

ABHIRAM SARANG DAPKE

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Education:

University of Maryland

Masters in Robotics

Relevant Coursework – Motion Planning of autonomous vehicles, Robotics Software Development

College Park, MD

Aug 2018 - May 2020

Cumulative GPA- 3.74/4

Experience:

Robotics Engineer (Deuce Drone)

Mobile, Alabama

Sept 2020 - Present

- Development of drone navigation and control algorithms and communication using ROS.
- Defining, analyzing, and reviewing results and updating of models from model simulations.
- Debugging, refactoring, documenting and optimization of the navigation code in simulation and flight test.
- Flight system performance analysis including flashing & testing of microcontrollers, setting up the simulation environment and system effectiveness analysis.
- Hands on experience and excellent problem-solving skills with robotic systems, data structures, code modularity, algorithm development and ROS in a linux environment.
- Collaborating with other robotics engineers in the UAV design and construction, including landing gear, motor mounts, incorporating the necessary power systems and flight controllers (Pixhawk) and autopilots (ArduPilot, PX4) and associated components such as receivers, transmitters, telemetry modules and other accessories.

Graph-Based Algorithm Projects:

University of Maryland, College Park

Path Planning for Multiple Warehouse Autonomous Ground Vehicles

April-May 2019

Environment: Python, Data Structures, Algorithms

- Implemented D* Lite algorithm on a simulated environment of an Amazon Warehouse to transfer items between the pickup and drop-off stations respectively.
- Analyzed code to identify and improve performance, bottlenecks and contingencies. Streamlining the code was instrumental in the smooth working of the algorithm.

Path Planning of Point and Rigid Robots

Feb 2019

Environment: C++, Object-Oriented Programming Design, Data Structures, Algorithms

- Used half-planes and semi-algebraic models to represent the obstacle space in a workspace that can be represented as an 8 connected space i.e. the robot can move in overall 8 different directions.
- Implemented Dijkstra and A* algorithm to explore the nodes and find the optimal path between start and end points on point and rigid robots.

Technical Highlights:

- **Programming languages:** C/C++, Object-Oriented Programming, Python
- **Softwares:** ROS, GitHub, Gazebo, Doxygen
- **Modules & Libraries:** OpenCV, MoveIt, NumPy, TensorFlow, Keras, Matplotlib, Sklearn, Pandas
- **OS:** Linux, Windows