

# Kailash Khadka

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Waterloo, ON, Canada

## Robotics Software Engineer

- Robotics Software Engineer with a strong foundation in Electrical and Computer Engineering and 3+ years of backend software development experience, now focused on bridging software and hardware in robotics systems.
- Skilled with ROS/ROS2, Gazebo, and RViz for robot control and navigation, combined with strong skills in C++, Python, Linux, and DevOps.
- Hands-on robotics expertise and hardware-software integration to design efficient, scalable solutions for real-world robotic systems.

## Robotics Projects & Training

### **Robotics Developer Masterclass - The Construct**

- Built and deployed ROS2-based robot applications for navigation, perception, and control in Gazebo.
- Created URDF/XACRO robot models, implemented publisher/subscriber nodes, services, and actions in Python.
- Integrated sensor data (LiDAR, IMU) for mapping, SLAM, and autonomous behavior.
- Developed a browser-based robot control dashboard using Vue.js, rosbridge\_suite, and roslibjs, enabling real-time command and telemetry exchange with ROS2 nodes.
- Containerized the full stack using Docker for reproducible deployment and testing.

## Work History

### **Software Engineer, National Bank, Toronto, Canada**

- Led the design and development of a Counterparty Onboarding & Account Creation utility using Python (BaseJob), Bash, Kafka, AWS, and MFT; reduced account creation time by 75%.
- Built Bash scripts to automate file decompression and orchestrate processing workflows
- Automated infrastructure provisioning using Jenkins
- Engaged in Agile workflows: code reviews, sprint planning, retrospectives, and grooming to ship clean, scalable, and production-ready code.

### **Application Developer, CIBC, Toronto, Canada**

- Refactored the Alert Ingestor application from Java to Scala, optimizing large-scale data processing with Apache Spark.
- Maintained clean, reusable code using Git and GitFlow, emphasizing version control and collaboration best practices.

### **Electrical Engineer, Odat Engineering, Nepal**

- Led the installation, testing, and commissioning of real-time control systems, including Protection Systems, SCADA, Local Control Units (LCUs), and Vibration Monitoring systems
- Performed routine testing, troubleshooting, and preventive maintenance of instrumentation and electrical systems
- Authored detailed inspection and maintenance reports
- Enforced workplace safety protocols while working with high-voltage systems and complex electromechanical infrastructure
- Designed and revised electrical as-built drawings using AutoCAD

## Skills & Proficiencies

**Robotics:** ROS/ROS2, Gazebo, Rviz, URDF, TF2, MoveIt2, Nav2, ROSBridge, DDS

**Programming Languages:** Python, C++, Java

**DevOps:** Git, Jenkins, Docker, Ubuntu, Bash

**Cloud:** AWS, EC2, Lambda, S3, Secret Manager

**Machine Learning & CV:** Model training, classification, and applying CV in robotics

### **Team Collaboration & Agile Development**

- Agile/Scrum: sprints, standups, retros
- Code reviews & pair programming
- Cross-functional teamwork (QA, product)

### **Robots hands-on (Demo Projects):**

- [Robotnik RB-1](#)
- [Husarion RosbotXL](#)
- [Clearpath's TurtleBot-3](#)
- [Universal Robot's UR3e](#)
- [RigBetel Labs' TortoiseBot](#)

**Experience with:** PLCs, Relays, Electromechanical systems, Pneumatic Systems, Switches

**Hobby:** Ardupilot Quadcopter with RaspberryPi 4

## Educational Background

### **Master of Engineering in Electrical and Computer Engineering**

*University of Waterloo, Canada*

Specialization in AI and ML

### **Bachelor of Engineering in Electronics and Computer Engineering**

*Tribhuvan University, Nepal*

## Certification & Volunteer Work

### **Robotics Developer Masterclass**

*The Construct*

### **Volunteer**

*First Robotics Competition, Nov 2019*

## Profiles



[My Portfolio](#)