Daniel Vadranapu
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Education

State University of New York at Buffalo, USA **August 2023 - December 2024**
Masters in Robotics

Indian Institute of Information Technology, Guwahati **August 2015 - May 2019**
Bachelor of Technology in Electronics & Communication Engineering

Technical Skills

Programming Languages	Python, C++, C
Libraries	PyTorch, TensorFlow, OpenCV, Scikit-learn, Pandas, Matplotlib
Tools/Frameworks	Git, Docker, Kafka, GCP, SQL, ROS, ROS2, FastApi
Soft Skills	Team Work, Mentorship, Problem-Solving, Creativity
Certifications	Convolutional Neural Networks, Optimizing Algorithms for Deep Learning

Work Experience

University at Buffalo, New York **August 2023 - Present**
Graduate Researcher

- Integrated autoware with data speed for communicating with the CAN system and controlled gear, throttle, brake and steering.

Tata Insights and Quants, Bangalore **June 2021 - August 2023**
Assistant Manager

- Implemented an advanced automatic number plate recognition system exhibiting an accuracy rate of 90% . The system efficiently identifies vehicle number plates, contributing to precise tracking of in-time and out-time for vehicles, resulting in a reduction in unauthorized access by 50 %.
- Deployed a YOLOv8 model to accurately identify and classify individuals wearing protective equipment within construction sites. This implementation significantly enhanced workplace safety.
- Optimized workflow efficiency by deploying a two-stage detection and classification pipeline for the recognition of handwritten text on metal slabs, processing 1,000 slabs per hour
- Deployed a system that identifies graffiti on walls and accurately captures the identity of an individual, enhancing security measures and assisting in the monitoring of public spaces, resulting in a 40 % increase in detection accuracy.
- Generated synthetic datasets for enhancing automatic number plate recognition and detecting instances of littering on roadways, using advanced image processing techniques, resulting in a 15 % improvement in detection accuracy.
- Provided mentorship to a cohort of over 15 interns spanning two years, guiding in development of innovative computer vision solutions.

Flux Auto, Bangalore **June 2019 - June 2021**
Deep Learning Engineer

- Designed, trained, optimized and tested object detector ConvNet for autonomous driving perception stack inspired by YoloV3 on the Berkley Deep-Drive data set and improved original YoloV3 MAP@75 at 38% .
- Built a novel architecture which can simultaneously detect objects and segment using a single backbone, reducing the computational complexity and memory requirements by 50 %.
- Created tools for corrective data sourcing and training pipeline for handling edge cases for object detection which improved the model performance and reduced the false positives by 25 %.
- Utilized sensor data for predicting trajectories of vehicles in close proximity to the ego vehicle, resulting in a 85 % accuracy in trajectory prediction.
- Enhanced performance of the Yolov3 model through optimization using the TensorRT library, resulting in a significant increase in fps and deployed on the Jetson AGX platform.
- Conducted a thorough performance assessment of various Deep Learning frameworks by employing Convolutional Neural Networks (CNN) on diverse Nvidia GPU architectures.

Swaayatt Robots, India **April 2018 - August 2018**
Research Intern

- Conducted comprehensive research on Markov Decision Processes and Q-learning, followed by practical implementation of these models within a grid world environment, resulting in a 60 % improvement in agent's decision-making performance.
- Constructed a miniature robotic car equipped with a camera, IR sensors, wheel encoders, motor drivers, and a Raspberry Pi, allowing for keyboard-based control and operation.
- Curated a dataset for autonomous vehicles and streamlined annotation procedure by leveraging pre-existing models for automation, resulting in a 50 % reduction in annotation time.