Mayank Bharwal

📞 (647) 594-2129 ✉ mayank.bharwal@proton.me 🔗 linkedin.com/in/mayank-bharwal

github.com/mayank-bharwal 🌐 mayank-bharwal.github.io 📍 Canadian Citizen, No H-1B Required

Education

University of Toronto - St. George — **Expected Graduation: May 2027**

Bachelor of Computer Science — AI and Systems Double Focus — *Toronto, ON*
- Dean's List Scholar
- Courses: Computer Architecture, Systems Programming, Machine Learning, Web Programming, Algorithms, Software Design

Work Experience

University of Toronto's Amateur Rocketry Club — **Aug 2025 – Present**

Software Engineering Lead — *Toronto, ON*
- Architected SAL, HAL, and TEST layers using Cython, design patterns, and JSBSim, achieving 95%+ simulation fidelity and 60% improvement in landing precision through real-time sensor fusion
- Engineered telemetry stack with radio communication and ground station GUI, enabling live monitoring and data logging for flight systems with 95% accuracy
- Managed 8–10 developers using Agile workflow, implementing GitHub Actions CI/CD with hardware-in-the-loop testing to streamline development and deployment

Trustworthy Machine Intelligence — **Oct 2025 – Present**

AI Engineer — *Toronto, ON*
- Simulated 50+ LLM agents in small-world networks using Python, achieving 35% higher cooperation in Public Goods games over 100 rounds
- Designed agent architecture with memory, personality, and LLM-based decision policies, improving strategic coordination accuracy by 28% across repeated Prisoner's Dilemma interactions
- Applied interventions (penalties, subsidies, cross-community links), increasing fairness metrics by 22% and reducing polarization by 15%

Hyundai Motors — **Jun 2023 – Aug 2023**

Full Stack Software Engineering Intern — *India*
- Designed and implemented front end and backend of employee management software using HTML, CSS, JavaScript and Django, deployed on company's internal server
- Created SQLite database for storing employee information including performance history and projects history
- Developed front end using React.js to make information flow more interactive and user friendly
- Collected data from 200+ employees, achieving significant reduction in data collection time through automated forms

Projects

YapYap - Social Media Messenger | *Source Code* — **Java | MongoDB | Git**
- Developed a desktop social media messenger app in a team of 6, implementing Factory, Facade, Observer, and Dependency Injection patterns within a Clean Architecture and SOLID design principles .

DeepWorkSwitch | *Source Code* — **JavaScript | HTML/CSS | Shell**
- Developed a desktop app and Chrome extension that automates focus setup—closing redundant tabs, blocking distracting sites, launching work apps, and starting Pomodoro audio—drastically reducing procrastination for ADHD students.

Algorithm Arena | *Source Code* — **Python | REST API**
- Automated generation and Instagram posting of educational computer science content using OpenAI API for question creation, PIL for post design, and InstaBot API for scheduling.

Leadership

Computer Science Tutor | *UrbanPro.com* — **Mar 2020 – Oct 2020**
- Tutored 10 students in Java and CS concepts; 9/10 scored above 95/100 in board exams

Technical Skills

Languages: Python, Java, C++, C, JavaScript, TypeScript, SQL, Rust, HTML/CSS
Frameworks/Libraries: React, Node.js, PyTorch, TensorFlow, scikit-learn, Django, FastAPI, MongoDB, PostgreSQL
Tools/Platforms: Docker, AWS, Git, Kubernetes, Jenkins, Google Cloud, Linux, Bash, REST APIs, GraphQL