

Ayman Mahfuz

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EDUCATION

The University of Texas at Austin

Austin, TX

Bachelor of Science in Computer Science, Concentration in AI and ML

Aug 2023 - May 2027

- **Courses:** Data Structures, Algorithms, Operating Systems, HPC, Linear Algebra, Calculus, Probability

EXPERIENCE

Platform Validation Intern

May 2025 - Present

Arm

- Engineering a deep learning pipeline to prioritize fault-revealing stress tests for Arm's first 128+ core server CPU, leveraging terabytes of telemetry, maximizing failure detection across a 10K+ hour validation.
- Developing a Python/SLURM orchestration framework and statically linked, rack-scalable test suite to automate and extend validation across current and future Arm server silicon, defining foundational reliability metrics for next-generation hyper-scale AI-serving infrastructure.

Research Assistant

Jan 2025 – Present

The University of Texas at Austin - Artificial Intelligence Lab, Texas Robotics

- Designing multiagent RL policies from the ground up to train NAO robot soccer team, progressing from walking and dribbling to defending and attacking; blending curriculum learning, distillation, and hierarchical models across 5M+ simulation episodes for seamless real-world play.
- Accelerated a 400K+ line C++ robotics stack, tuned simulation dynamics to mirror reality, enabling rapid policy design and deployment through sim-to-real pipeline.

Data Engineer Intern

Jan 2025 – May 2025

The Sunwater Institute

- Developing production LLM system targeting daily analysis of 1000+ legislative documents, with RAG-enhanced generation achieving 85%+ human-rated accuracy on policy insights.

Software Engineer, Research Assistant

Aug 2023 – May 2025

The University of Texas at Austin - Center for Media Engagement

- Built scalable ETL pipelines for 200M+ news articles, leveraging APIs, sitemaps, Pandas, and BigQuery; delivered real-time monitoring dashboards with Python and SQL.
- Fine-tuned BERT models for clickbait detection, story classification, entity recognition, and sentiment analysis, achieving up to 99% accuracy.
- Independently designed and deployed a full-stack research platform (React, Flask, Firebase) with 3 interactive games, MTurk integration, and 99.99% uptime for 1,000+ participants.

ML Engineer, Research Assistant

Aug 2023 – Jan 2025

The University of Texas at Austin - Oden Institute for Computational Engineering and Sciences

- Developed a high-throughput 3D pancreas MRI segmentation pipeline using TACC's H100 GPUs, Apptainer containers, and SLURM scheduling; improved Dice score by 12%, matching state-of-the-art results.
- Benchmarked CNNs, transformers, and hybrids (e.g., PanSegNet) on 1000+ MRI scans, resolving GPU memory, I/O, and mixed precision issues to enable scalable training.

PROJECTS

Inkwell: Youtube for Books | *Django, React, PostgreSQL, Docker*

- Founded and built "Inkwell," a scalable React/Django platform for book-sharing, featuring 50+ REST endpoints, JWT auth, intelligent search, and AWS-integrated deployment.

Leetcode Matchmaker | *Flask, React, K-Neighbors*

- Developed a web application that compares 2000+ LeetCode problems, finding and displaying similar problems using cosine-similarity on problem vectors, leveraging machine learning techniques and built with React and Flask.

TECHNICAL SKILLS

Languages: Python, C, C++, JavaScript, SQL, Java, HTML/CSS

Frameworks/Libraries: React.js, Flask, Django, Pandas, PyTorch, TensorFlow

Systems/Tools: Google Cloud Platform (GCP), Git, AWS, HPC, CUDA