

Danish Faraaz Syed

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Summary

A focused student working on establishing myself as an expert in robotics. I am continuously updating myself on various skills every day.

Skills

ROS	OpenCV	Matlab	Arduino	Gazebo
Python	C++	C	Siemens NX	Solidworks
Ansys	AutoCAD	CREO	Tensorflow	Keras

Projects

1. ROS Based Autonomous robot with OpenCV January 2019 – April 2019
 - Capstone year project during my Bachelors. ROS is run on Raspberry Pi 3 of the robot
 - A robot that can navigate through obstacles and plan its next path based on the shape it detects
2. Design and Development of a Robotics Toolbox in Matlab August 2019 – December 2019
 - Inspired by the Robotics toolbox of Peter Corke. Had more functionalities including workspace plotting, differential kinematics and so on.
 - Each teammate worked on a different aspect of the toolbox and it was finally put together using Matlab App Designer.
3. Control and Stability of a Planar Quadrotor model August 2019 – December 2019
 - Designed and simulated the effects of four different controls namely – LQR, Closed-loop feedback, Observer-based feedback and PID control
 - Non-linear dynamic equations were converted to state-space form and linearized about hover conditions.
4. Contaminant detection and water sampling using drone, SRP August 2019 - Present
 - Used combination of SURF features and modified CMT tracker in OpenCV for detection and tracking of trash on a lake.
 - Annotated and labelled the ground truth using Matlabs Ground Truth Labeller App. Compared different tracker outputs including the modified CMT with the ground truth using precision and recall metrics.
 - Implemented Kalman Filter with the detection on OpenCV for better inputs to the visual control. Used ZMQ to publish and subscribe to data.

Education

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| • Masters in Robotics and Autonomous Systems | CGPA - (3.67/4.0) | Arizona State University, USA | 2019-2021 |
| • Bachelor of Mechanical Engineering | CGPA - (8.77/10) | Anna University, India | 2015-2019 |

Research Experience

- Graduate research assistant at Robotics and Intelligent System (RISE) Lab, Arizona State University August 2019 – Present
- Thesis on Vision based control at RISE Lab, Arizona State University Starting on October 2020

Relevant links

- GitHub - <https://github.com/DanishFaraaz>
- Portfolio/ Personal – <https://danishfaraaz.github.io/>
- Matlab/ Python projects - <https://skill-lync.com/profiles/Danish-Faraaz-814>

Achievements

- Awarded “Best Outgoing Student Award” in the Department of Mechanical Engineering for the batch of 2015-2019.
- Recipient of New American University (Namu) scholarship for my first year at Arizona State University.

Languages – English (Expert), Urdu (Native), Tamil (Expert), Hindi (Expert)