Aayush Dutta

LinkedIn | aayush-dutta.github.io

Education

University of Michigan, Ann Arbor, MI **Aug 2022 - May 2024**
Masters of Science in Mathematics *GPA: 4.0*

University of Michigan, Ann Arbor, MI **Aug 2020 - May 2024**
Bachelor of Science in Computer Science and Honors Mathematics *GPA: 3.95*

- **Computer Science Coursework**: Machine Learning (G), Advanced Algorithms (G), Functional Programming, Programming Languages, Human-Centered SWE, Computer Organization, Computer Vision, Artifical Intelligence
- **Mathematics Coursework**: Probability Theory (G), Algebraic Topology (G), Topology (G), Single/Multivariate Analysis, Theoretical Linear Algebra, Differential Geometry (G), Algebra 1 & 2 (Groups, Rings & Galois Theory), Commutative Algebra (G), Complex Analysis (G), Hyperbolic Geometry (G) **G = Graduate Coursework*

Technical Skills

Languages: M; Python; C/C++; Java; Scheme; SQL; Prolog; Matlab; C# ;LaTeX
Technologies: Python ML Stack (Tensorflow Keras, Pytorch, Scikit-Learn, etc); Git; C++ STL; Docker; Kubernetes; Node.js; React; PostgreSQL; .NET; Chronicles

Experience

Software Developer Sept 2024 –
Epic Systems

- Developing scalable back-end solutions for **Epic's Interoperability** platform via maintaining a massive noSQL database to facilitate **700 million monthly** patient record exchanges
- Spearheaded the development of transacting patient deceased statuses and notifying hospitals of over **110,000 patient mortalities** annually- allowing them to navigate sensitive conversations & efficiently allocate resources
- Advising on **dataset preparation** and **proprietary tokenization** techniques for medical **LLMs** trained on **Epic's Cosmos** database which contains **300 million** deduplicated patient records

Teaching Assistant - EECS 376 Jan 2024 – May 2024
University of Michigan

- Led discussion sections, assisted in writing exams and homework, conducted office hours for a class of 350 students
- Course materials included algorithm design (divide and conquer, dynamic programming), computability (Turing Machines, Turing Reductions), complexity (P, NP, NP-Hard, Heuristics), and cryptography (Diffie-Hellman, RSA)

Solution Integration Intern May 2023 – Aug 2023
FICO

- Developed a Solution Accelerator (i.e. templates for client's custom solutions) for FICOs Professional Services team to detect transaction fraud using ML models that used **Recursive Bayesian Estimation** to perform profiling
- Migrated a FICO legacy Loan Application Fraud solution to FICO's cloud-based Platform Orchestration tool

Grader - EECS 586 Jan 2023 – May 2023
University of Michigan

- Graded ~ 50 PSETs weekly for a graduate, theoretical course on the analysis of data structures and 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
- Architected an ML pipeline to perform Speaker Diaration (**Tensorflow, GMM Clustering**) and Topic Detection to segment videos into contextually split clips, saving clients **16+ hours** in editing per hour long video

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**