

Abdur-Rahman Rana

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EDUCATION

Georgia Institute of Technology

Atlanta, GA

BSc in Computer Science - GPA: **3.85**

May 2028

CS 1332: DSA, MATH 1554: Linear Algebra, CS 2050: Discrete Math, CS 2110: Computer Organization,

CS 2340: Objects and Design

PROFESSIONAL EXPERIENCE

Ditto

Atlanta, GA

Software Engineer Intern

May 2026 – Present

- Architected a **4-stage Rust/Oxc transpiler** converting LLM-generated TSX into app-ready JSON schemas, validating against SDK types using **pre-compiled hash tables** and indexed **cross-tree reference checks**
- Engineered a **context-grounding pipeline** for a LangGraph-based JSON-generation agent, combining **JIT schema retrieval**, design-system guidance, and rendered UI feedback to achieve **4x higher visual fidelity**
- Built evals for design and logic fidelity with isolated runs, reproducible baselines, and LangSmith tracking

Certainti.AI

Toronto, ON

Software Engineer Intern

Jun 2024 – Aug 2024

- Built a high-throughput NestJS + Azure backend, cutting tax processing latency by **30%** via async LLM batching
- Optimized API concurrency and caching with Redis, improving system reliability and request stability by **25%**
- Led efficient Git-based collaboration with branching, PR reviews, and CI, ensuring production-grade quality

CLUBS AND ORGANIZATIONS

HyTech Racing — GT Formula Student

Atlanta, GA

Controls Software Engineer

Aug 2025 – Present

- Built real-time C++ control software for torque vectoring, enabling **0–60 mph in 2.5 s** with millisecond precision
- Implemented CAN–UART redundancy with Boost.Asio, improving low-latency communication reliability by **18%**.

PROJECTS

Iris | Rust, Swift, Metal, MobileCLIP, FastAPI, Modal, Redis, LangGraph

Aug 2025 - Present

- Designed a **Metal rendering engine** and FFI-backed **Rust state machine** for **sub-50 ms** playback viewing
- Architected on device semantic search for clip segments using **MobileCLIP** achieving **sub-10ms** vector queries
- Transcribed audio **15x more efficiently** than ElevenLabs via a **Modal + WhisperX** transcription pipeline

Brian | TypeScript, Next.js, React, Python, FastAPI, LangGraph, PostgreSQL, pgvector

Apr 2026

- Built an AI project-memory platform integrating GitHub, Slack, and document context with web and MCP access
- Designed retrieval with dense embeddings, BM25 fallback, cross-encoder reranking, and source-authority weighting

Elapse | Dart, Flutter, JavaScript, Firebase

Nov 2024 – August 2025

- Developed a Vex Robotics app with **4000+ users**, replacing legacy applications for information and schedules
- Optimized Dart **caching** to boost tournament data retrieval by **80%**, improving efficiency and experience

Spline Based Motion Profiling for V5RC | Python, C++, PyGame, NumPy, Matplotlib

Aug 2023 - Feb 2025

- Developed a spline-based motion profiling algorithm that increased autonomous development efficiency by 80%
- Used Numpy and Matplotlib for parametric function and velocity calculations, ensuring smooth movement.
- Implemented PID control loops using C++. allowing the robot to follow the generated profiles with high precision

TECHNICAL SKILLS

Languages: C++, Python, Java, JavaScript, Rust, Swift, Dart, SQL, JSX, HTML, Git

Frameworks: SwiftUI, Flutter, Spring Boot, Node.js, React Native, React

Databases: MySQL, PostgreSQL, Redis, Firestore, Qdrant Vector

Dev Tools: Azure, AWS, Digital Ocean, Auth0, Firebase, Postman, Figma, GitHub

Libraries: Express.js, Nest.js, NumPy, pandas, Matplotlib, pygame