Ryaan Farrukh

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Education

Computer Programming & Analysis Co-op — Toronto, Ontario
Seneca Polytechnic — *Jan 2024 – May 2026*

Experience

Software Developer Intern — Jan 2025 – Apr 2025
Unity Fitness — *Toronto, Ontario*

- **Boosted efficiency by 40%** by developing **JavaScript automation workflows** reducing manual tasks.
- **Enhanced platform responsiveness and UX** by building interactive **UI components in JavaScript**.
- **Cut MongoDB response times 60%** via query optimization, ensuring **99.9% accuracy on 10K+ records**.
- **Launched a React/Node.js/MongoDB app** with **GPT-3 integration**, boosting scalability and features.
- **Improved reliability and reduced bugs** by conducting **API testing and validation in Postman**.

Projects

MarketVision | *Go, Node.js, Next.js, MongoDB* — Feb 2025

- Developed a **Go backend with Gin** to process AI image requests, returning **structured product data**.
- Built a responsive **Next.js + Tailwind CSS frontend**, delivering seamless UX and **real-time AI results**.
- Implemented **JWT authentication with bcrypt/MongoDB**, securing accounts and supporting **15+ users.**
- Designed an efficient **MongoDB schema** for prompts, responses, and base64 images with fast retrieval.
- Optimized **API handling and UI**, boosting performance, scalability, and improving **user retention**.

Virtual File System | *C++* — Mar 2025

- Developed a **virtual file system in C++**, simulating binary storage with block-level allocation.
- Implemented **UNIX-style commands** (`mkdir`, `touch`, `cd`, `rm`, `write`) for file management.
- Designed a **metadata structure** enabling hierarchical storage and recursive traversal of deep trees.
- Added **UID login and UNIX permission bits (rwx)** to enforce secure and controlled system access.
- Stress-tested with workloads, ensuring stability and safe **memory handling** during large operations.

Algorithm Visualizer | *React.js, Node.js* — Aug 2025

- Developed **visualizations for 12+ algorithms** including search, sorts, BFS, DFS, Dijkstra, A*, Kruskal, Prim.
- Implemented **step-by-step playback** with pause/resume, single-step execution, and adjustable speed controls.
- Built **graph and grid components** with draggable nodes, dynamic layouts, and adjacency matrix generation.
- Engineered efficient **algorithm state tracking**, capturing snapshots of frontiers, visited sets, and MST edges.
- Designed an intuitive **UI with clear visual cues** (active, visited, path) to improve grasp of algorithm flow.

Hand Gesture Recognition | *Python, OpenCV, MediaPipe* — Sept 2024

- Built a live **gesture recognition system** using Python and OpenCV, mapping webcam inputs to system actions.
- Implemented **gesture tracking** for palm, fist, and thumbs-up, enabling low-noise, consistent recognition.
- Mapped **gestures to system controls**, allowing hands-free operation of media playback and commands.
- **Optimized live detection**, ensuring smooth and responsive performance with low latency in varied settings.
- Tested across diverse **lighting and environments**, improving robustness and ensuring reliability in real-world use.

Skills

Languages: C/C++, Python, Go, Java, JavaScript, HTML/CSS, SQL
Technologies: Git, Jira, Docker, AWS, MongoDB, PostgreSQL, Bash, GitHub Actions, Jest, Cypress
Frameworks: React.js, Express.js, Node.js, Next.js, Tailwind, Flask