

# Daniel Öman

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## Education

### GEORGIA INSTITUTE OF TECHNOLOGY

2021 – 2025 (expected)

B.S. Computer Science, concentrations in Intelligence (AI/ML) and Theory | 4.0/4.0 GPA

Relevant Coursework: Data Structures & Algorithms, Computer Organization & Programming, Probability & Statistics, Combinatorics

## Work Experience

### GOOGLE

Sunnyvale, CA

#### STEP Intern

May – August 2023

- Built and tested an efficient parallel-processing data pipeline using FlumeJava, a Java MapReduce framework, to extract and aggregate over 70 web domain level features from a database containing the HTML of more than 500 billion web pages.
- Designed and implemented a novel scalable and extensible data aggregation architecture by applying OOP design patterns and advanced Java principles which reduced feature implementation time by over 50% and eliminated boilerplate code.
- Refactored pipeline to improve reliability by developing a system to flush intermediate output to disk across 100k+ threads during a full table scan, saving up to 7 days of progress during each pipeline execution.
- Extracted features are used in production to train Google Workspace's Growth & Revenue Optimization team's machine learning models, utilized for predicting account upgrade, downgrade, and cancellation behaviors.

### GEORGIA TECH COLLEGE OF COMPUTING

Atlanta, GA

#### Undergraduate Teaching Assistant (Homework Lead)

August 2022 – Present

- Manage a team of 40 TAs in the development and grading of 12 homework assignments per semester for ~700 students as TA Homework Lead for CS 1331: Intro to Object-Oriented Programming, under Prof. Richard Landry and Dr. Aibek Musaev.
- Lead weekly recitations for 50 students and help students with problem-solving and debugging during one-on-one office hours.
- Grade 4 exams per semester and write auto-grader unit tests for assignments using the Java Reflections library.

### ERMI

Atlanta, GA

#### Engineering Intern

July – August 2021

- Analyzed data and created decision trees from health insurance claims data from over 1000 knee surgery patients using R.
- Identified the highest cost patients to target for non-surgical intervention.

#### Engineering Intern

July – August 2019

- Analyzed 10k+ data points from a robot that diagnoses knee injuries, with analysis to be incorporated into research papers.
- Learned and used R to organize and visualize datasets in over 40 plots to assess the reliability and accuracy of the robot.

### GEORGIA TECH RESEARCH INSTITUTE

Atlanta, GA

#### Research Intern

June – July 2020

- Worked in a team of 4 to develop an app that creates a Bluetooth mesh network for emergency communication.
- Implemented routing algorithms in Python and Java and ran simulations of the app to investigate network properties and stability.

## Leadership and Involvement

### GEORGIA TECH FINANCIAL SERVICES AND INNOVATION LAB

Atlanta, GA

#### Undergraduate Researcher

January – May 2023

- Led a team of 4 researchers in performing sentiment analysis on earnings calls transcripts on 12 electric vehicle companies using the natural language processing model FinBERT and library NLTK.
- Developed a custom web scraper using BeautifulSoup to extract over 70 earnings call transcripts from The Motley Fool.
- Created dynamic visualizations from analyzed text data to conclude that 5 major US government policies drove spikes in positive sentiment in earning calls from companies that focus on electric vehicle production.

## Technical Projects

### Minesweeper Probabilistic Strategy | Java, JavaFX, Python, Pandas, Jupyter Notebook

- Developed a probabilistic algorithm in Java to solve Minesweeper games with 96%, 80%, and 30% win rates for easy, medium, and hard difficulties, significantly higher than the approximate 46%, 22%, and 13% respective human win rates.
- Built row reduction and tree-traversal algorithms to reduce game state matrix dimensionality, lowering solution time by over 30%.

### Ruter-Sju Card Game Bot and Monte Carlo Simulation | Python, Pandas, NumPy, PyPlot

- Designed and implemented algorithms in Python to play card game Ruter-Sju to investigate best game strategy.
- Built a Monte Carlo simulation with 20k+ games and used Pandas and PyPlot libraries to analyze and visualize game data.

## Skills

**Technologies:** Java (Including JavaFX, Android Studio), Python (Including Pandas, NumPy, BeautifulSoup), C, Git, LaTeX, SQL, R

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

**Affiliations:** Delta Chi Fraternity (Scholarship Chair), Society of Hispanic Professional Engineers, Consult Your Community