

# Daniel Öman

dsoman24@gmail.com | (470) 553-5299 | Atlanta, GA | github.com/dsoman24 | linkedin.com/in/daniel-s-oman

## Education

### GEORGIA INSTITUTE OF TECHNOLOGY

#### B.S. Computer Science, concentrations in Intelligence (AI/ML) and Theory

August 2021 – May 2025 (expected)

3.96/4.0 GPA

Relevant Coursework: Data Structures & Algorithms, Machine Learning, Computer Organization & Programming, Objects & Design, Probability & Statistics, Automata & Complexity, Number Theory

## Experience

### GOOGLE

Kirkland, WA

#### Software Engineering Intern

May 2024 – August 2024

- Designed and implemented a custom distributed load testing framework using C++ and Python to benchmark the scalability of the streaming metadata change-log service within Google BigQuery's core storage infrastructure.
- Built continuous test runs as a development workflow, leading to 70% reduction in regressions before reaching production.
- Developed load sampling architecture to overload production traffic by sending 10k+ requests per second to the read and write RPC endpoints on a variable number of BigQuery tables, exposing production bottlenecks.
- Designed a multi-threaded metric sampling system with C++ to compute, aggregate, and analyze latency, throughput, and error rate metrics across 25+ load sampler instances concurrently over multiple machines, yielding increased benchmark accuracy.
- Fixed a critical service-level objective bug affecting BigQuery's storage metadata server by implementing request retry logic, eliminating the number of error spikes by ~90%.

### GEORGIA TECH EFFICIENT AND INTELLIGENT COMPUTING LAB

Atlanta, GA

#### Undergraduate Research Assistant

January – May 2024

- Contributed to a PyTorch toolkit used to train distributed Graph Neural Networks (GNNs) for applications with multiple large disjoint graphs, such as electronic design analysis and molecular modeling.
- Built a user-friendly modular data loading and transfer API and implemented the GraphSAGE GNN forward propagation and graph vertex embedding algorithm, improving model accuracies by an average of 15%.

### GEORGIA TECH COLLEGE OF COMPUTING

Atlanta, GA

#### Undergraduate Teaching Assistant (Homework Lead)

August 2022 – May 2024

- Managed a team of 40 TAs in the development and grading of 12 homework assignments for over 800 students per semester as TA Homework Lead for CS 1331: Intro to Object-Oriented Programming (Java) under Prof. Richard Landry and Dr. Aibek Musaev.
- Led weekly recitations for 50 students and helped students with problem-solving and debugging during one-on-one office hours.

### GOOGLE

Sunnyvale, CA

#### STEP Intern

May – August 2023

- Designed, implemented, and tested an efficient parallel-processing data pipeline being used in production to provide features to train machine learning models that predict Google Workspace account upgrade, downgrade, and churn behaviors.
- Built pipeline using FlumeJava, a Java MapReduce framework, to extract and aggregate 70+ web domain level ML features from a database containing the HTML of more than 500 billion web pages, increasing customer coverage in the feature store by 20%.
- Engineered a scalable and extensible data aggregation architecture by applying advanced OOP design patterns that reduced feature implementation time by over 50% and provided an intuitive interface for future feature store contributions.
- Refactored pipeline to improve reliability by developing a system to flush intermediate output to a Spanner database across 10k+ processes during a full table scan, preventing up to 7 days worth of lost data for each pipeline run.

## Projects

### Hemodynamics Calculator | JavaScript, ReactJS, MongoDB, Express, NodeJS

August 2023 – April 2024

- Developed the Hemodynamics Calculator, a full-stack MERN application for the Emory University School of Medicine used by over 10 clinicians to reduce blood flow measurement error daily, critically impacting more than 1,000 cardiac ICU patients a year.
- Placed 3rd out of 50 teams in the Georgia Tech CS Capstone Expo, presenting to 40+ industry professionals and professors.

### Machine Learning Soccer Prediction | Python, Scikit-Learn, PyTorch, NumPy, Matplotlib, Seaborn

August – December 2023

- Worked on a team of 5 to build and train logistic regression, random forest, and artificial neural network models using Scikit-Learn and PyTorch to predict soccer match outcomes with 70% accuracy, beating benchmark betting odds data by 8%.
- Built feature engineering strategies and conducted hyperparameter tuning to reduce overfitting, improving accuracy by ~10%.

## Skills

**Programming Languages:** Java, C/C++, Python, SQL, JavaScript,  $\text{\LaTeX}$

**Frameworks:** FlumeJava (MapReduce), JUnit, NumPy, Pandas, Scikit-Learn, PyTorch, ReactJS, Express, NodeJS, Flask

**Tools:** Git, Mercurial, Bazel, Protobuf, gRPC, Spanner, MySQL, MongoDB

**Languages:** Fluent in Spanish, Swedish, and English