

SHIVOM SHARMA

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EDUCATION

McMaster University

April, 2026

Mechatronics Engineering and Management [CO-OP]

Hamilton, ON

Relevant Courses: OS, RTOS, DSA, Applications of Machine Learning, Embedded Systems, Software Development

EXPERIENCE

Software Engineer Intern

June 2024 – Aug 2024

Tesla

Austin, TX

- Developed new ETL pipeline in **Airflow**, introducing new model compression service to **Amazon S3** and extraction/data processing in **Pandas** to **SQL Server** and **Postgres** DBs improving overall pipeline speed by **400%**
- Developed new backend inbound model service in **Python** with dynamic caching in **Redis**, serving data to clients through **GraphQL**, reducing request footprint by **50%**, and optimized performance by **80%**
- Utilizing **Ignition**, **SCADA**, **OPC/UA**, **Python**, and **MongoDB** to clean and extract PLC equipment data generating automated reports of KPIs for process to review, reducing bottlenecks by **35%**
- Scaled application performance and deployments by **15%**, optimizing containers, and **CI/CD** using **Celery**, **Docker**, **Kubernetes**, and **Github Actions**

Manufacturing Controls Dev Engineer Intern

Sep. 2023 – May 2024

Tesla

Austin, TX

- Developed defect detection algorithm using **Halcon** to reduce NCM parts on Cybertruck IM rotor line, capable of detecting defects on rotor with an accuracy of **0.5mm** and processing time of **22ms**
- Designed a machine vision detection system with a goal of removing manual QIS on maximum capacity of **7000 parts weekly**
- Managed project workflows, defining hardware, lighting, vision and software requirements through cross-functional collaboration and independent research, **saving \$10000 from original cost estimate**
- Programmed PLC logic for NCM stations automating pneumatic controls reducing time per part by **30%**

Senior Desktop IT Analyst – Financial Markets

May 2022 – Sep 2022

National Bank of Canada

Toronto, ON

- Delivered IT solutions to VIP traders, investment bankers and electronic trading developers within a team of 5
- Developed **dynamic floorplan VBA model** to log user/client workstation setup operation status in order to reduce time to deploy and service workstations by **30%**

PROJECTS

Pong From Pixels, Reinforcement Learning with PPO | *Python, PyTorch, Numpy*

- Created an autonomous agent to play Atari Pong in the OpenAI gym environment, **achieving convergence in 500 episodes** with an average winning score of **+17 points per game**.
- Utilized frame stacking and binarization techniques to optimize a simple MLP model neural network, enabling efficient computation on modest hardware.

DCM Interace for Pacemaker Device | *C, Python, Flask, HTML, CSS, JS, SQLite, Simulink*

- Developed a full-stack web application using **Flask** to communicate pacemaker data from an FRDM-K64 board
- Handled **serial communications** with board and user interface, maintaining/updating parameters through a **SQLite database**, encrypting patient data with SHA-256

Boox Manga & Textbook Uploader CLI Tool | *Go, Unix, MangaDex*

- Designed and developed a CLI tool in **Go** using **cobra-cli** to efficiently retrieve manga from the MangaDex API and textbooks from LibGen.
- Leveraged native **Unix** shell capabilities to automate the upload process to my Boox Eink Tablet.

Embedded Systems Design | *C/C++*

- Designed a bi-polar stepper-motor with half and full-step functionality using **Keil, C**, and STM32 board.
- Implemented and designed self regulating fan-cooled temperature sensing circuit

TECHNICAL SKILLS

Languages: Python, Golang, C/C++, SQL, NoSQL, JavaScript, HTML/CSS, Java, VBA, Lua

Frameworks: React, Node.js, Flask, FastAPI, Celery, Pytest, GraphQL/Strawberry, PyTorch, Sklearn, Pandas, Numpy, Seaborn

Developer Tools: Git, Kubernetes, Docker, Airflow, Kafka, Redis, Github Actions, AWS, Vim/Neovim, Tmux