

TARUN THATHVIK PALADUGU

North Grafton, MA | +1 (917) 607-6564 | tarunthathvik@gmail.com

[My Website](#) | [LinkedIn](#)

EDUCATION

New York University, Tandon School of Engineering, New York, NY

Master of Science, Mechatronics Robotics and Automation

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

Bachelor of Technology, Mechatronics [Minor: Robotics and Automation]

TECHNICAL SKILLS

Programming: Python, MATLAB, Linux Shell Scripting, Ladder Diagrams (PLCs), C++, JSON

Basic Software: Microsoft Office, Virtual Machines, ROS, ROS2, CAD, Mission Planner, RobotStudio (ABB), SnapLogic (Data Engineering - ETL tool), DataRobot, JIRA

Libraries: NumPy, Pandas, OpenCV, pyAprilTag, Sci-kit learn

Microcontrollers: 8051(and similar), Parallax BS2, Parallax Propeller, Arduino, Raspberry Pi

Other Skills: Basic Machining, PLC, Hydraulics and Pneumatics, Optimal Control, Model Predictive Control, Dynamic Programming, Linear Quadratic Regulator, MLOps, Robot Kinematics

SELECTED PROJECTS

Solo8 Quadruped Planning and Control May 2021

- Tested a planning algorithm and, controlling a robot using the planned trajectory, on both ROS and ROS2.
- Implemented control algorithm on planned trajectory using Python.

Pose Estimation, Categorization and Segregation using Robot Manipulator (POSCAR) ([GitHub](#)) Dec 2020

- 6D Pose estimation of known objects from an RGB camera.
- Simulated Robotic arm to segregate different objects.

Quadcopter July 2020

- Built Quadcopter powered by ArduCopter microcontroller and operated by 8Ch PWD Remote Control.
- Installed GPS for Return-To-Launch (RTL) functionality.

Walking a Linear Inverted Pendulum Model (LIPM) ([GitHub](#)) May 2020

- Implemented 'Model Predictive Controller' to enable LIPM to walk by tracing variable velocity gait generated.
- Implemented 'Push recovery' by identifying Instantaneous Capture Point to perform necessary stepping.

Industrial Goods Loading System ([GitHub](#)) May 2020

- Implemented cargo-handling system, using a 2DOF Robotic Arm, operated using Raspberry Pi.
- Used Pi Cam, and OpenCV to locate cart, operated by Arduino, for Robotic Arm to place the picked-up cargo.
- Enabled Bluetooth communication between Raspberry Pi and Arduino using HC-06.

SONAR for Visually Challenged April 2020

- Built compact-wearable device for visually challenged to perceive closeness as vibration using Parallax Propeller.

Implement and control a differential kinematics and dynamics models of SCARA Manipulator Oct. 2019

- Simulated differential kinematics model of SCARA manipulator using MATLAB and SIMULINK.
- Implemented desired trajectory with minimum error and controlled using Inverse Dynamics control.

Controlling an inverted pendulum in ROS ([GitHub](#)) Nov. 2019

- Implemented PID controller on Simple Inverted Pendulum model simulated on Gazebo, using Python.

EXPERIENCE

Data Integration Developer, LoganData Inc. July 2021 – Present

- Automated Extraction, Transformation, and Loading of data from database to database using SnapLogic.
- Used Jira and confluence.
- Trained colleagues on SnapLogic and helped develop complex JSON codes.
- Certified SnapLogic Enterprise Automation Professional.
- Certified to use the AI Platform DataRobot; it can be used to practice MLOps and more.

Graduate Student Assistant, New York University Feb. 2021 – May 2021

- Implemented python code for Optimal Control and Reinforcement Learning concepts.

Robotics Program Specialist, Probot Artistry, Brooklyn, NY Sept 2020 – Dec 2020

- Helped compile captivating middle school curriculum for STEAM and Robotics Oriented Learning.

Project Intern, Tata Consultancy Services, Hyderabad, TS, India May 2018 – June 2018

- Self-taught Python and developed code to implement the DBSCAN algorithm to find outliers on given large dataset, without using any Machine Learning libraries, within 6 weeks.

Peer Help, Dept. of Mechatronics, Manipal Institute of Technology Jan. 2017– May 2017

- Tutored undergrad students in PLC, Micro-controller Based System Design, Mechanics of Robotic Systems

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