

EDUCATION

Georgia Institute of Technology

Graduation Date: May 2025

Bachelor of Science in Mathematics and Computer Science

Relevant Coursework:

Information Security; Computer Networking; Numerical Analysis; Natural Language Processing; Deep Learning; Machine Learning; Database Systems; Systems and Networks; ; Algorithm Design and Analysis; Data Structures and Algorithms; Objects and Design; Information Theory; Statistical Theory; Probability Theory

SKILLS

Programming Languages: *Proficient:* Python, Java, SQL, C, Rust. *Familiar:* JavaScript, TypeScript, C++, Assembly (x86, x64), Bash.

Libraries: PyTorch, Scikit-learn, NumPy, Pandas, SQLAlchemy, Pydantic, SciPy **Frameworks:** FastAPI, Scrapy, Langchain

Cloud Computing: Amazon/AWS - DynamoDB, Lambda, S3, Glue, IAM, Cloudwatch, Redshift, Step Functions, AWS CDK.

Data Science: Deep Learning, Machine Learning (Unsupervised, Supervised), NLP, RAG, CV, Statistics, Generative Modeling.

Database Systems: PostgreSQL, MySQL.

Web Development: RESTful APIs, React, Node.js, HTML, CSS.

Systems/Networking: GNU/Linux, Build Systems (Make, Cargo), Network Protocols, Packet Sniffing (Wireshark).

Misc.: VCS (Git), Containerization (Docker), Agile, CI/CD, IaC, Microservices, OOP/OOD, Data Structures, Algorithms

WORK EXPERIENCE

AMAZON WEB SERVICES (AWS) | Software Development Engineer Intern Bellevue, WA | May 2024 - Aug 2024

- Designed, implemented, and deployed an ETL (Extract, Transform, Load) data integration process for the Business Intelligence of an AWS service using cloud infrastructure for automated workflows, enhancing the reliability and accuracy of business metrics by integrating $\approx 35\%$ of previously unaccounted customer scenarios.
- Implemented a robust dependency mocking framework, enabling the simulation of dependencies with dynamically generated test data, leading to more comprehensive integration tests.
- Leveraged AWS Cloud Development Kit (CDK) as IaC to automate cloud, streamlining infrastructure processes.

UNITED STATES MARINE CORPS | Infantry Assaultman (E-5)

Camp Lejeune, NC | Oct 2016 - Oct 2020

- Led and collaborated with Marines to accomplish missions under hazardous conditions and deployments.

RESEARCH EXPERIENCE

VERTICALLY INTEGRATED PROGRAM (VIP) | Student Researcher

Atlanta, GA | January 2024 - May 2024

- Researching datasets for benchmarking LLMs' abilities to identify SEC violations given a scenario description.
- Research on using Retrieval Augmented Generation (RAG) with LLMs for knowledge intensive tasks for finance.

NORTH CAROLINA STATE UNIVERSITY | Researcher

Raleigh, NC | May 2023 - Aug 2023

- Researched parameter estimation and modeling at the NSF and NSA sponsored research program at NCSU.
- Implemented Physics-Informed Neural Networks (PINNs) and novel equation learning techniques in Python using PyTorch to infer a system of differential equations for an agent-based model with adaptive behavior.

PROJECTS

MMA ELO CRUD APPLICATION

Personal Project | Sep 2024 - Dec 2024

Developed a full-stack martial arts Elo rating application with a PostgreSQL database, React.js frontend, and Python backend featuring real-time web scraping via Scrapy for fighter statistics with a custom Elo rating engine.

MAMBA VS TRANSFORMER BASED RALMS

CS 4650, NLP, Georgia Tech | Jan 2024 - May 2024

Analyzed performance of retrieval augmented language models (RALMs) with Mamba and Transformer based architectures for knowledge intensive tasks over increasing number of retrieved chunks.

SINGLE-SHOT HYPERSPECTRAL DEEP DECONVOLUTION

CS 4644, Deep Learning, Georgia Tech | Aug 2023 - Dec 2023

Enhanced hyperspectral images by mitigating distortions inherent in snapshot acquisitions by leveraging blind deconvolution with a U-Net. Demonstrated models capable of deblurring and restoring spectral information.

EXPLORING MUSIC CLASSIFICATION

CS 4641, Machine Learning, Georgia Tech | Aug 2023 - Dec 2023

Led a group project on methods in music classification over two distinct datasets. Created a framework in Python for audio data processing, dimensionality reduction, and various supervised learning methods.

BIRD CLASSIFICATION WITH CNNs

MATH 4210, Math of Data Science, Georgia Tech | Jan. 2023 - May 2023

Evaluated multiple CNN models to classify 88,000 images of 515 bird species and achieved up to 95% test accuracy.