Atmadeep Arya, M.Tech

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Summary

Passionate about the evolution of autonomous systems, with expertise in model optimization for precise inference. Trained in both ROS1 and ROS2 frameworks, I bring adeptness, articulate communication, strong analytical skills and meticulous attention to detail to drive innovative solutions in the realm of robotics and autonomous technologies.

Technical Skills: ROS, Gazebo, Linux, C++, Python, ONNX, ONNXRuntime, Tensorflow, OpenCV
Interpersonal Skills: Communication, Leadership, Collaboration, Adaptability, Problem Solving

Experience

Software Engineer, Multicoreware Pvt Ltd, Chennai   Feb 2022 - Dec 2023

- Achieved up to 3x performance boost by optimizing models and libraries for accelerated inference on server-grade hardware.
- Enabled model addition to the client's model zoo by building testing and benchmarking suites in ONNXRuntime framework.
- Developed expertise in CNNs, NLPs, and recommender systems using onnxruntime framework.
- Developed automation scripts for performance and accuracy runs for various models.

Machine Learning Engineer, Bitsilica Pvt Ltd, Hyderabad   Feb 2021 - Apr 2021

- Optimized CNN model's inference for edge devices resulting in the adoption of better-suited multi-device options.
- Used python multiprocessing module to improve on inference of vehicle traffic detection pipeline.
- Utilized Django and Flask to improve API functionality for client demos.

Computer Vision and Robotics Intern, Avian Aerospace, Bangalore   Dec 2017 - Feb 2018

- Designed object detection algorithm for an underwater ROV deployed on an onboard computer for client demo.
- Developed algorithms using libraries like NumPy and OpenCV for object detection, line following, and distance estimation.
- Desigend the hardware for ground rover, supplemented with code for following a line using camera and light sensors.

Projects

Hands-on with ROS1 and ROS2   Aug 2023 - Oct 2023

- Learnt usage of Navigation stack using Gazebo simulation
- Created robots for simulation in Fusion 360 and exported them to URDF.
- Worked on Gazebo simulation with RViz for autonomous robots and fine-tuned the navigation stack for optimal performance.

IEEE Sponsored Project: Prototype of a Custom Quadcopter   Jan 2020 - May 2020

- Developed a low-cost, open-source hardware stack-based quadcopter using Pixhawk/ APM 2.8 with F450 frame, aimed at robotics researchers and hobbyists.
- Led a team focused on component integration, design, fabrication, and market research for the final prototype.
- Designed various mounting and accessory parts for F450 frame using Fusion360

Deep Learning based methods for autonomous navigation for drones   Jun 2019 - Apr 2020

- Developed understanding of deep learning architectures and datasets for building autonomous drones.
- Worked with a Jetson Nano-based drone for model deployment, inference workload balance, and optimization.
- Proposed a neural network based on pyramidal architrcture 1M parameter for yaw prediction on a small board computer (Jetson Nano)

Geometric Vision based methods for autonomous drones   Dec 2018 - Apr 2019

- Studied 3D vision-based methods for scene reconstruction, map generation, and navigation.

Education

Central University of Karnataka, Kalaburagi   CGPA: 8.53
Masters in Technology, Computer Science .

- Part of IEEE student society, was elevated to IEEE Creative learning Chair in 2018.
- Conducted various workshops for git & github, meta-learning and mental health.
- Recipient of Merit-based scholarship for 4 semesters.
- Relevant course work include Machine Learning and Projects with Computer vision.