Sameep Pote

202-207-8102 sameepote2808@gmail.com sameepote Sameep2808 Portfolio

Education

University of Maryland, College Park **Aug 2021 – May 2023**
Master of Science in Robotics *GPA: 3.8/4*

Mumbai University, India **Aug 2017 – May 2021**
Bachelors of Technology in Electronics *GPA: 3.75/4*

Technical Skills

Languages: C++, C, Python, Java, R, SQL, NoSQL, JavaScript, Swift, Node.js, React
Frameworks: ROS, OpenCV, Pytorch, MATLAB, Simulink, Azure, Docker, MongoDB, Airflow
Technologies: Computer Vision, LIDAR, Google Cloud Platform GCP, AWS, Apache Airflow, Agile Methodology, Deep learning Models, Kubernetes, Spring, API Gateway

Experience

Causify **July 2023 – Present**
Senior Software Engineer *Charlotte, NC*

- Integrated the CCXT API using asynchronous programming and REST protocols to efficiently place orders, fetch trades and balances, and cancel orders, optimizing performance for high-frequency trading while ensuring seamless multi-exchange integration.
- Engineered a zero-latency data extraction pipeline for real-time AI model training and prediction in high-frequency trading, ensuring seamless data flow with minimal latency. Developed multiple Airflow DAGs for QA processes and optimized data migration from RDS to S3 using ELT and ETL pipelines, achieving an 80% cost reduction.
- Developed and maintained a CI/CD pipeline for seamless deployment of Airflow DAGs in production, incorporating unit tests, version control with GitHub, and automated Slack notifications for failure alerts, ensuring robust data workflows.
- Designed a log replay class to enable advanced testing of broker behavior by sequentially replaying experiment logs, simulating interactions with CCXT Exchange using logged data for accurate and reproducible testing scenarios.

ThorDrive **May 2022 – May 2023**
Autonomous Vehicle Software Engineer *Cincinnati, OH*

- Hands-on experience in implementing the gen-1 path-planning pipeline of the company which gave an overall 27% better performance in KPIs. With an addition fail-safe pipeline handled 100 more hardware and software fail case scenarios
- Developed a ROS package in C++ for trailer path prediction, achieving an accuracy of 98.1%. Converted this package into a collision avoidance system, enabling our ego vehicle to safely maneuver with up to 5 trailers without collisions.
- Created package for adaptive destination using custom A* algorithm which found path in 15 iterations and 1.464 seconds as compared to 5666 iterations and 14.647 seconds required by tradition Hybrid-A* for the same scenario.
- Worked with cross-functional teams (Planning, Perception, Simulation and Controls) to create a bridge between the Simulation software Simian using Google Protobuf and our autonomous driving stack in ROS using ROS messages.
- Created python application using PyQT for converting map output given by QGIS (.shp) to a DB file which turned out to be 68% faster when used in stack and the simmulation software (Simian).

United States Department of Agriculture **February 2022 – November 2022**
Research Scientist *College Park, MD*

- Worked on NSGA-II , Multi-objective PSO and MOCNN for optimization of EPIC model which gave an RMSE of 0.11.
- Implemented Particle Swarm Optimization Algorithm for model calibration using remote-sensing data.

Projects

Electric Autonomous Vehicle | *ROS, C++, Python, OpenCV, Raspberry Pi Git* **Aug – Feb 2023**

- Designed and implemented perception, prediction, planning, and controls modules of an electric autonomous vehicle.
- Developed a lane detection algorithm that is able to detect lane lines and estimate road curvature.
- Implemented Yolo-v3 from scratch and trained it on a custom data-set to detect traffic objects with 93% accuracy.
- Implemented PID controller for longitudinal and lateral controls to follow the trajectory generated using Hybrid A*.

3D-Obejct Detection and Prediction | *ROS, C++, Sensor Fusion, Kalman filters, Tensorflow Git* **Aug – Dec 2022**

- Developed a multi-modal (camera + LiDAR) 3D object detection pipeline with Accuracy of 91% at 20 fps
- Implemented Extended Kalman filter for state estimation of vehicles on the road and make decisions accordingly
- Worked on data curation, deep learning model selection and training, hyper-parameter tuning, evaluation and testing, conversion of the model to TensorRT (GPU acceleration), and integration into a ROS environment.

Autonomous Warehouse Collection Robot | *ROS, C++, Python, OpenCV, Gazebo, RViz Git* **Jan – May 2022**

- Developed a ROS package to autonomously navigate a Turtlebot3 robot in an unknown environment.
- Implemented SLAM and AMCL to create a map of the environment and allow the robot to localize itself.
- Implemented different path planning algorithms like Dijkstra, A*, RRT, Conflict-based search, and RRT* to plan paths for the robot, to study, analyze, and compare different metrics between these algorithms.