

Atharva Pusalkar

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EDUCATION

University of Mumbai
Bachelor of Engineering in Electronics Engineering
CGPA: 8.30/10

August 2018 - Present

Sathaye College
High School
Grade: 86.46%

July 2016 – May 2018

SUMMARY AND INTERESTS

A robotic systems development enthusiast with a keen interest in state estimation and non-linear control techniques.

Currently working on a scientific paper based on Learning based Model Predictive Contouring Control.

I am interested in the following fields – Deep Reinforcement Learning, Geometric Computer Vision, State Estimation, Non-linear Controls, Embedded Systems, Digital Signal Processing.

PROJECTS

UnscentedFastSLAM

2020

Unscented Kalman Filter (UKF) based fastSLAM 2.0 for terrestrial robots with Monte Carlo Localization for pose estimation.

PathMaker Smart Cap

2020

A smart cap that guides blind people on streets by telling them of obstacles ahead making use of Computer Vision, NLP, and GPS. Technologies used Google Cloud API, ROS, Object Recognition, Keras, and shell scripting.

DJS Racing Driverless

2019

The first driverless formula SAE car of India.

- Worked on 3D traffic cone detection using ZED 2 stereo camera using disparity and feature matching.
- Designed an Extended Kalman Filter based graph SLAM for pose and velocity estimation using IMU and RTK GPS data.
- Created a Deep Reinforcement Learning based behaviour planning pipeline for optimal trajectory planning.
- Designed PID and geometric path controllers for track mapping and global race optimization.
- Implemented Learning based Model Predictive Contouring Control to take advantage of vehicle dynamics.

EXPERIENCE

Autonomous Systems Engineer

2020-Present

DJS Racing Driverless

Computer Vision, State Estimation and Control Systems

2019-2020

DJS Racing Driverless

Social Work Volunteer

2019-2020

National Service Scheme

TECHNICAL SKILLS

Programming Languages

C/C++, Python, 8086 Assembly.

Libraries

Boost, Eigen 3, PyTorch, PyTorch C++ API, TensorFlow, CUDA.

Robotic Simulators

Gazebo, RViz, Carla.

Design Software

Proteus, Cura, SolidWorks.

Development Boards

Nvidia Jetson Xavier NX, Arduino.

Robotic Frameworks

Robot Operating System (ROS)