

John Rugemalila

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EDUCATION

The University of Chicago

Expected, May 2027

B.A. in Computer Science

Chicago, IL

- **Relevant coursework:** Data Structures & Algorithms, Software Development, Computer Systems, Discrete Math

SKILLS

Languages: Java | Go (Golang) | Python | C | JavaScript (Node.js) | TypeScript | SQL

Frameworks & Libraries: Springboot | FastAPI | Express.js | React | Next.js | Django

Tools & Platforms: AWS | PostgreSQL | MongoDB | Firebase | ChromaDB | Postman | Git | Docker | Ollama

EXPERIENCE

Software Engineer Intern

June 2025 – Present

Data for Common Good – Biological Sciences Division, UChicago

Chicago, IL

- Developed a GraphQL-based ETL pipeline that consolidated data across 5+ pediatric cancer consortia
- Implemented a caching layer for AWS Lambda-queried datasets, reducing average response times by over 70%
- Optimized GraphQL performance through query consolidation, decreasing API calls by 60%
- Refactored legacy code, improving readability and enabling easier integration across research workflows

Software Developer

March 2024 – Present

UChicago Computer Science Instructional Laboratory (CSIL)

Chicago, IL

- Developed **SemaDoc**, an in-house AI-powered documentation tool used across 8 teams, reducing documentation time from hours to minutes using LLM-powered workflows
- Architected the FastAPI backend for SemaDoc, integrating async Trello APIs, Ollama-hosted LLMs, and MongoDB to support 500+ concurrent users with sub-100ms database operations
- Contributed to rewriting the CSIL website using Next.js and Node.js, serving 5,000+ UChicago students
- Built a secure alumni database system with a FastAPI backend, enabling efficient data entry and search

Software Development Research Assistant

November 2024 – June 2025

Amyoli Internet Research Lab

Chicago, IL

- Contributed to the development of **Water On My Block** ([LINK](#)), a full-stack flood reporting platform empowering South Side Chicago residents to document, visualize, and validate local flooding events
- Built a responsive React.js frontend, including a 9-step progressive form capturing 18+ flood metrics
- Designed a RESTful backend using Node.js, Express.js, and MongoDB with JWT-based route protection
- Configured and deployed to AWS EC2 with NGINX reverse proxy and SSL/TLS encryption

PROJECTS

DarasaAI | [GITHUB](#) | Java

June 2025 – Present

- Developed a robust monolithic Spring Boot application supporting 47 REST endpoints across 10 controllers, enabling core LMS functionalities including assignments, notes, and timed tests
- Implemented secure JWT-based authentication with role-based access control and BCrypt password hashing, safeguarding user data and access for teachers, students, and admins

http-server | [GITHUB](#) | Go (Golang)

July 2025

- Developed a HTTP/1.1 server, supporting persistent connections, static file serving, and custom route handling
- Implemented concurrent request handling using goroutines and channels, achieving 100+ simultaneous connections with sub-50ms response times

lwz-file-compressor | Course: CMSC 14400 (Closed Source) | C

November 2024

- Implemented a Lempel–Ziv–Welch compression and decompression system in C, enabling lossless file encoding
- Handled edge cases such as recursive decoding and unknown codes by implementing prefix-based table traversal

ACTIVITIES AND ORGANIZATIONS

- **Kappa Theta Pi** – Director of Technology (Sept 2024–Present): Organized professional events, led hackathons, and managed internal tech projects
- **compileHer** – Teacher (Oct 2024–Present): Created CS curriculum and led coding workshops for kids