**
Graduate Data Science Intern Atlanta, GA

- Leveraged techniques in natural language processing, time-series analysis, and data mining with AWS (Sagemaker, Athena, SQL) to uncover novel insights into how outbound SMS notifications drive digital interactions.

NAVSEA Naval Surface Warfare Center Dahlgren Division **Aug 2022 – May 2023**
Optimal Shock Damping for Improved Controllability of Antenna Test Fixture Blacksburg, VA

- Technical lead in specialized team to design and manufacture novel vibration equipment to simulate shock pulses.
- Achieved ~400% damping improvement and reduced cost by 80% compared to previous testing.

PROJECTS

Doctoral Research: Multi-Fidelity Surrogate Modeling **Aug 2024 – Present**
Advisor: Elizabeth Qian, Ph.D. Atlanta, GA

- Developed novel data-driven surrogate modeling approach to replace expensive simulations when data from cheaper simulations are available. Demonstrated improvement over state-of-the-art multi-fidelity regression methods (publication submission pending, poster presentation at UT Austin SciML workshop).
- Extensive experience with model order reduction, gaussian processes, information theoretic approaches, deep learning, partial differential equations, programming, and numerical linear algebra.

Best Buy Project Week 2024 Competition **Jan 2024**
First Place Winner Atlanta, GA

- Utilized techniques in data mining, dimensionality reduction, parallel computing, and visualization to develop a deep learning model that accurately categorized over 500,000 customer service transcripts.

Echo State Neural Networks for Dynamical Systems Modeling **Aug 2022 – May 2023**
Advisor: Serkan Güğercin, Ph.D. Blacksburg, VA

SKILLS & CERTIFICATIONS

Programming: Python (Jax, PyTorch, Tensorflow, Numpy, Pandas, Scikit-Learn, Dask), R, SQL, MATLAB, Julia, C/C++, Java, Git, Linux, Parallel Computing (Slurm), AWS
Data Science: Machine learning, finite-element simulation, numerical linear algebra, algorithm development, time-series analysis, optimization, model reduction, natural language processing, Bayesian statistics
Engineering: Fundamentals of Engineering (FE Mechanical) Certified, CFD/FEA, Solidworks, Controls
Languages: English (native), Spanish (fluent)