NANDA KISHORE VASUDEVAN

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EDUCATION

University of Pennsylvania — Fall 2018 - Spring 2020
MSE in Robotics — CGPA: 4.0/4.0

National Institute of Technology, Trichy — Fall 2014 - Spring 2018
B.Tech. in Electrical and Electronics Engineering (Gold Medalist) — CGPA: 9.72/10.00

RESEARCH PROJECTS

State Estimation and Control of Bipedal Robot — Spring 2019 - Present
DAIR Lab, University of Pennsylvania — *C++*

· Implemented *Contact-aided Invariant EKF* for pose estimation of the pelvis of a bipedal robot named Cassie in simulation and on the real robot
· Generated trajectories for walking and standing using reduced-order models and tracked the trajectories using *Partial Feedback Linearization*

Light Writing with Crazyswarm — Summer 2017
ACT Lab, University of Southern California — *Python*

· Developed an algorithm to generate non-colliding *minimum snap trajectories* for a swarm of Crazyflie 2.0 quadrotors
· Performed light writing using a swarm of 10 quarotors for different texts and fonts

Strategy for Evader in Pursuit Evasion using Reinforcement Learning — Summer 2016
IIITDM Jabalpur, India — *Python*

· Implemented Q-learning coupled with a neural network for the evader in grid-based pursuit evasion games
· Obtained a success rate of 92.4% for the evader in simulations.

ACADEMIC PROJECTS

Motion Planning for an Autonomous Vehicle

· Implemented a hierarchical motion planner for a car in CARLA simulation and controlled the car using MPC
· Developed a library of motion planning and control algorithms like Stanley controller, LQR, A* and RRT*

Localization and Mapping

· Estimated the orientation of a camera based on IMU data using Unscented Kalman Filter
· Performed Extended Kalman Filter SLAM on Victoria Park Dataset

Soccer Robots

· Built and fabricated four soccer playing robots capable of traversing the field without collision with other robots

Mobile Robotics Development Platform

· Developed a mobile robot using low-cost sensors like Kinect, IMU and wheel encoders for indoor mapping

RELEVANT COURSES

Graduate: Control and Optimization with Applications in Robotics, Learning in Robotics, Model Predictive Control, Computer Vision and Computational Photography, Deep Learning*
Undergraduate: Control Systems, Modern Control Systems, Pattern Recognition, Data Structures and Algorithms

TECHNICAL SKILLS

Programming Languages	C++, Python, MATLAB
Libraries and Tools	ROS, Drake, Gazebo, Bazel, Git, Simulink, OpenCV, PyTorch

ACHIEVEMENTS

. One of the 19 students selected from India for Viterbi-India Summer Research Program 2017.

. Supervised 36 students working on 6 projects as the Vice President of the Robotics Club of NIT Trichy