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   01/02/2019 – 01/04/2019
- 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

- 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)