Daniel Öman

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Education

GEORGIA INSTITUTE OF TECHNOLOGY *August 2021 – May 2025 (expected)*
B.S. Computer Science, concentrations in Intelligence (AI/ML) and Theory 4.0/4.0 GPA
Relevant Coursework: Data Structures & Algorithms, Machine Learning, Design & Analysis of Algorithms, Computer Organization & Programming, Probability & Statistics, Combinatorics, Linear Algebra, Automata & Complexity*, Number Theory* (* = *current*)

Experience

GEORGIA TECH EFFICIENT AND INTELLIGENT COMPUTING LAB Atlanta, GA
Undergraduate Research Assistant *January 2024 – Present*
- Develop a PyTorch toolkit to train distributed Graph Neural Networks (GNNs) for applications with multiple disjoint large graphs, such as electronic design automation analysis.
- Build a user-friendly modular data loading and transfer API and implement the GraphSAGE GNN forward propagation and graph vertex embedding algorithm to improve model accuracies by an average of 15%.

GOOGLE Sunnyvale, CA
Software Engineering (STEP) Intern *May – August 2023*
- Implemented and tested an efficient parallel-processing data pipeline being used in production 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%.
- Designed and implemented 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 disk across 100k+ threads during a full table scan, preventing data loss by storing more than 7 days of data progress during each pipeline execution.

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 over 800 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.

GEORGIA TECH FINANCIAL SERVICES AND INNOVATION LAB Atlanta, GA
Undergraduate Research Assistant (Team Lead) *January – May 2023*
- Led a team of 4 researchers in performing sentiment analysis on earnings calls transcripts on 12 electric vehicle companies using the large language model FinBERT and natural language processing library NLTK.
- Developed a custom web scraper using Beautiful Soup 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.

Projects

Georgia Tech Computer Science Capstone Project | *JavaScript, ReactJS, MongoDB, ExpressJS, NodeJS* *August 2023 – Present*
- Develop the Hemodynamics Calculator, a full-stack application for the Emory University School of Medicine, to be used by 10 clinicians to reduce measurement error daily, impacting over 1,000 patients.
- Leverage ReactJS and MongoDB to develop user-friendly interactive graphics and visualizations of trends in patient data.

Machine Learning Soccer Prediction | *Python, sklearn, 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 to predict soccer match outcomes with 70% accuracy, beating benchmark betting odds data by 5%.
- Developed feature engineering strategies, performed dimensionality reduction, and conducted hyperparameter tuning to reduce overfitting, improving model accuracy by ~10%.

Minesweeper Probabilistic Solver | *Java, JavaFX, Python, Pandas, Jupyter Notebook* *December 2022 – July 2023*
- 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%.

Skills

Technologies: Java (JavaFX, JUnit, Android Studio), Python (Pandas, NumPy, sklearn, PyTorch), C, SQL, JavaScript, HTML, CSS
Languages: Fluent in Spanish, Swedish, English
Affiliations: Delta Chi Fraternity (Secretary, Professional Development Chair), Society of Hispanic Professional Engineers