

Alex Fetea

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EDUCATION

University of Virginia, School of Engineering and Applied Science

B.S. Computer Science (Rodman Scholar - Top 5%)

May 2025

GPA: 3.96/4.00

TECHNICAL SKILLS

- **Programming Languages:** Java, Python, C, JavaScript/TypeScript, HTML/CSS
- **Frameworks/Technologies:** Git, AWS, Microsoft Azure, SQL/NoSQL, Linux/Unix, Docker, Flask, Apache Kafka, REST APIs, NumPy, Pandas, Postgres, Node.js, React.js, Tensorflow
- **Certifications:** AWS Cloud Practitioner

EXPERIENCE

Software Engineer Intern

Walmart Global Tech

June 2023 - August 2023

Bentonville, AR

- On the **Blockchain-Platforms** team, developed a document management system using **blockchain** for file hash storage, ensuring file immutability and reducing data discrepancies by 95%.
- Constructed a **Java Spring Boot REST API** using **Docker** and deployed on **Azure Container Instances**.
- Improved performance by using **Azure Blob/FileShare** for file storage, **CosmosDB** for metadata storage, and **Kafka** for asynchronous uploads, enhancing response times by 60%.

Undergraduate Researcher

UVA Biocomplexity Institute

Oct 2022 - Present

Charlottesville, VA

- Improved **Hypergraph Neural Network** performance by implementing **Topological Data Analysis**, increasing accuracy from 84.2% to 85.8% on the NTU2012 dataset over current libraries.
- Analyzed Washington State crop dataset comprised of millions of fields from over 20 years. Used **Python**, **NumPy**, and **Scikit-learn**, and applied **feature extraction** using **KDTree**
- Managed **High-Performance Computing** jobs using **Slurm** scripts on **Linux**, allocating resources for tasks.

DevOps Engineering Intern

TerraGo Technologies

June 2022 - Aug 2022

Sterling, VA

- Engineered a **Node.js** app, executing **SQL** queries on **PostgreSQL** via Slack, providing real-time updates to 100+ queries a day with **Websockets**.
- Stored preconfigured SQL queries in **AWS S3**, and executed on **AWS EC2**, reducing retrieval time by 20%.
- Deployed the app in a **Docker** container on **AWS Fargate**, enhancing availability for 20+ team members.

Software Developer

Virginia DOT and University of Virginia

Jan 2022 - May 2022

Charlottesville, VA

- Collaborated in a 7-person team, designing a remote wind speed rig for Virginia DOT using **Arduino** and **Data Logger Shield** to accurately calculate averages speeds and store data locally.
- Ensured $\pm 1s$ accuracy via a **Real Time Clock** module and applied a **Low-pass filter** for data noise reduction.

PROJECTS

Course Registration Opening Notifier

GitHub ↗

- Designed a real-time course registration notification app, using **Python** on **AWS EC2** to scrape data, with 15 active users across 60+ courses, with **Twilio**-integrated alerts via a **Flask** app on **Elastic Beanstalk**.

Fault-Tolerant Distributed Data Store

GitHub ↗

- Engineered a **Python**-based **distributed key-value data store**, ensuring high-availability and fault-tolerance through data replication across **3 nodes** using **consistent hashing**, optimizing data operations.

Face Detection App

GitHub ↗

- Developed a **Java Spring Boot** backend and a **React** frontend full-stack web app with **OpenCV** for face detection, with a 98% accuracy. Used **Axios** for seamless API requests and **Postman** for debugging.

LSTM-Based Stock Price Prediction

GitHub ↗

- Built an **LSTM** predictive model using **Python**, **Keras**, **Tensorflow**, **Pandas**, **Numpy**, and **yfinance** for stock price forecasting and results visualization with **matplotlib**. Improved accuracy by 34% through iteration.