

Arnav Merani

avm9711@rit.edu | Rochester, NY | github.com/arnavmer-935 | linkedin.com/arnav-merani

US Citizen | Available for co-op/internships: May 2027 – December 2027

EDUCATION

Rochester Institute of Technology

Rochester, NY

Bachelor of Science in Computer Science

Expected May 2030 [including 2 co-op semesters]

- Relevant Coursework: Mechanics of Programming (In Progress), CS for AP Students (accelerated CS 1+2), Linear Algebra, Probability & Statistics
- GPA: 3.9/4.0 – College of Computing Dean's List, Carl Reynolds CS Scholarship, RIT Presidential Scholarship

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, C, HTML/CSS

Frameworks/Libraries: Express.js, Sequelize, Zod, JWT, Vitest/Supertest, JUnit, matplotlib, Typer, Rich, REST APIs

Databases: MySQL, PostgreSQL

Developer Tools: Git, GitHub, Maven, Node.js, VS Code, IntelliJ, Linux

WORK EXPERIENCE

Maintenance Developer – Accessible Learning Labs

Sept 2026 – Ongoing

Rochester Institute of Technology

Rochester, NY

- Selected as a developer for an **NSF-funded** research lab contributing to **accessibility-focused educational technology**
- Onboarded onto the lab's full-stack codebase (**React**, **Node**, **PostgreSQL**, containerized with **Docker** and deployed on **Google Cloud**), completing environment setup for ongoing maintenance and debugging work

Supplemental Instruction Leader – Computer Science II

Jan 2026 – May 2026

Rochester Institute of Technology

Rochester, NY

- Ran **28** structured review sessions over 15 weeks for CS II, including **4** exam-prep sessions on **Data Structures**, **OOP**, and algorithmic problem solving in **Java**
- Co-developed **5** review resources per exam cycle (mock exams, **30+** **question** final bank), drawing on accelerated coursework, that helped increase section average from **88.4% to 89.1%**
- Guided students through **debugging strategies**, problem decomposition, and logical error tracing

Internship with the Bureau of Indian Standards (BIS)

Feb 2024 – May 2026

Remote

India

- Contributed to all **5** core sections and **2** annexures of a **38-page** compendium on **Software Architecture** under **BIS LITD-14** (Software & Systems Engineering panel), following the **Agile methodology**
- Referenced **TOGAF** and **ISO/IEC** architecture standards while documenting **monolithic** and **distributed** architecture styles
- Compiled **9 architecture diagrams** and **4 tables** from reference material for publication

PERSONAL PROJECTS

RateMyBook – Book Review API - [Live Demo](#) | Express, Sequelize, JWT, Vitest

Jun 2026 – Aug 2026

- Engineered a **REST API** in **Node.js/Express** with **JWT** authentication and **role-based access control** (admin and ownership-based authorization)
- Wrote a **60-test** suite (**Vitest**, **Supertest**) achieving **93% line coverage** with an isolated test database
- Patched an authorization bypass by deriving user identity directly from verified **JWTs** instead of request input

KNN Command Line Interface Tool | Python, Typer, Rich, matplotlib

Feb 2026 – Apr 2026

- Built a **KNN Machine Learning** library in **Python**, with distance computation, feature normalization, and train-test splitting
- Designed an interactive CLI with guided prompt mode using **Typer** and **Rich** for improved UX
- Benchmarked on **WDBC dataset**, achieving **96.76% accuracy** (**34% improvement** over baseline)

Matrix Library Implementation | Java, Maven, JUnit

Dec 2025 – Feb 2026

- Developed a numerically robust **Java** matrix library supporting arithmetic, determinants, inverses, and matrix transformations
- Implemented **Gauss-Jordan elimination** for cubic-time inversion, achieving **500x500 inversion in approximately 186ms**
- Constructed a JUnit suite across **86 methods**, achieving **84% line/81% branch coverage** (JaCoCo), covering floating-point edge cases and robustness scenarios