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

SKILLS

Languages: Python, C++, C, JavaScript, SQL, Java, HTML/CSS
Systems/Tools: Distributed Systems, Multi-threading, Concurrency, Docker, Linux, Git, AWS, GCP, SLURM
Frameworks/Libraries: React.js, Flask, Django, FastAPI, REST APIs, OAuth/JWT, Pandas, Numpy
ML/AI: PyTorch, TensorFlow, Transformers, LLMs, Reinforcement Learning (PPO, MAPPO)

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.