Sahil Minhas

(+1) 647 518 9202 | Sahilsminhas@gmail.com | LinkedIn | GitHub | sahilminhas.com

EDUCATION

Wilfrid Laurier University — **Expected Dec 2026**
Honours Bachelor of Computer Science — Waterloo, Ontario

TECHNICAL SKILLS

Languages: Python, C/C++, Java, SQL, JavaScript, HTML, CSS, TypeScript
Frameworks/Tools: React, Next.js, Node.js, MongoDB, Tailwind, Postman, Figma, Git, GitHub, OpenCV, PyTorch, TensorFlow

WORK EXPERIENCE

Full-Stack Developer — **Apr 2024 – Nov 2024**
Areeco E-Commerce Startup Venture — Brampton, Ontario

- Built a scalable full-stack e-commerce platform as part of a 4-person team using **TypeScript**, **Next.js**, and **Tailwind CSS**, delivering responsive, accessible, and high performance user interfaces optimized for modern browsers.
- Implemented **secure OAuth-based authentication** for secure login and session management, custom product data models, and conducted **API route testing** with **Postman** to enhance backend reliability and protection against data inconsistencies.
- Automated deployment pipelines on **Vercel** with integrated **Git version control** to deploy rapid delivery of product features.

IT Technician — **May 2024 – Aug 2025**
S.M I.T Services — Brampton, Ontario

- Diagnosed and resolved issues on **50+** PCs and laptops with systematic troubleshooting methods and tools such as **Windows utilities**, **Linux command line** diagnostics, and hardware testing equipment to deliver effective and fast solutions.
- Cultivated strong client relationships through personalized technical support and communication, achieving a **70%** increase in repeat business and maintaining high customer satisfaction through clear documentation and consistent follow-ups.

Academic Tutor — **June 2018 – Aug 2025**
Pathways 2 Excellence Tutoring — Brampton, Ontario

- Provided individualized tutoring to **200+** students across mathematics, science, and computer science subjects, increasing average academic performance by **30%** through customized lesson planning and improving final academic grades by **20%**.

PROJECTS

BudgetBridge – Personal Expense Tracker — GitHub

- Developed a **full-stack personal expense tracker** using **JavaScript, Node.js, and MySQL**, implementing account authentication, transaction and category CRUD operations, financial dashboards, search, filtering, and date-range reporting.
- Designed a **MySQL relational database** with **5 interconnected tables** and integrated parameterized SQL queries, user ownership checks, and persistent session management to securely isolate financial data across authenticated users.
- Built and validated REST-style API workflows for authentication, transactions, categories, reports, and user profiles, achieving **12/12 passing automated tests** across CRUD, security, filtering, and cross-user isolation.

Distributed Bulletin Board System — GitHub

- Developed a **multithreaded client-server system** in **Java** using **TCP sockets**, supporting **10+ concurrent clients**
- Designed a custom application-layer protocol with structured OK/ERROR responses, enabling **robust command parsing, validation, and error handling** while ensuring reliable and consistent communication between clients and server.
- Implemented **thread-safe synchronization** using **synchronized methods**, ensuring **atomic operations** for POST, CLEAR, and SHAKE while maintaining consistent shared state and preventing race conditions under concurrent access.

N-Puzzle Solver – AI Search Algorithm — GitHub

- Implemented a **Python** based N-Puzzle solver utilizing the **A* search algorithm** with Manhattan Distance and Misplaced Tile heuristics to efficiently explore state spaces, optimize search depth, and minimize overall computation time.
- Applied graph traversal, priority queues, and heuristic optimization techniques to develop intelligent search strategies that **reduced redundant node expansions**, **enhanced runtime efficiency**, and **improved scalability** across puzzles.
- Designed a modular architecture for state representation, node expansion, and dynamic cost evaluation that achieved a **92% reduction in nodes explored** and a **15% lower branching factor** using Linear Conflict compared to Misplaced Tile.

Image Processing Toolkit — GitHub

- Created in **Python** using interpolation, intensity transformations, and spatial filtering techniques implemented with **NumPy** based matrix operations and **OpenCV APIs** to compare performance and algorithmic efficiency across **20+** test images.
- Used **NumPy** for optimized matrix operations and data handling, reducing computation time on pixel-based transformations.