Matthew Habtezgi

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Education

Massachusetts Institute of Technology 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), Computer Architecture (6.1910), Theory of Computation (18.4041), TinyML and Efficient Deep Learning Computing (6.5940), Distributed Systems (6.5840)
- **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

Experience

14.ai Sep 2025-
Founding Engineer *San Francisco, CA*

- Working on building full-stack self-improving AI applications in Effect.TS. Building integrations and product features (ex. agent tracing, voice and chat interfaces, etc.) for enhancing core product experiences.

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 *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 perform telemetry on hardware interrupts and automate firmware testing, and built API servers / microservices with Docker for data access. Used C, Python, x86 Assembly with embedded Linux, AWS CDK and SQL. Improved data infrastructure and optimized hardware interrupt processing by a 15 percent margin.

MIT CSAIL - PL+V Lab Sept 2023 - May 2025
Undergraduate Researcher *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

Prompt Optimizer | *Postgres, Python, FastAPI*

- Implemented a system for automated prompt optimization, using a React frontend + FastAPI backend, and Docker for infrastructure.

DuoAttention | *PyTorch, Vision Language Models*

- Replicated ML systems paper DuoAttention with applications in visual question answering and NIAH on visual + text data. Performed distributed training and model evaluations for performance and efficiency.

Multimodal Search Engine | *Python, React, PostgreSQL, OpenSearch*

- Implemented a multimodal search engine for searching over images and text with SOTA information retrieval pipelines, using OpenSearch as the search backend / PostgreSQL for persistent metadata / information.