ATTICUS REX

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EDUCATION

Georgia Institute of Technology **May 2024 - Present**
Ph.D. in Computational Science & Engineering Atlanta, GA

Virginia Tech **May 2023**
B.S. in Mechanical Engineering, B.S. in Computational Modeling & Data Analytics Blacksburg, VA

EXPERIENCE

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

- AE 4803 - Foundations of Scientific Machine Learning: contributed to curriculum development, teaching, giving oral assessments and grading for the first offering of this course. Supervisor: Elizabeth Qian, Ph.D.
- CSE 6040 – Graduate Computing for Analytics: held office hours & live-coding sessions, supported faculty and proctored exams. Supervisor: Richard Vuduc, Ph.D.

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

- Used 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

Deep Gaussian Processes and Kernel Methods for Multi-Fidelity Modeling **Aug 2024 – Present**
Advisor: Elizabeth Qian, Ph.D. Atlanta, GA

- Ongoing work on novel regression frameworks and kernel design for engineering applications. Interested in fusing information from varying fidelity-levels to produce accurate surrogate models for many-query analysis.
- Analysis of existing uncertainty-reduction techniques and information theory-based interpretations.

Analysis of Binary Betting Paradigms: NBA Regular Season Games **Jan 2024 – May 2024**
Term Project for CSE 6242: Data and Visual Analytics Atlanta, GA

- Proposed a mathematical framework to identify divergence between optimal casino and bettor strategy.
- Leveraged probabilistic machine learning algorithms to identify bias in live betting odds for NBA games.

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

- Leveraged 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.

Evaluating Echo State Networks, SINDy Algorithm, and Direct Differentiation Methods for Dynamical Systems Modeling **Aug 2022 – May 2023**
Advisor: Serkan Gugercin, Ph.D. Blacksburg, VA

- Successfully applied linearized Echo State Network models to improve chaotic dynamical system models.
- Demonstrated ~20% more accuracy than SINDy when applied to the Lorenz System.

SKILLS & CERTIFICATIONS

Engineering: Fundamentals of Engineering (FE Mechanical) Certified, CFD/FEA, Solidworks, Controls
Data Science: Python (PyTorch, Tensorflow, Numpy, Pandas, Scikit-Learn, Dask), R, Tableau, SQL, MATLAB, Julia, C/C++, Java, Git, Linux, Optimization, Model Reduction, Parallel Computing, Web-Scraping, AWS
Languages: English (native), Spanish (fluent)