

Rayan Aslam

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EDUCATION

Rutgers New Brunswick Honors College

New Brunswick, NJ

B.S. in Computer Science and Data Science — GPA: 3.74

Expected June 2028

- Related Coursework: Data Structures & Algorithms, Computer Architecture, Linear Algebra, Discrete Math

EXPERIENCE

Undergraduate Research Assistant

June 2026 – Present

Rutgers Art and AI Lab

New Brunswick, NJ

- Automated visual feature extraction across **62,000+** artworks by engineering a Python pipeline using **NumPy** and **Pandas** to compute **40+** perceptual metrics per image into a structured feature matrix
- Reduced dataset preparation time by **~90%** by building a metadata-driven indexing system in **PyTorch** that automatically maps artwork files to precomputed VGG embeddings across **27** art styles
- Accelerated research reproducibility by standardizing outputs into a reusable CSV matrix and named feature list, cutting future experiment setup via modular config-driven Python scripts

Web Developer | [casual-harmony.vercel.app](#)

Jan 2026 – Present

Casual Harmony Acapella

New Brunswick, NJ

- Increased student audition rates by **35%** by building a website using **React**, **Vite**, and **Tailwind CSS**
- Designed polished user interfaces with emphasis on usability and consistent visual branding across devices
- Developed functional contact systems to streamline communication between the organization and prospective members, clients, and audiences

PROJECTS

Rubik's Cube Solver | *Python, PyTorch, Pandas, NumPy*

- Developed a 2×2 Rubik's Cube simulator in **Python** with full move set and scramble generation, producing **50k+ labeled states** to train machine learning models
- Designed and trained a **custom CNN in PyTorch** with residual blocks, dropout, and weight decay, achieving **80%** move-prediction accuracy and full-solve success rate on 5-move scrambles
- Built a **high-throughput data pipeline** using PyTorch Dataset/DataLoader with GPU preprocessing and batching, reducing data prep time and enabling rapid scaling of experiments
- Created evaluation tools for accuracy/loss tracking and benchmarking across repeated trials

Math Battles | *React, Node.js, Socket.io, Gemini API*

- Built a real-time multiplayer trivia game with timed rounds, live scoreboards, and persistent score tracking, synchronizing game state across all connected clients via bidirectional **Socket.io** event-driven messaging
- Integrated the **Gemini API** to dynamically generate calculus question-and-answer pairs at runtime, eliminating static question banks and delivering a unique, infinitely replayable experience each session
- Designed and shipped a complete full-stack application with a **React** frontend and **Node.js** backend end-to-end within a hackathon time constraint, demonstrating rapid prototyping and cross-functional execution under pressure

LEADERSHIP

Assistant Business Manager

April 2026 - Present

Casual Harmony Acapella

New Brunswick, NJ

- Organized concerts by coordinating venues, scheduling, logistics, marketing, and cross-team communication
- Directed financial operations by handling budgeting, reimbursements, and fundraising

Board Member

Sept 2025 - Present

Muslim Tech Collaborative

New Brunswick, NJ

- Organized a multi-university hackathon, coordinating logistics for 100+ participants and locating sponsors

TECHNICAL SKILLS

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

Frameworks/Libraries: React, Node.js, PyTorch, pandas, NumPy, Matplotlib

Developer Tools: Git, GitHub, VS Code, PyCharm, IntelliJ