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

- Designed a scalable BO/MOBO pipeline to surface high-impact stress tests across DRAM, TLB, NUMA, and cache, achieving 90%+ utilization coverage with 5% of the total config space.
- Automated 10K+ hours of rack-scale testing via Python + SLURM and statically linked binaries, enabling full-platform CPU validation beyond just memory.
- Led Git workflow adoption across the team and bridged research with engineering to design the search space, integrate telemetry, and discover Pareto-optimal configs under minimal data and guidance.

Research Assistant — Jan 2025 – Present

University of Texas at Austin — AI Lab, Texas Robotics

- Training multi-agent RL policies from scratch for 7v7 NAO robot soccer—covering walking, dribbling, defending, and attacking—via curriculum learning, distillation, and hierarchical control across 5M+ episodes and a full sim-to-real pipeline.
- Optimized a 400K+ line C++ robotics stack and tuned physical simulation to mirror real-world dynamics, accelerating deployment of intelligent, coordinated agents in adversarial settings.

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.

Software Engineering Intern — Jun 2022 – Oct 2022

Lockheed Martin

- Built JavaScript tooling to deduplicate asset records in internal CRM systems, improving data integrity and streamlining reporting across departments.

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.

InReach | *React, Flask, OpenAI*

- Built a full-stack platform (React + Flask) that automates cold outreach for internships/jobs—leveraging GPT APIs to generate personalized emails based on resume and intent, sent via Gmail-authenticated bulk delivery.

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