Tianhao (Andy) Qin

Tel: (347) 247-8167 | andyqin@umich.edu | LinkedIn: www.linkedin.com/in/tianhao-qin

EDUCATION

University of Michigan, College of Engineering   Ann Arbor, MI
Master of Science in Robotics   Aug 2023 – May 2025 (Expected)
- Relevant Coursework: Self-driving Cars, 3D Robot Perception

New York University, Tandon School of Engineering   Brooklyn, NY
*Bachelor of Science in Mechanical Engineering, **Cumulative GPA: 3.9/4.0***   Sep 2019 – May 2023
- Minor: Computer Science, Robotics
- Relevant Coursework: Robotic Manipulation and Locomotion, Robot Motion and Planning, Robot Vision

ACADEMIC PROJECTS

Armlab   Sept 2023 – Present
- Implemented Inverse Kinematics and Resolved Rate Control to smoothly manipulate a 5-DOF ReactorX 200 Robot Arm.
- Integrated with block/color detection from an RGB-D camera to grasp and stack blocks of different sizes.

Collaborative Robotics   Jul 2023 – Present
- Simulated a warehouse environment where multi-robots carry palettes to selected destinations using ROS2 and Gazebo.
- Created a collision-free planner that maximized efficiency and wrote a planning controller that integrated Plansys2 and Nav2.

Finetuning Language Models – Toxic Tweets   Jan 2023 – May 2023
- Finetuned a BERT-based model that achieved 92% accuracy using transformers to detect multiple toxicity for a text.
- Created a landing page for the developed Streamlit app in HuggingFace on sentiment analysis.

Mobile Projective Augmented Reality for Collaborative Robots   Mar 2022 – May 2022
- Calibrated control variables in pose estimation algorithm to project water pipeline information onto a planar surface.
- Tested real-time SLAM algorithms in physical construction sites with projector on a Unitree A1 robot dog using controller.

WORK EXPERIENCE

New York University, Computer Science and Engineering Department   Brooklyn, NY
Course Assistant | CS 1114 Introduction to Programming and Problem Solving   Jan 2022 – May 2023
- Graded Python assignments with comments and held office hours for 10 hours weekly.
- Taught 3-hour lab sections on Python and reviewed professor's lecture materials every Friday.

New York University, Future Labs   Brooklyn, NY
Product Engineer Internship | "Trashy Wheels"   Sept 2021 – Jan 2022
- Produced skateboarding wheels with biodegradable polyurethanes and researched optimal plastic combinations.
- Designed 3D wheel injection molds with SOLIWORKS and simulated mold fabrication through CAM in Fusion 360.
- Manufactured molds from polyethylene plastic blocks through OtherMill CNC machine and awarded NYU Prototyping Fund.

New York University, AI4CE Lab   Brooklyn, NY
Research Assistant | Undergraduate Summer Research Program   May 2021 – Aug 2021
- Designed the prototype of a soft particle robot platform and published an abstract during the 2021 NYU UGSRP Showcase.
- Researched decentralized formation control algorithms and simulated particle movements in Pybullet.

LEADERSHIP

NYU Robotic Design Team, Vertically Integrated Projects   Brooklyn, NY
Team Lead | NASA Robotic Mining Competition: Lunabotics   Sept 2019 – May 2023
- Led a team of 50 to design and manufacture a rover that aimed to excavate and deposit icy regolith below surface on the Moon.
- Implemented Agile project management according to NASA's systems engineering standards throughout project life cycle.
- Developed ConOp, System Requirements, and subsequent Verification Plans following the "V" model of systems engineering.

SKILLS & INTERESTS

- Python, Java, C++
- MATLAB, Simulink, PID
- SOLIDWORKS, ANSYS, OnShape
- ROS2, Gazebo, PyBullet
- Manipulation, CV, Planning
- LaTeX, Git, Linux
- Numpy, Pandas, Tensorflow, Pytorch
- Machine Learning, NLP
- Data Analysis, Data Visualization