

# Dingqi Zhang

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## EDUCATION

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### University of California, Berkeley

Expected May 2026

*Ph.D. Student in Mechanical Engineering*

- GPA: 3.84
- Graduate Division Block Grant Award (Aug. 2021 - Aug. 2022)
- The Jacobs Institute Innovation Catalysts: Spark Grant Award (Fall 2023)

### Cornell University

August 2017 - May 2021

*B.Sc. in Computer Science and Mechanical Engineering*

- GPA: 4.00
- Summa Cum Laude
- Engineering Learning Initiatives Undergraduate Research Award (Summer 2019)

## EXPERIENCE

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### Zipline International Inc.

May 2023 – August 2023

*GNC Intern*

*South San Francisco, CA*

- Developed a high-wind resistant flight controller in production code that decreases extreme weather failure rate up to 20%
- Implemented Monte Carlo simulation in Julia to validate control algorithms
- Analyzed real flight data to assess controller performance and identify potential areas for future improvement
- Assisted in powertrain controller design to prevent overheating motor damage

### High Performance Robotics Lab (PI: Mark Mueller)

August 2021 – Present

*Graduate Student Researcher*

*Berkeley, CA*

- Designed a zero-shot rapid quadcopter adaptive controller with adaptation to body dynamics and disturbance rejection using model-free RL [[arxiv:2209.09232](https://arxiv.org/abs/2209.09232)]
- Optimized neural network inference efficiency with 35x speed increase using MNN
- Improved a rapid collision-free trajectory generator by integrating obstacle detection and state estimation with data from Intel RealSense D455
- Benchmarked the performance of designed algorithms with state-of-the-art adaptive control algorithms with Monte Carlo simulation
- Conducted flight tests on quadcopters with ROS

### Biorobotics and Locomotion Lab (PI: Andy Ruina)

January 2019 – May 2021

*Undergraduate Student Research Assistant*

*Ithaca, NY*

- Implemented the embedded system for an autonomous sailboat on the SAM-E70 platform with MPLAB
- Developed an interactive ocean sailing simulator for numerous sailboat dynamics models with real weather data in MATLAB
- Achieved automatic backend database retrieval from Global Marine Data NOAA
- Built visualizations for evaluating sailboat's racing performance with MATLAB

## PROJECTS

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### TenniBot | Python

Fall 2023

- Authored a proposal for an autonomous tennis ball collector, winning the Spark Grant among the top 7% of over 100 submissions.
- Implemented the vision-based motion planning and control algorithm for efficient ball collection.

### English-Cayuga Translator | OCaml

May 2019

- Implemented a two-way translator for English and the native American language Cayuga
- Optimized the word search speed by implementing both dictionaries as red-black trees

## TECHNICAL SKILLS

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**Research Expertise:** hardware integration, adaptive control, reinforcement learning, state estimation, dynamics modeling, simulation and control of aerial vehicles

**Programming Languages:** C/C++, Python, Linux Shell, MATLAB, Julia, JAVA

**Technologies/Frameworks:** ROS, git, PyTorch, LaTeX