

QIHAN WANG

wangqihan2000@gmail.com | +1 (518)-9613167 | <https://github.com/wangqihan2000>

EDUCATION

Carnegie Mellon University

Pittsburgh, PA

M.S. in Mechanical Engineering - Research | GPA: 3.51/4.0

Aug 2023 - May 2025

- **Courses:** ML and AI for engineers, Intro to deep learning, Optimal control and RL (16745), Deep RL (10403), Engineering Optimization, Modern Control Theory, Robotics Dynamics & Analysis

Rensselaer Polytechnic Institute

Troy, NY

B.S. in Aeronautical Engineering & B.S. in Mechanical Engineering | GPA: 3.4/4.0

Sep 2019 - May 2023

SKILLS

Programming Languages: Python, MATLAB, Julia

Tools: PyTorch, ISAAC Sim, Siemens NX, ROS, Rviz, SolidWorks, Gymnasium, Arduino, Gurobi Optimization, FEA, HyperWorks CFD

INTERNSHIP & RESEARCH EXPERIENCE

CERLAB, Carnegie Mellon University

Pittsburgh, PA

Graduate Research Assistant

Jan 2024 - May 2025

- Designed and prototyped a novel wire gripper system with a linear actuator control board, integrated with Arduino and ROS, for a 6-DOF robotic arm in automated depowdering process.
- Implemented an inverse kinematics-based optimization framework for robotic arm path planning to improve grasping efficiency.
- Designed and implemented an automated grasp planning algorithm for wire grippers to enable robust depowdering of any shape of fragile AM parts.
- Simulated and validated grasp configurations in NVIDIA Isaac Sim, achieving **83%** average success rates on adversarial geometries, reducing part damage risk and enhancing post-processing automation.

Rensselaer Polytechnic Institute

Troy, NY

Undergrad Research Intern

Jun 2022 - May 2023

- Designed and fabricated a 3D-modeled Oscillatory Interfacial Dilator (OID) to dynamically modulate interfacial area in a flow system simulating alveolar interfaces, enabled accurate extraction of surface dilatational viscosity.

Geek Bridge International Co., Ltd

Shanghai, CHINA

Research & development assistant intern

Jun 2021 - Aug 2021

- Assisted in the design and development of a tethered UAV, contributing to payload container design and optimizing blade geometry to achieve a **5.2%** increase in lift force.
- Simulated and optimized UAV performance using CFD and conducted test flights to validate the improvements.

PROJECTS

Policy Optimization and Imitation Learning in Deep RL

Carnegie Mellon University – Course Project

Mar 2025 - Apr 2025

- Implemented optimization with CMA-ES and applied it to policy optimization in nonlinear CartPole-v0.
- Developed learning pipelines in BipedalWalker-v3, achieving robust control with diffusion-based policies.

Optimization of hybrid renewable energy Microgrid

Carnegie Mellon University – Course Project

Sept 2024 - Dec 2024

- Developed a nonlinear programming model to optimize the Levelized Cost of Energy for a hybrid microgrid.
- Coded and solved a year-long hourly optimization problem using SLSQP; achieved an optimal LCOE of \$0.18/kWh and performed sensitivity analyses to evaluate system scalability and performance.

Investigation of Duality between EKF and Receding Horizon Estimator

Carnegie Mellon University – Course Project

Feb 2024 - May 2024

- Implemented EKF and RHE for nonlinear state estimation and control of Dragon spacecraft docking with the ISS.
- Developed EKF and RHE pipelines with full-state and range-bearing measurement models; validated duality through RMSE and trajectory analysis under noise.

EXTRACURRICULAR

RPI Design Build Fly

Troy, NY

Flap designer & manufacturer

Sept 2019 - Oct 2021

- Design and model different types of flaps for the plane, mainly hinge flap and Fairey-Youngman flap
- Selected to represent RPI at Design Build Fly competition in Kansas held by AIAA (April 2021)