Sourav Minhas

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EDUCATION

Carleton University, Department of Computer Science Sep 2022 – Apr 2027
Honours Bachelor of Computer Science: Artificial Intelligence & Machine Learning - Co-op *Ottawa, Ontario*

- **Awards/Achievements:** Dean's Honour List, General In-Course Scholarship, VRC Robotics Design & Build Award
- **Minor, Standing & GPA:** Mathematics, Fourth Year, 10.0/12.0 (A-)

TECHNICAL SKILLS

Languages: Python, C++, C, Java, Go, SQL, JavaScript, HTML, CSS, Bash, Scheme, Prolog
Libraries: PyTorch, TensorFlow, pandas, scikit-learn, Matplotlib, Hugging Face Transformers
Frameworks/Tools: React, Node.js, Express, JavaFX, Qt, PUG, Postman, Jira, Git, GitHub, GitLab, SQLite
DevOps/Cloud: Docker, Podman, Kubernetes (OpenShift), Helm, Ansible, Jenkins, OpenStack, AWS, GCP
Operating Systems: Linux (Ubuntu, Red Hat Enterprise Linux), Windows, macOS

WORK EXPERIENCE

Software Support Co-op Sep 2025 – Dec 2025
Nokia *Kanata, Ontario*

- Investigated and resolved **Jira** tickets related to network and device management, API calls via **Postman**, workflow issues, DR setups, database restores in **SQL/PostgreSQL** and IP and MDM configurations, ensuring product reliability
- Deployed and managed **OpenStack VMs** hosting applications, using **Kubernetes**, **k9s**, **Podman**, and **Linux** to troubleshoot systems, monitor services, and validate APIs, enhancing platform reliability and performance for customers
- Debugged automation scripts, implementing fixes in **Python** and **Bash**, documenting changes, and integrating them into the NSP codebase via **GitLab** and **Jenkins**, streamlining the deployment and logging processes for any future changes

Software Engineer Intern Jun 2025 – Aug 2025
Pepperdata *Toronto, Ontario*

- Developed scalable **PyTorch** workloads on **AWS** and **Google Cloud** with **Kubernetes**, building reproducible training and benchmarking pipelines with **Docker** and **Jenkins** to collect GPU metrics and cut cluster costs for many customers
- Implemented a GPU benchmarking suite that measured performance and cost efficiency across diverse fine-tuning and batch inference workloads, integrating results with Pepperdata's optimization platform to reduce GPU costs up to **70%**
- Built a tool that transcribed **100+** videos using **Whisper** and leveraging **Vertex AI** with **GKE** and **EKS** to preprocess and fine-tune an **LLM**-based **QA model** that enabled employees to review design discussions quickly and effectively

PROJECTS

Elevator System Simulation *C++ | Qt | Qt Creator | Linux*

- Developed a real-time elevator system simulation in **C++** using **Qt** on **Linux**, modelling concurrent events, state transitions, passenger requests, and system behaviour across multiple elevators managed by a centralized controller system
- Engineered a centralized control system using **Qt** signals and slots to schedule requests, manage state changes, coordinate multiple elevators, and optimize routing decisions, improving overall system efficiency, resulting in **100%** uptime
- Designed the system architecture around clear separation of use cases, decoupling the UI, control logic, and domain models using an event-driven **Model–View–Controller** design to support maintainability and overall system scalability

Digital Image Classifier *Python | TensorFlow | pandas*

- Developed a Convolutional Neural Network in **Python** using **TensorFlow** for highly robust image classification tasks
- Optimized the model's performance with **Adam**, achieving **80%+** validation accuracy through tuning hyperparameters
- Leveraged **pandas** data loading, augmentation, and preprocessing to enhance and streamline the classification tasks

GeoDasher – Pathfinding AI *Python | Pygame | Matplotlib*

- Built an ensemble AI in **Python** using reinforcement learning and genetic algorithms to optimize pathfinding tasks
- Produced a **Pygame**-based simulation to analyze AI behaviour, focusing on pathing logic and performance optimization
- Utilized **Matplotlib** visualizations to monitor AI learning trends, reward structures, and error rates throughout training