

Aayush Dutta

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EDUCATION

University of Michigan, Ann Arbor, MI

Masters of Science in Mathematics

Aug 2022 - May 2024

Concurrent with Undergraduate Studies

University of Michigan, Ann Arbor, MI

Bachelor of Science in Computer Science and Honors Mathematics

Aug 2020 - May 2024

GPA: 3.95

- **Computer Science Coursework:** Machine Learning (G), Advanced Algorithms (G), Functional Programming, Programming Languages, Human-Centered SWE, Computer Organization, *OS, Computer Vision*¹
- **Mathematics Coursework:** Probability Theory (G), Algebraic Topology (G), Topology (G), Single/Multivariate Analysis, Theoretical Linear Algebra, Differential Geometry (G), Algebra 1 & 2 (Groups, Representations, Rings & Galois Theory), *Commutative Algebra (G), Complex Analysis (G)* *G = Graduate Coursework
- **Honors and Awards:** Evelyn O. Bychinsky Prize, Mathematics Departmental Merit Scholarship, University Honors, William J Branstrom Freshman Prize, James B. Angell Prize

TECHNICAL SKILLS

Languages: Python; C/C++; Java; Scheme; SQL; Prolog; Matlab; L^AT_EX

Technologies: Python ML Stack (Tensorflow Keras, Pytorch, Scikit-Learn, etc); Git; C++ STL; Docker; Kubernetes

EXPERIENCE

Solution Integration Intern

May 2023 – Present

FICO

- Published tutorials for FICO's **Decision Management Platform** (DMP) to aid client-side solution deployment
- Developing ML solutions on the aforementioned DMP to create accelerator systems (templates for clients' custom solutions) that detect **Transaction Fraud**

Grader - EECS 586

Jan 2023 – May 2023

University of Michigan

- Graded ~ 50 PSETs weekly for a graduate, theoretical course on design & analysis of data structures & algorithms
- Topics include Graph DP, Streaming, Linear Programs & Duality, Randomized & Approximation Algorithms

Machine Learning Engineer, Intern

May 2022 – Aug 2022

Gravity AI

- Devised an end-to-end ML Pipeline involving **Optical Character Recognition**, Tabular Data Extraction (**Pytorch**) and text interrogation to automate data entry from images to save clients **\$80,000** annually
- Assembled and containerized DALL-E (**Docker**), an generative AI model that creates images from text prompts, for client-side deployment. Used for a front-end feature allowing users to create profile pictures, boosting engagement
- Architected an ML pipeline to perform Speaker Diarisation (**Tensorflow, GMM Clustering**) and Topic Detection to segment videos into contextually split clips, saving clients **16+ hours** in editing per hour long video

Software Engineer Intern

May 2021 – Aug 2021

The Waterside

- Liaised with the management of The Waterside (a condominium in Singapore with **2000 residents**) to single-handedly create an application to track their water usage and wastage which cost residents **\$43,000 yearly**
- Engineered anomaly detection algorithms (using **Autoencoders**, a Neural Network) to recognize leaks

PROJECTS

ThermoTwin Anomaly Detection 🌀 | *Python, Tensorflow Keras, Sklearn, Docker*

Jan 2022 – May 2022

- Implemented **Long Short-Term Memory** Recurrent Neural Network architecture on time series data of the Rankine Cycle, a thermodynamic cycle used in power plants, to **predict transient graphs** and detect anomalies in a fraction of the time required by simulations (nearly **2 orders of magnitude**)
- Constructed 2 additional DNN pipelines to predict end states and failure time using **Tensorflow Keras**

Sentiment Analysis Bot | *Python, MySQL*

Sep 2020 – May 2021

- Performed sentiment analysis (using **Natural Language Processing**) and wrote a bot to execute trades as a member of the Michigan Finance and Mathematics Society (MFAMS) using Twitter APIs to gather data

¹Italics indicate Fall 23 coursework