

Abdulrahman Alshahrani

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Skills

Languages: Python, Go, TypeScript, JavaScript, C, C++, SQL

Machine Learning: PyTorch, scikit-learn, Pandas, OpenCV, RAG Systems, Flower (Federated Learning)

Web Development: React, Next.js, FastAPI, Shadcn, SQLAlchemy, Streamlit, PostgreSQL, SQLite

DevOps & Cloud: Docker, Docker Compose, Google Cloud, Cloudflare, OpenTelemetry, Linux, Git, SSH

Education

King Abdullah University of Science And Technology – MS in Computer Science

Dec 2026

Coursework: LLMs, Agentic AI, Concurrency, Computer Networks

The University of Texas at Austin – BS in Computer Science

May 2025

Coursework: High Performance Computing, Virtualization, Cloud Computing

Experience

ML Engineer Intern, Aramco – Thuwal, Saudi Arabia

Jun 2026 – Jul 2026

- Developed foundation models to predict rock properties, handling data collection and multi-GPU training.
- Built an OCR and barcode pipeline to extract serial numbers from rock samples.
- Created a Streamlit and SQLite system to manage collected data for a digital rock sample archive.

Software Engineer, Longhorn Developers – Austin, Texas, United States

Jan 2025 – May 2025

- Contributed to UT Registration Plus, a React application used by 50k+ students to facilitate course registration.
- Added direct course registration through the app, handling sign-in flows and data scraping logic.

ML Engineer Intern, Aramco – Thuwal, Saudi Arabia

Jun 2024 – Aug 2024

- Enhanced the synthetic data for a Computer Vision model by creating 3D renders in Blender.
- Captured and integrated 360° images to produce more realistic datasets, boosting model accuracy by 20%.
- Created a flexible PyTorch evaluation repo for evaluating different state-of-the-art computer vision models.

Projects

Distributed Multi-Agent Systems

Go, Docker Compose, OpenTelemetry, RAG, Vector Stores

- Designed a multi-agent framework that compiles a single app into different infrastructure configurations (single- vs. multi-container) for experimentation.
- Introduced RAG, persistent memory, and built-in observability as core features, demonstrated across finance, travel, and marketing multi-agent applications.
- Benchmarked latency, throughput, token usage, and resource consumption across single-container, HTTP, A2A, and MCP communication patterns to compare tradeoffs.

Agentic Context Engineering

Python, OpenTelemetry, OpenRouter

- Reproduced the Agentic Context Engineering framework, adding observability to track usage across agents.
- Implemented optimization tricks by routing requests to cheaper models to reduce costs and maintain accuracy.
- Built pipelines with telemetry and result aggregation for systematic model comparison on different tasks.

Federated Learning With Malicious Clients Tolerance

Flower, PyTorch, Google Cloud Platform

- Built and evaluated different Federated Learning settings under distributed systems with malicious clients.
- Implemented a VAE-based aggregator that detects malicious clients using anomaly detection methods.
- Deployed the experiment on Google Cloud Platform to benchmark the performance under real settings.

Awards

Recipient, KAUST Gifted Student Program (KGSP) Scholarship

Aug 2020 – May 2025