Jierui (Jerry) Zhang

E-mail: jieruiz@seas.upenn.edu | TEL: +1 347 272 5815

EDUCATION

University of Pennsylvania, School of Engineering and Applied Science, Philadelphia, PA *Sept 2020 – May 2022*

- Master of Science in Engineering (Robotics)
- Cumulative GPA: 3.75/4.0
  Courses taken / taking:
  Introduction to Robotics; Control System Design; Applied Machine Learning; Big Data Analytics

New York University, Tandon Engineering School, New York, NY *Sept 2016 – May 2020*

- Bachelor of Science in Computer Science, minor in Mathematics
- Cumulative GPA: 3.92/4.0
- Honors & Awards: Summa Cum Laude *May 2020*
- HackNYU：3rd prize *Feb 2019*

RESEARCH & PROJECTS

GTSRB Traffic Sign Recognition, UPenn *April 2021*

- Built and tested various CNN architectures using PyTorch to classify traffic sign images from the GTSRB dataset. Achieved a test accuracy of 95%.
- Performed PCA on the dataset for the purpose of visualization and better understanding of the underlying informative structures in the traffic sign images.

Robot Arm Project, UPenn *Nov 2020*

- Co-designed a strategy for a 5 DoF robot arm to perform the task of grabbing static and dynamic cubic objects from a turntable and platforms and stack these cubes onto each other. Applied forward and inverse kinematics and inverse velocity kinematics in the design.
- Programmed the robot arm in Python and tested it in Gazebo simulation.

Soft Robotics Exoskeleton Project, NYU Tandon**,** *Undergraduate Researcher* *Sept 2019 – May 2020*

- Co-designed a lower-body exoskeleton actuated by pneumatic artificial muscles that powers the user's legs to help the user move forward.
- Designed a system that measures accelerations at the exoskeleton's joints and controls the air flow through pneumatic artificial muscles based on the measurements; implemented the system with rotary encoders and solenoid valves.
- Developed the system in C.

Soft Robotics Gripper Project, NYU Tandon**,** *Undergraduate Researcher* *Sept 2018 – Sept 2019*

- Built a pneumatically actuated three-finger gripper using silicone rubber gel to fetch objects of certain shapes.
- Tested different materials: silicone rubber gel, gecko materials, shape-memory alloy.
- Co-designed the gripper mold and the robot arm structure and 3D printed both items.
- Studied and applied H-bridge motor driver circuit, stepper motor and microstepping, and DC motor.
- Programmed in C to support moving the gripper.

Embedded System Project: Robot Car Relay, NYU Tandon**,** *Team Leader* *Nov 2019 – Dec 2019*

- Enabled P2P communication between two cars using HC05 Bluetooth.
- Programmed in Arduino to autonomously navigate a robot car toward the next car based on the received Bluetooth signal strength and ultrasonic feedback; attached an IMU sensor to track the car's orientation.
- Applied event-driven programming to handle different kinds of input signals.
- Led a team of ten members through assigning tasks, organizing discussions, and executing a project plan.

Senior Design Project: NYU Marketplace, NYU Tandon *Sept 2019 – Dec 2019*

- Co-worked to deploy a web application to help members of NYU community trade used items.
- Implemented backend API using Python Flask, connected to Remote MySQL database, and deployed the application on Heroku.

Machine Learning Project: Predicting Heart Disease, NYU Tandon *Apr 2019 – May 2019*

- Applied a neural network with variations in regularization methods, hidden layers, number of neurons, and activation functions (ReLU, Leaky ReLU, tanh) to predict if a patient has heart disease.
- Programmed in Python using Pandas, Scikit-Learn, and Keras to build and test the neural network.

INTERNSHIP

Shanghai DIST Co., Ltd., Shanghai, China, *Data Analyst* *June 2017 – Aug 2017*

- Participated in data collection for a big data analysis project that aimed at alleviating traffic congestion in Chongqing.
- Used Python XML and URL modules to acquire climate data from Chongqing's weather forecast website and organize useful information into readable output files.
- Applied Python JSON module to acquire Chongqing's bus schedule and route information.

SKILLS

Programming: Python, C, C++, SQL;
Others: Arduino, MATLAB