

# Phanindra Kumar Allada

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## SUMMARY

Robotics Software Engineer with years of building mission management, device- and fleet-coordination infrastructure for live robot deployments. Proven track record in C++, Python, ROS/ROS 2, Docker/containerization, and basic AWS integration, enabling reliable communication between 100 + fielded robots and cloud analytics. Passionate about real-time performance, scalable architectures, and cross-functional collaboration.

## EDUCATION

### Arizona State University

January 2023 – December 2024

*Master of Science in Robotics and Autonomous : CGPA: 3.7*

### Amrita Vishwa Vidyapeetham

July 2016 – February 2021

*Bachelor of Technology in Electronics and Communication Engineering : CGPA: 6.95*

*Tempe, Arizona*  
*Kollam, India*

## SKILLS

**Programming :** C++, Python, Embedded Systems, PLC, PyQt , AWS,

**Robotics & AI:** ROS, ROS2, SLAM, Sensor Fusion (LiDAR, IMU, GPS), Robot Control Systems (Position, Velocity, Force), Autonomous Navigation, Robot Arm Control, Machine Learning, Computer Vision, Backend Services, Real-Time Systems, Control Systems, Linux & Networking

**Frameworks & Tools:** PyTorch, TensorFlow, OpenCV, Git, Linux, Docker, RViz, Gazebo, Rockwell Studio 5000, TensorBoard, Unity, SolidWorks, Matlab, Questa Sim, LabelMe, Confluence, Jira, MS Office

## EXPERIENCE

### UHNDER — ADAS Software Engineer

March 2021 – December 2022

- Developed and maintained a ROS wrapper for Occupancy Grid Mapping to support mission planning and fleet coordination across 50 + simulated agents, reducing map-update latency by 20%.
- Designed DBSCAN clustering for dynamic environment modeling, improving object-detection throughput by 30% under 100 Hz radar streams.
- Collaborated on large-scale robotics software projects using Git-based monorepos, applying modular code practices and streamlined version control for efficient team development and system integration.
- Built and validated multi-sensor data synchronization pipelines, collaborating cross-functionally with QA, production, and hardware engineers.
- Conducted rigorous simulation testing for object classification modules and annotated training data, improving machine learning accuracy for radar-based imaging.

### HutLabs — Robotics Researcher

July 2017 – August 2020

- Engineered autonomous navigation and SLAM systems for multi-terrain SAR robots, combining sensor fusion and robust control to handle disaster areas, achieving 98% localization accuracy in unstructured environments.
- Developed and deployed CNN-based object recognition for real-time hazard detection achieving 95% accuracy in cluttered environments.
- Led design and tuning of a 6-DoF robotic arm control system, enabling sub-millimeter path-tracking for autonomous tasks.
- Collaborated across interdisciplinary teams for system integration, design optimization, and seamless operation between GUI and robot hardware.
- Led testing and deployment of robotic prototypes, presenting research at RoboCup and the World Robot Summit.

## PROJECTS

### Adaptive Path Planning via Neural A\* Search

- Built full-stack backend for path planning system combining neural networks with A\* for computationally efficient robotic decision-making. Simulated and validated with obstacle-rich environments using PyTorch and Python.

### Real-Time Pose Estimation System with MobileVNet

- Designed computer vision module using TensorFlow and OpenCV for low-latency pose detection. Validated system via simulations and real-world scenarios. Applied machine learning for classification and keypoint tracking.

### Automated Workstation for Production Optimization

- Developed a robust industrial control system using Rockwell Studio 5000 and ladder logic for barcode-based production tasks. Engineered scalable and fault-tolerant system, integrating hardware and control logic seamlessly.