

Matthew Habtezgi

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Education

- Massachusetts Institute of Technology** Expected May 2025
SB. Computer Science and Engineering, Mathematics Cambridge, MA
- **Relevant Coursework:** Design and Analysis of Algorithms (6.1220), Inference and Information (6.7800), Advanced NLP (6.8610), Operating Systems Engineering (6.1810), Computer Architecture (6.1910), Theory of Computation (18.4041), TinyML and Efficient Deep Learning Computing (6.5940)
 - **Relevant Teaching Experience:** 6.101 (Fundamentals of Programming) Lab Assistant, 6.100A+B(Intro to CS and Programming w/ Python and Intro to Data Science w/ Python) Lab Assistant, 6.3900 (Introduction to Machine Learning) HKN Tutor
- Massachusetts Institute of Technology** Expected May 2026
MEng. Computer Science and Engineering Cambridge, MA

Experience

- Structify** Feb 2024 - Sept 2024
Machine Learning Engineer Brooklyn, NY
- Implemented data pipelines for collecting multimodal text-image data for SFT and DPO datasets for VLMs and scalable recommendation systems utilizing vector, graph, and relational databases.
 - Implemented API endpoints, observability and general business logic on our Rust backend. Used Python for data collection / augmentation, and adding custom logic to our Python SDK, and customer specific programs.
- Amazon Web Services** June 2023 – Sept 2023
Software Engineer Intern Cupertino, CA
- Worked for AWS Hardware Engineering Services in the BIOS+UEFI Firmware Development team working on optimizing hardware interrupts from CPU-BMC communication over SSIF interface on Intel-based baremetal servers.
 - Worked with Linux kernel to profile interrupts, firmware test automation, and AWS services. Used C, Python, x86 Assembly with embedded Linux, AWS CDK and SQL. Improved kernel level code and optimized hardware interrupt processing by a 15 percent margin.
- MIT CSAIL - PL+V Lab** Sept 2023 -
Research Intern Cambridge, MA
- Worked on the Koika project writing code for verifying security properties on multiprocessor machines using Coq. Working on the ATL project formally verifying tensor compilers on C programs in Fall 2024.
- Cryptoclear** Jan 2022 - Nov 2022
Software Engineer Cambridge, MA
- Developed gradient boosting models, hyperparameter tuning methods and bagging classifiers in model construction. Used Apache Spark and Parquet for data engineering and developing ETL pipelines to aid with inference and building training datasets. Used Go-Ethereum for fetching blockchain data and other Web3 technologies.

Projects

- Parallel/Concurrent SAT Solver** | C++
- Developed a parallel SAT Solver in Python based on conflict-driven clause learning to solve general n by n Flow Free puzzles
 - Used camera feed with OpenCV for preprocessing of images to build puzzle datasets for testing and for real-time inference
- ChessGPT** | React, Typescript, Node
- Created a React SPA frontend and a Typescript backend that allows for playing chess, but with a GPT bot (using GPT-4o-mini) as an autonomous chess agent.
 - Used REST API architecture, standard React design patterns, and an Express.js Typescript backend
- HTTP Packet Load Balancer** | Golang, React
- Implemented an HTTP load balancer service in Golang from scratch with a React.js SPA frontend for user interaction (i.e. entering HTTP params / body data / headers)
 - Implemented various load balancing algorithms (round-robin, least connection) and concurrent data structures to support several clients