Dipayan Das

PhD in Robotics

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LinkedIn

Mechatronics | Embedded System | Firmware | Controls | Machine Learning

Skills

- **Python C++ SolidWorks MatLab LabView**
- Embedded system, Symbolic-Programming, PLC (Eaton, Siemens), Circuit Design, Oscilloscope, 3d-Printing
- Algorithm
- Debugging
- CAD

Experience

AUG 2019 – PRESENT

Graduate Teaching Assistant — University of Tulsa

Assisting Instrumentation & Measurement Lab, and Machine Dynamics Lab. Teaching students how to program embedded system in **LabView** and **C,** how to debug embedded system using **Oscilloscope**, how sensors and actuators such as Encoder, IMU etc. work and its application.

AUG 2015 – AUG 2019

Graduate Research Assistant — University of Tulsa

This research focusses on the design and development of the actuation system of a robotic hand *Tulsa Hand. This includes 3d model creation in **Solidworks**, simulating model in **MatLab**, developing firmware with **C++**, SPI to control stepper, brushless motor, joystick and display using Arduino and **Raspberry Pi**. PCA of the data gathered from human grasping experiment using Scikit library in **Python**.

APR 2013 – MAR 2014

Programmer Analyst Trainee — Cognizant Technology Solutions

Programmed in **JavaScript, SQL** and **C** and developed web applications in Java EE framework.

Education

AUG 2015 – CURRENT

PhD in Mechanical Eng. — University of Tulsa

Relevant courses: Embedded Systems, **Machine Leaning**, Engineering Failure Analysis, **Autonomous Vehicles** and Robotic Manipulator.

APR 2008 – MAY 2012

B.Tech in Electronics Eng. — West Bengal Univ of Technology

Relevant courses: C programming, Control Systems, Sensors and Transducers, Data Structure and Algorithms, Telemetry and Remote Control.

*Funded by NSF

Others

- Participated in IROS grasping challenge 2016.
- Completed Driverless Car from Udacity **(Kalman** filter**, Particle** filter and **Path planning)**
- Completed Algorithm and Data structure from Coursera (**Greedy Search, Dynamic Programming**)
- I can speak basic **German**

Most used Tools

- Python **- Matplotlib**, **Scikit-learn**, Scipy, **Micropython**, Django, Tkinter, Simpy
- C++ - Eigen, OpenCV, Embedded-C, Processing
- Boards - Arduino**,** Raspberry-Pi**, MSP432**, MAIX-Bit**, NI-DAQ**
- Others – **SolidWorks**, **LabView**, Oscilloscope, MatLab, Mathematica, Polhemus

Useful Links

- Brat Lab where I am doing my PhD
- My Github page. Where this is a tic-tac-toe I made with reinforcement learning in python, and TUHandcontrol repo for TUHand firmware using C++.
- The second version of the TUHand

Publications

- Das, Dipayan, Nathanael J. Rake, and Joshua A. Schultz. "Compliantly underactuated hands based on multiport networks." 2016 IEEE-RAS 16th International Conference on Humanoid Robots (Humanoids). IEEE, 2016.
- Das, Dipayan, Nathanael J. Rake, and Joshua A. Schultz. "The TU Hand: Using Compliant Connections to Modulate Grasping Behavior." Robotic Grasping and Manipulation Challenge. Springer, Cham, 2016.
- Pulleyking, Spenser, Dipayan Das, and Joshua Schultz. "Simplified robotic thumb inspired by surgical intervention." 2016 6th IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob). IEEE, 2016.
- De, D., Das, D., Sengupta, S. K., & Sarkar, A. Autonomous Grabber Robot with Obstruction Detection and Path Finding Capability. 2013 Advanced Research in Engineering and Technology, Edition: Series No.: 7, Volume No.: 2