

# Shivom Sharma

[shivom.sharma.eng@gmail.com](mailto:shivom.sharma.eng@gmail.com) | [Portfolio](#) | [GitHub](#) | [LinkedIn](#) | 647-515-4096

## EDUCATION

### McMaster University

Graduating May 2026

Bachelors of Engineering, Mechatronics Engineering & Business

- *Coursework:* DSA, OS, RTOS, Networks, Embedded Systems, Machine Learning, Statistics

## WORK EXPERIENCE

### Software Engineer Intern, Tesla, Austin, TX

May 2025 - August 2025

- Architected an event-driven AI agent framework using Python, TypeScript, and Redis to automate factory software
- Developed a multi-agent protocol, integrated multiple LLMs (Grok, Claude), improving task-specific responses
- Built frontend-driven actions, allowing agents to manipulate UI components via Zustand with state transaction/rollback
- Implemented real-time agent communication via Websockets and pub/sub channels, enabling asynchronous updates
- Designed a part version control feature with React, FastAPI, and MongoDB, resolving cross-team data conflicts

### Software Engineer Intern, Tesla, Austin, TX

June 2024 - August 2024

- Built distributed systems with Redis, Celery, and GraphQL APIs to deliver factory layouts to 100+ engineers
- Enhanced code coverage through CI/CD integration and implementation of robust unit and A/B tests
- Refactored SQL Server, PostgreSQL, and MySQL schemas reducing query latency by 18%
- Implemented Revit model compression, and pushed data to on-prem S3 instance, improving model extraction speed
- Re-engineered ETL pipelines in Airflow and FastAPI, decreasing layout load times from 6 minutes to 1 minute

### Controls Engineer Intern, Tesla, Austin, TX

September 2023 - May 2024

- Integrated C# APIs to automate FTP image logging, collecting 5,000+ daily samples for model training
- Collaborated cross-functionally to reduce system cost by \$20K per line via joint software/hardware optimization
- Programmed PLC logic into Tesla Standard Library, cutting cycle times across multiple production lines
- Delivered a high-speed computer vision pipeline using Halcon for Cybertruck rotor QC, achieving 98% accuracy at 22ms latency per part, saving \$242K annually

### Undergraduate Researcher, SwiftWare Lab, Hamilton, ON

March 2025 - Present

- Built a Fast Multipole solver in C++/CUDA for Laplace/Helmholtz PDEs, achieving 4x compression vs BEM++
- Created data visualizations and technical reports to present simulation insights to researchers at Waterloo

## PROJECTS

### BOOX Elnk API Integration

- Built a Go CLI to upload textbooks/manga to E-Inks via REST APIs, achieving 50 MB/s transfer
- Reverse-engineered API responses to build robust requests with intuitive debugging

### Stepper-Motor ASIP

- Designed a custom RISC-style processor in Verilog/C++ with 13 instructions to control precision stepper motor
- Added pipelining and instruction caching, boosting execution speed by 60% vs general purpose CPU benchmark

### Reinforcement Learning Pong Agent

- Reproduced OpenAI's PPO algorithm in PyTorch, Numpy to beat stochastic Pong by 17 points on average
- Tuned neural network architecture for faster convergence, enabling full training in under 30 minutes
- Displayed various train and test metrics through Matplotlib visualizations, enhancing communication of results

## TECHNICAL SKILLS AND INTERESTS

- Languages: Python, C, C++, Go, TypeScript, SQL
- Frameworks: React, Flask, GraphQL, REST, Websockets, gRPC
- Tools: Docker, Kubernetes, Kafka, Git, AWS, Azure, Linux, Figma, Clickhouse
- Interests: AI/ML, Video Editing, Photography, Basketball