

# Harmit Patel

📍 Windsor, ON | ✉️ patel62b@uwindsor.ca | ✉️ harmitpatel110@gmail.com | 🌐 GitHub | 🔗 LinkedIn | 🐦 X | 🌐 Portfolio

## Education

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### University of Windsor

Windsor, ON

*BSc Computer Science (Honours), Artificial Intelligence Specialization; Minor in Mathematics*

*Jan. 2024 - Apr. 2026*

- Dean's List / Dean's Honor Roll. Selected coursework: Design and Analysis of Algorithms, Data Structures and Algorithms, Operating Systems, Database Management Systems, Theory of Computation, Programming Languages, Artificial Intelligence, Deep Learning, Robotics with AI, Software Engineering, Web Development, Research Project.

### Niagara College

Welland, ON

*Diploma, Computer Engineering Technician*

*2019 - 2021*

- Foundation in embedded systems, networking/security, IoT, digital systems, computer architecture, data management, and technical communications.

## Experience

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### University of Windsor

Windsor, ON

*Teaching Assistant, COMP 2310: Theoretical Foundations of Computer Science*

*Jan. 2025 - Aug. 2025*

- Supported students with automata, formal languages, proof techniques, induction, recursion, logic, and theory-heavy problem solving through grading, office hours, and step-by-step tutoring.

### University of Windsor

Windsor, ON

*Teaching Assistant, COMP 2140: Languages, Grammars and Translators*

*Sep. 2025 - Apr. 2026*

- Assisted with grammars, parsing, compiler concepts, translators, and programming-language fundamentals while helping students connect formal theory to implementation-level reasoning.

## Projects

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### LeetCode: Deployed Coding Practice Platform

GitHub | Live

*Next.js 14, React, TypeScript, Firebase, Tailwind CSS, Monaco Editor, Vercel*

- Built a LeetCode-inspired platform with 10 curated algorithm problems, real-time code editor, custom testing flow, Firebase Authentication, Firestore persistence, progress tracking, responsive UI, and Vercel deployment.

### AlgoMentor: Socratic AI Algorithm Tutor

GitHub | Live

*Python, Gradio, Ollama, Llama 3.2, ChromaDB, Sentence Transformers, RAG*

- Developed a local DSA tutor that guides students with hints instead of final answers, using vector retrieval, stuck-state detection, prompt guardrails, and direct-answer filtering.

### OpenVLA Prompt Sensitivity Research

GitHub

*Python, OpenVLA-7B, BridgeData, robotics, statistical analysis*

- Built a reproducible experiment pipeline to measure robot-action stability across normal, paraphrased, contradictory, and neutral prompts; generated CSV results, summary tables, confidence intervals, and paper-ready figures.

### ChatiFly: AI-Powered Real-Time Chat Platform

GitHub

*Next.js, TypeScript, Convex, Clerk, ZegoCloud, OpenAI, Tailwind CSS*

- Built a real-time messaging app with secure authentication, private/group chats, multimedia sharing, presence, video calls, webhooks, file storage, and AI chat/image features.

### Superpixel GNN Object Recognition

GitHub

*PyTorch Geometric, GCN, GAT, GraphSAGE, SLIC, CIFAR-10, RGB-D*

- Converted images into region-adjacency graphs using SLIC superpixels and evaluated graph neural architectures for object recognition and robotic perception workflows.

## Technical Skills

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**Languages:** Python, TypeScript, JavaScript, Java, C, SQL, C++, Rust, Go, Assembly, MATLAB, C#

**Frontend:** React, Next.js, Angular, Redux, HTML5, CSS3, SCSS/SASS, Tailwind CSS, Bootstrap, ShadCN UI, Monaco Editor

**Backend & Data:** Node.js, Express, NestJS, GraphQL, Convex, Firebase Auth, Firestore, PostgreSQL, MongoDB, SQLite, Redis, REST APIs, Socket.io, Webhooks

**AI, Systems & Research:** PyTorch, PyTorch Geometric, GNNs, GCN, GAT, GraphSAGE, SLIC, OpenVLA, RAG, ChromaDB, Sentence Transformers, Ollama, Llama 3.2, scikit-learn, NumPy, pandas

**Tools & Cloud:** Git, GitHub Actions, Docker, Kubernetes, AWS, Azure, Vercel, Firebase Hosting, Linux/Bash, Postman, Figma, NPM/Yarn, Kafka