TARUN THATHVIK PALADUGU

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My Website | LinkedIn | GitHub

EDUCATION

New York University, Tandon School of Engineering, New York, NY — May 2021
Master of Science, Mechatronics Robotics and Automation — GPA: 3.81/4.00
Relevant Courses: Mechatronics, Optimal and Learning Control for Robotics, Robot Perception, Simulation Tools for Robotics, Robotic Gait and Manipulation

Manipal University, Manipal Institute of Technology, Manipal, KA, India — May 2019
Bachelor of Technology, Mechatronics [Minor: Robotics and Automation]

TECHNICAL SKILLS

Programming: Python, MATLAB, Linux Shell Scripting, C++, Ladder Diagrams (PLCs)
Basic Software: Microsoft Office, Virtual Machines, ROS, CAD (Beginning-Intermediate), Mission Planner
Libraries: NumPy, Pandas, OpenCV, pyAprilTag, Sci-kit learn
Microcontrollers: 8051(and similar), Parallax BS2, Parallax Propeller, Arduino, Raspberry Pi

SELECTED PROJECTS

Pose Estimation, Categorization and Segregation using Robot Manipulator (POSCAR) — Present
- 6D Pose estimation of known objects from an RGB camera.
- Simulate a Robotic arm to segregate different objects.

Quadcopter — July 2020
- Built a Quadcopter powered by an ArduCopter microcontroller and operated by a Remote Control.
- Installed a GPS to exploit Return-To-Launch (RTL).

Walking a Linear Inverted Pendulum Model (LIPM) (link) — May 2020
- Implemented 'Model Predictive Controller' to enable a LIPM to walk by tracing a variable velocity gait generated.
- Implemented 'Push recovery' by identifying Instantaneous Capture Point to perform necessary stepping.

SONAR for Visually Challenged — April 2020
- Built a small wearable device for the visually challenged, to perceive the distance as vibration, using a Parallax Propeller.

Model to avoid deaths in cars due to hypothermia and suffocation in cars — Nov. 2019
- Developed a simple solution to avoid deaths in cars due to hyperthermia and suffocation using an Arduino, sensors (to detect heartbeat presence and abnormal temperature), and Bluetooth for communication between the user and the device.

Implement and control a differential kinematics and dynamics models of SCARA Manipulator — Oct. 2019
- Simulated the differential kinematics model of a SCARA manipulator using MATLAB and SIMULINK.
- Implemented the desired trajectory with minimum error and controlled using the Inverse Dynamics control.

Controlling an inverted pendulum in ROS — Nov. 2019
- Collaborated with a teammate to create a simple Inverted Pendulum model and controlled it using Python code to simulate on Gazebo.

EXPERIENCE

Project Intern, **Tata Consultancy Services,** Hyderabad, TS, India — May 2018 – June 2018
- Self-taught Python and developed a code to implement the DBSCAN algorithm on the dataset, within 6 weeks.
- Effectively presented the project, to a team of about 10 people with different technical backgrounds.

Robotics Program Specialist, **Probot Artistry** — Sept. 2020 – Dec 2020
- Developed and updated Curricula and lesson plans for a Robotics fused courses for middle schoolers.
- Curation of exercises and coding that support design processes and computational thinking to support teaching robotics.

Public Relations Head, **American Society of Mechanical Engineers, Manipal** — April 2017– May 2018
- Supported and organized several events throughout 2017-18 under ASME Manipal Chapter.
- Facilitated communication with officials and members of the club along with composing publication content for the club and its events.

Peer Help, **Dept. of Mechatronics, Manipal Institute of Technology** — Jan. 2017– May 2017
- Took initiative to be a tutor and led other peer tutors in supporting undergrad students with challenging topics.

ACADEMIC ACHIEVEMENTS

Placed first in the Hack3D competition by CSAW — Oct.-Nov. 2020
Merit based scholarship by the Graduate School of Engineering - NYU — 2019 - 2021