ALY AHMED

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EDUCATION

Virginia Tech, Blacksburg, VA | B.S. in Computer Science | May 2026 | GPA 3.9 / 4.0

Relevant coursework: Data Structures and Algorithms, Computer Systems, Introduction to AI

EXPERIENCE

AI Future Minds, Remote | Software Engineer Intern | Apr 2025 - Aug 2025

- Built a pre-launch startup's first product: full-stack semantic search with questionnaire-based recommendations and pre-login caching (Python, C#/.NET, TypeScript, Cosmos DB, Azure DevOps CI/CD).
- Refactored the Python recommendation service into a persistent Flask microservice, removing per-request startup overhead and cutting response times from **tens of seconds to a few seconds.**

Boundless Founder, Remote | Software Engineer (Volunteer) | May 2025 - Jul 2025

- Sole developer of an adaptive course agent (Supabase Edge Functions, TypeScript, Gemini API) integrated with WordPress and shipped as a core feature of an entrepreneurship education platform.
- Built a LangGraph agent, traced in LangSmith, that assesses learner comprehension, gives targeted feedback, rephrases questions, and generates per-learner reports with real-time relevancy checks.

Hokie Electric Vehicle Team, Blacksburg, VA | Software Developer, Driver Display | Sep 2024 - Jan 2025

- Built a real-time driver display (JavaScript, CSS, Python) for battery, tire pressure, lane position, and light status
- Implemented an MQTT pub/sub backend on a Raspberry Pi broker for bidirectional telemetry between the vehicle computer and the display.

Virginia Tech, Blacksburg, VA | Undergraduate Research Assistant | Jan 2024 - Jun 2024

- Proposed study to improve LLM interpretability via human evaluation of fine-tuned models on benchmark datasets for accuracy, explainability, and reasoning, exploring LLM scoring to reduce bias.

PROJECTS

MCP Memory Service | Lead Developer | Jul 2026 - Present

- **Led 3 engineers** building a memory service over MCP with three-tier context retrieval, failed-approach flagging, and cross-agent visibility (Python, FastMCP, SQLite, React); scoped 50+ issues, merged 64 PRs.
- Extended the A/B test harness with SWE-bench Verified cases (2 repos, 10 tasks) and built Modal-based grading to compare cost per resolved issue with and without shared memory.
- Parallelized execution across 4 GitHub Actions jobs, cutting runtime from **1h50m to 44m (60% faster).**

ByteBite Ad System | May 2024 - Jan 2025 | github.com/alyMAhmed/ByteBite_AdSystem

- Built a computer-vision ad system in Python (OpenCV, DeepFace) on Raspberry Pi 5 with real-time facial analysis.
- Automated AI-generated reports uploaded to AWS S3; synced SQLite data to MySQL on AWS EC2.
- Kept analysis running in real time on constrained hardware with multithreading, frame skipping, downscaling, and caching.

SKILLS

Languages: Python, Java, C, C#, TypeScript, JavaScript, SQL, HTML/CSS
Frameworks & tools: React, Node.js, Flask, .NET, REST APIs, FastMCP, OpenCV, Docker, GitHub Actions, Git, LangSmith, Cursor
Cloud & data: AWS (EC2, S3, Lambda), Azure (DevOps, Cosmos DB), Fly.io, Supabase, PostgreSQL, MySQL, SQLite