# SAMUEL APOYA

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## EDUCATION

**Colby College,** Waterville, ME
Bachelor of Arts in Computer Science — Expected May 2026
**Relevant Coursework**: Database Systems, Data Structures and Algorithms, Distributed Systems, Deep Learning, Fullstack Development, Embedded Systems, Computer Vision, Object-Oriented Design, Computer Networks, Machine Learning

## TECHNICAL SKILLS

- **Advanced:** Java, C++, Python, SQL, C, Kotlin, Go, JavaScript, TypeScript, HTML, CSS
- **Frameworks & Libraries:** Spring Boot, Flask, FastAPI, Express, Django, Node.js, React, Vue.js, Angular, TensorFlow, PyTorch, HuggingFace
- **Tools, Platforms, & Skills:** Git, UNIX, DevOps, Docker, Azure, AWS, Google Cloud, CI and CD, GPUs, Model Context Protocol

## WORK EXPERIENCE

**Software Engineering Intern, Davis Institute for Artificial Intelligence** — **October 2024 - May 2025**

- Built Java Servlets and MySQL backend on AWS EC2 and RDS with Redis caching, queuing, and connection pooling for NLP inference ingestion; implemented structured logging and request-level tracing to monitor system performance, reducing p95 latency by 12% under concurrent uploads
- Optimized transformer-metadata queries via SQL indexing and batching; integrated metrics collection and service-level monitoring to analyze async worker throughput and observe bottlenecks in real time
- Built production-grade REST APIs with OpenAPI documentation; established comprehensive testing suite (unit + integration) and automated CI/CD pipeline with Docker containerization, reducing deployment time by 50%+ and improving system reliability

**Research Assistant, Insite Lab, Colby College , Waterville, ME - MLArtProject** — **May 2025 - Present**

- Designed a Curator Bot, a conversational AI for blind and low-vision museum visitors; built a full-stack application with React, Node.js, MongoDB, and OpenAI API, implementing versioned chat sessions and secure image uploads
- Defined backend REST API and implemented integration testing; incorporated distributed tracing and structured event logging to observe user interaction flows and diagnose performance regressions
- Established CI/CD pipeline with GitHub Actions, automating builds, tests, and linting; Dockerized services and implemented semantic versioning for consistent, reproducible deployments

**Teaching Assistant, Colby Computer Science Department, Waterville, ME** — **February 2023 - Present**

- Debugged and optimized Java projects in Object-Oriented Design and Data Structures courses, mentoring students on design patterns, concurrency, algorithmic problem-solving, and other core CS fundamentals
- Led weekly office hours for 50+ students and supported 200+ students across multiple semesters by diagnosing logic and performance issues in Java, including multithreaded applications, and improving performance through clear explanations.

## TECHNICAL PROJECTS

**SpotlightApp - React Native, Firebase (Auth, Firestore, Storage, Cloud Functions, Messaging)** — **GitHub**

- Built a cross-platform social media platform for gamified challenges using JavaScript and TypeScript, enabling users to join groups, post entries, vote, and spotlight winners
- Developed engagement graph features including follows, likes, comments, personalized feeds, and anonymous voting
- Implemented a scalable backend on Firebase with real-time notifications, secure media handling, and automated challenge workflows using JavaScript Cloud Functions

**HackPrinceton Fall 2024 (Project QCare) - Best Hack in Healthcare** — **GitHub**

- Built FastAPI backend with MySQL for real-time wait-time predictions; integrated Google Maps API with caching to eliminate redundant calls
- Designed composite indices to speed up high-volume lookup and search-style queries, reducing scans and improving retrieval latency under load
- Deployed TensorFlow prediction model with async workers and implemented robust error handling and logging to monitor latency and failures under concurrency

**Motion-Controlled Game System (C++, Arduino, Unity) - GitHub**

- Built a Bluetooth-enabled Arduino motion controller in C++ for real-time Unity gameplay, integrating accelerometer and resistor sensors with calibrated analog input mapping
- Resolved voltage drift, optimized serial communication, and ensured reliable cross-platform interaction between embedded firmware and the Unity runtime.

## LEADERSHIP & AFFILIATIONS

**Club President, Colby Hackers, Waterville, ME** — **September 2024 - Present**

- Organized campus hackathons and technical workshops on ML, cloud, and software engineering topics; mentored 10+ teams on teamwork, communication, and problem-solving
- Grew Colby Hackers' active membership by 40% by building a consistent maker community