

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:** HPC, NLP, Visual Generative Computing, Data Structures, Computer Architecture, Algorithms
- **GPA:** 3.4/4.0

EXPERIENCE

Arm

May 2025 – Present

ML Research Engineer Intern

- Engineered a modular ML-driven Bayesian optimization platform (Python) automating 10,000+ hours of CPU/memory stress tests; achieved 99.8th-percentile coverage using less than 1% of test cases and accelerated failure discovery.
- Presented tool to SVP and directors, collaborated across firmware/validation teams, authored 1,400+ lines of documentation, and conducted code reviews to ensure reliability, maintainability, and adoption of the platform.

The University of Texas at Austin - AI Lab, Texas Robotics

Jan 2025 – Present

Undergraduate Research Assistant

- Optimized a 400K+ LOC C++ simulator and training stack; cutting RL training time 67% via profiling, memory tuning, and early-termination heuristics.
- Scaled curriculum training to 5M+ episodes with reproducible GPU configs and CI pipelines; tuned sim-to-real parameters to boost on-robot reliability.
- Deployed hierarchical multi-agent policies (dribble, pass, shoot, defend) on NAO robots, securing a 3rd place finish globally at RoboCup 2025 SPL.

The University of Texas at Austin - Center for Media Engagement

Aug 2023 – May 2025

Software Engineer, Undergraduate Research Assistant

- Designed from the ground up a full-stack research platform: three React games tied to a Flask backend with a round-robin game assigner, Firebase logging of every participant action, and dashboards for rapid data analysis; supported 1,000+ participants with 99.99% uptime.
- Engineered ETL pipelines and cron-based scrapers that ingested and organized a 250M+ row dataset into GCP BigQuery, enabling efficient queries and domain/content-level analysis.
- Built and fine-tuned BERT/LLM classifiers (clickbait, story detection, sentiment, entity recognition) and deployed them behind Flask REST APIs with logging/error handling for reliable study use.

The University of Texas at Austin - Oden Institute

Aug 2023 – Jan 2025

Undergraduate Research Assistant

- Engineered a high-throughput 3D MRI segmentation pipeline on TACC H100 GPUs with Apptainer/SLURM; improved Dice score +12% while maintaining throughput.
- Benchmarked CNN/Transformer variants across 1,000+ scans; resolved mixed-precision, I/O, and memory bottlenecks; wrote reproducible training scripts and configs.

Lockheed Martin

Jun 2022 – Oct 2022

Software Engineering Intern

- 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 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) leveraging LLMs (GPT APIs) to automate cold outreach—generating personalized emails used by 200+ users.

SKILLS

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

Systems/Tools: BigQuery, Pandas, Docker, Linux, Git, AWS, GCP, SLURM, Apptainer

Frameworks/Libraries: React.js, Flask, Django, FastAPI, REST APIs, OAuth/JWT

ML/AI: PyTorch, TensorFlow, Transformers, LLMs, Reinforcement Learning (PPO, MAPPO)