Kailash Khadka

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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 Certification & Training

Robotics Developer - The Construct Link to the Certificate

- 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 of 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

- 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

- 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, Lamba, 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
Specialization in AI and ML

Bachelor of Engineering in Electronics and Computer Engineering
Tribhuvan University

Volunteer Work

First Robotics Competition, Nov 2019

Profiles

My Portfolio