

Qianzhong Chen

Email: qchen23@stanford.edu Phone: (217) 898-9817 Address: Palo Alto, CA 94304

EDUCATION

Stanford University

Master of Science in Mechanical Engineering

Stanford, CA

Sept. 2023-June 2025(expected)

University of Illinois Urbana-Champaign (UIUC)

Champaign, IL

Zhejiang University (ZJU)

Bachelor of Science in Mechanical Engineering (Joint Program)

Hangzhou, Zhejiang, China

Sept. 2019-June 2023

SKILLS

- Programming Language: C/C++, Python, Julia
- Technical Skills: ROS, MATLAB, Simulink, PyTorch, TensorFlow, Isaac Gym, Arduino, LabVIEW, CATIA, PTC-Creo, SolidWorks, Fusion360, ANSYS, LaTeX

COURSES

- Robot Autonomy, Machine Learning, Advanced Feedback Control, Artificial Intelligent, Mechatronics, Introduction to Robotics, Computer Systems & Programming, Signal Processing

PROFESSIONAL EXPERIENCE

Unitree Robotics

Robot Control Engineer Intern

Hangzhou, Zhejiang, China

May 2023-Aug. 2023

- Developed the novel data-driven quadrupedal robot locomotion and controls framework that increases the robot payload by 15% compared with traditional model-based control framework:
 - Trained the deep reinforcement learning robot locomotion and controls policy in Isaac Gym environment
 - Developed the robot learning-based locomotion and controls model deployment program with C++
 - Conduct quadrupedal robot walking test using trained deep reinforcement learning control policy and analyzed the test data for sim-to-real evaluation
- Developed the quadrupedal robot state estimator based on Extended Kalman Filter, increasing the estimation accuracy by 23%

GEELY Automobile Group

Mechanical Engineer Intern, Chassis Department

Hangzhou, Zhejiang, China

Aug. 2021

- Helped senior engineers to develop parts in automobile's suspension system, including control arm, steering knuckle
- Recorded and analyzed prototype vehicle bench test data, helped senior engineers to address milestone report

PROJECT EXPERIENCE

Development on Autonomous Unmanned Aerial Vehicles (UAV)

Research Assistant, Advanced Controls and Research Laboratory, UIUC

Champaign, IL

Jan. 2022-Apr. 2023

Supervisor: Dr. Naira Hovakimyan, Professor of Mechanical Science and Engineering Department, UIUC

- Developed a collision-free bilevel trajectory optimization system with optimal waypoints' temporal and spatial assignment for autonomous quadrotor's motion planning based on convex optimization, increasing the computational efficiency by 150%. The work has been published on IEEE RA-L and presented on IROS 2023
- Deployed the trajectory optimization program together with path planning system on Nvidia TX2 onboard computer

Deep Learning for Glaucoma (an ophthalmic disease) Detection with Medical Images

Team Leader, Course Project of CS 229 Machine Learning

Stanford, CA

Sept. 2023-Dec 2023

- Preprocessed medical images, including image resizing, noise reduction, essential feature extraction
- Conduct training with 3 CNN models (ResNet101, VGG16, MobileNet) on preprocessed dataset
- Aiming at small dataset (500 images), conduct different methods including data augmentation, different splitting, fine-tuning the pre-trained model and cross validation, increasing the detection precision by 7%
- Trained the images with Vision Transformer, achieving detection precision of 75%

PUBLICATION

- **Q. Chen**, S. Cheng and N. Hovakimyan, "Simultaneous Spatial and Temporal Assignment for Fast UAV Trajectory Optimization Using Bilevel Optimization," in IEEE Robotics and Automation Letters, vol. 8, no. 6, pp. 3860-3867, June 2023, doi: 10.1109/LRA.2023.3273399.