

Ahmed Al-Mashraie

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EDUCATION

University at Albany, SUNY

Albany, NY

B.S. Computer Science, Minor in Informatics, GPA: 3.98/4.0 | Dean's List

Jan 2025 – May 2027

- **Coursework:** Data Structures, Algorithms, Software Engineering, Systems Fundamentals, Programming Language Design & Implementation, HCI, Discrete Probability, Linear Algebra

TECHNICAL SKILLS

Languages: Java, Python, C, JavaScript (ES6+), SQL, HTML/CSS

Frameworks & Libraries: Flask, React, Node.js, REST APIs, BERTopic, UMAP, HDBSCAN, vis.js

ML / NLP: Transformer embeddings (BAAI/bge-m3), Topic Modeling, Local LLM inference (Ollama/Llama 3), CUDA optimization

Tools & Platforms: Git, GitHub, AWS (EC2, S3), Linux CLI, MongoDB Atlas, Airtable, VS Code, IntelliJ

Certifications: Google Project Management Professional | WCAG Web Accessibility | IRB Human Subjects Research

EXPERIENCE

Undergraduate Research Fellow: SURP

Albany, NY

University at Albany | Advisor: Prof. Amreeta Chatterjee

Summer 2026

- Engineered a two-stage Python data mining pipeline across 4 subreddits, processing **8,192-token** context windows via **BERTopic** + **BAAI/bge-m3** embeddings for large-scale NLP mental health discourse analysis.
- Integrated locally hosted **Llama 3** (Ollama) for privacy-compliant HCI topic labeling; optimized CUDA memory management on RTX 5070 for maximum GPU throughput on large corpora.
- Designed and facilitated a hands-on NLP workshop covering transformer architectures, UMAP, HDBSCAN clustering, and local LLM inference for beginner researchers.

Student Assistant: Web Development Intern & Product Lead

Albany, NY

Community & Public Service Program (CPSP), University at Albany

Feb 2026 – Present

- Architected a full-stack volunteer directory (HTML, CSS, JS, Airtable API) scaling to **1,200+ students**; designed data schemas and built high-speed client-side filtering.
- Pitched prototype to UAlbany's Office of Communications & Marketing, securing enterprise engineering resources to migrate into the official **Drupal CMS** campus-wide.
- Audited digital materials across 5 courses with WAVE tooling; achieved **WCAG 2.1** compliance for 500+ users.

Founder & President

Albany, NY

UAlbany International Students Network (UISN)

Jan 2026 – Present

- Built 0→1 student organization in one semester: authored the constitution, recruited a 15-member executive board, secured official recognition and ISSS sponsorship.

Student Assistant: Financial Aid & Student Services

Albany, NY

University at Albany

May 2025 – Present

- Handled **100+** weekly cross-departmental inquiries; reduced resolution time by **15%**, maintained **92%+** satisfaction under FERPA compliance.

PROJECTS

LumiTrack: Course Dependency Planner | *Python, Flask, JavaScript, vis.js* | [Live Demo](#)

- Modeled university curriculum as a **DAG**; implemented **Kahn's Algorithm** ($O(V+E)$) for cycle detection across 15+ courses and 17 dependency rules; REST API enables real-time prerequisite validation.

Java 32-bit CPU Simulator | *Java* | [GitHub](#)

- Built a CPU from scratch: custom **Bit/Word32** types, two's complement ALU (no native math), DRAM, full **fetch-decode-execute** pipeline, and L1/L2 cache hierarchy simulating 10-cycle hits vs. 300+ cycle miss latency.

Nusha Language Interpreter | *Java, AST, Constraint Satisfaction* | [GitHub](#)

- Full interpreter pipeline (lexer → parser → AST → constraint engine) for logic puzzle solving; pinning optimization reduced Battleship search space from 10^{32} to near-instant execution.

CoreCompute: CS Learning Platform | *React, Node.js, Express, MongoDB Atlas, JWT* | [GitHub](#)

- Co-architected a full-stack MERN platform featuring DAG-based visual learning roadmaps, knowledge gap analyzer, progress tracking, and a secure admin portal with JWT/bcrypt authentication.

Battleship: CLI Game Engine | *C, malloc/free, Valgrind* | [GitHub](#)

- Struct-based engine with manual memory management (malloc/free); no global state, Valgrind-clean, three-board display with randomized AI opponent.