Sohaib Kaidali

Montreal, Canada | sohaib.kaidali@mail.mcgill.ca | linkedin.com/in/sohaib-kaidali | kaidalisohaib.github.io/

EDUCATION

McGill University — Montreal, QC
B.Eng. in Computer Engineering — *Sept. 2025*

PROFESSIONAL EXPERIENCE

Software Engineer Consultant Intern — Remote
MotionCorrect, Inc. — *Jun. 2022 – Present*

- Architected full-stack browser extensions (Chrome/Firefox) with a **Rust** backend and a performant vanilla JS frontend.
- Optimized **CI/CD** pipelines, reducing build times by **80%** (2 hrs to 20 mins) via caching and job parallelization.
- Automated Git workflows and led code reviews to improve development velocity and reduce post-deployment bugs.

McGill Robotics AUV Design Team — Montreal, QC
Software Team Member — *Sept. 2025 – Present*

- Engineered a vision pipeline using **YOLO** models and **ZED SDK** to transform 2D detections into accurate 3D coordinates, implementing filtering logic + EKF to generate a stable object map for real-time mission planning.
- Developed the **state estimation** and control systems, fusing DVL, IMU, and VIO data via an **EKF** for odometry and implementing **PID/quaternion** controllers driven by a behaviour tree (**PyTree**) logic for autonomous navigation.
- Designed a **Unity simulation** environment connected to the **ROS 2** codebase via **TCP**, streaming synthetic sensor data and video feeds to validate the full autonomy stack.

FIRST Robotics Team 3986 - Express-O — Montreal, QC
Robotics Software Lead & Drive Team Captain — *Jan. 2020 – Jun. 2022*

- Engineered the robot's software for reliable autonomous maneuvers, creating a **computer vision** system (**OpenCV**) for localization and a **PID/feedforward controller** that boosted motor precision by 20%.
- As Captain, led the team to a 2022 Montreal Regional victory and World Championship qualification; secured $7,000+ in grants for leadership in STEM outreach.

Vanier College — Montreal, QC
Teaching Assistant — *Aug. 2023 – Dec. 2023*

- Mentored 30+ students per semester in mechanics, developing problem-solving frameworks and troubleshooting.

TECHNICAL PROJECTS

Hackathon Achievements | Devpost — 3× First Place & 2× Second Place

Heart Disease Prediction Model | GitHub — *Python, Scikit-learn, **ONNX**, Data Science*

- Led end-to-end data science research using **machine learning** to build a predictive model (logistic regression); solved class imbalance and deployed it for client-side inference with **ONNX**.

GPU-Accelerated Network Simulation | GitHub — *Java, OpenGL, GLSL, **Compute Shaders***

- Created a real-time, agent-based simulation of emergent behavior, parallelized on the **GPU** with **compute shaders** to procedurally generate bio-inspired networks for pathfinding and statistical analysis.

Independent Study: Deep Reinforcement Learning | Hugging Face Course — *Python, **DQN**, **PPO***

- Completed a self-directed Deep RL course (theory + hands-on notebooks) and studied core algorithms including DQN and PPO. Course Repo
- Implemented and trained agents in toy control environments; evaluated learning stability using reward curves and rollout performance.

Sign Atlas: Deep Learning for ASL | GitHub — *Next.js, TensorFlow.js, **MediaPipe***

- Won 1st place at DawHacks by building an AI tutor that uses a custom **deep learning model** (**MediaPipe**) for real-time **gesture recognition**, creating an interactive learning feedback loop.

TECHNICAL SKILLS

Languages: Python, C/C++, C#, Rust, Java, JavaScript/TypeScript, Shell, GLSL, SQL
AI & Data Science: **Machine Learning**, **Deep Learning**, Modeling, Scikit-learn, TensorFlow, PyTorch, Pandas, Numpy
Software & Robotics: Git, **Docker**, CI/CD, **AWS**, REST APIs, CUDA, Isaac Sim, **ROS 2**, Unity, PID Control, ESP32