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	PLC (Zen, Omron)	

Projects

1. Projects in Matlab and Python 30/04/2018 – 01/08/2019

- Projects like robotic arm simulation, solving ODE of a simple pendulum and curve fitting analysis.
- https://projects.skill-lync.com/profiles/Danish-Faraaz-814

2. 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 is able to navigate through obstacles and plan its next path based on the shape it detects

3. 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.

4. Control and Stability of a Planar Quadrotor model August 2019 – December 2019

- Designed and simulated the affects 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.

5. 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.

6. Github Repository

- Contains the code for the all the projects that I have worked on. https://github.com/DanishFaraaz

Education

- Masters in Robotics and Autonomous Systems — Arizona State University, USA — 2019-2021
- Bachelor of Mechanical Engineering — St.Joseph's Institute of Technology, 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 2021

Achievements

- Awarded "Best Outgoing Student Award" in the Department of Mechanical Engineering for the batch of 2015-2019.
- Coordinated a one day national symposium conducted at St.Joseph's Institute of Technology
- Recipient of New American University (Namu) scholarship for my first year at Arizona State University.

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