

# MIKE ZHANG

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## Education

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**ETH Zurich** (Swiss Federal Institute of Technology Zurich) Zurich, Switzerland  
Master of Science in Robotics, Systems and Control 2020 - 2023  
With distinction (Grade 5.93/6.00)

**University of Toronto** Toronto, Canada  
Bachelor of Applied Science in Mechanical Engineering 2014 - 2019  
With high honors (Top 5% of graduating class)

## Professional Experience

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**Robotic Systems Lab, ETH Zurich** Zurich, Switzerland  
Research Engineer 4/2024 - Present

- Conducted research projects on the topics of:
  - Map representations for high-level robotic task planning with Large Language Models.
  - Mobile robot manipulation through reinforcement learning in simulation and imitation learning from demonstrations.
  - Terrain reconstruction using self-supervised learning from semantic point clouds.
- Developed software tools (e.g. manipulation behaviors, sensor calibration) for the lab's mobile manipulator legged robots.
- Supervised and provided guidance for Master's student thesis projects.

**Verity AG** Zurich, Switzerland  
Part-time Student Software Engineer 1/2022 - 9/2022

- Contributed to the development of an in-house C++ API to map warehouses for navigation by autonomous drones.
- Served as the main point of contact for issues related to map development for several facilities.
- Developed command-line and GUI tools to assist the mapping engineering team and on-site personnel.

**Flyability SA** Paudex, Switzerland  
Junior Robotics Engineer 9/2019 - 7/2020

- Contributed to developing and field testing a SLAM localization algorithm fusing lidar and inertial sensors. Promising results from this work led to the incorporation of the lidar in Flyability's next-generation inspection drone.
- Assisted on projects for the DARPA Subterranean Challenge as part of team CERBERUS.

**National Research Council of Canada** Ottawa, Canada  
Research Intern 5/2017 - 8/2018

- Conducted research project on an active vibration-controlled seat mount for helicopter flight crews.
- Resolved critical controller bug, salvaging a \$10k proof-of-concept experiment and leading to a publication and presentation at the 2018 AIAA SciTech conference.

## Publications

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- **M. Zhang**, K. Qu, V. Patil, C. Cadena, M. Hutter. Tag Map: A Text-Based Map for Spatial Reasoning and Navigation with Large Language Models. In *Proceedings of the 8th Annual Conference on Robot Learning (CoRL)*, 2024.  
→ Project website: [tag-mapping.github.io](https://tag-mapping.github.io)
- **M. Zhang**, Y. Ma, T. Miki, M. Hutter. Learning to Open and Traverse Doors with a Legged Manipulator. In *Proceedings of the 8th Annual Conference on Robot Learning (CoRL)*, 2024.  
→ Project video: [youtu.be/tQDZXN\\_k5NU](https://youtu.be/tQDZXN_k5NU)

## Teaching Experience

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- Robot Dynamics (Head Teaching Assistant) Fall 2024, ETH Zurich
- Advanced Model Predictive Control Spring 2023, ETH Zurich
- Programming for Robotics with Robot Operating System Spring 2023, ETH Zurich
- Robot Dynamics Fall 2021, ETH Zurich

## Competencies

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**Computing:** C++, Python, MATLAB/Simulink, Bash.

**Robotics:** Robot Operating System (ROS), Optimization (YALMIP, CVXPY, CasADi), Simulation (MuJoCo, IsaacGym).

**Machine Learning:** PyTorch, Scikit-Learn.

**Software Development:** Linux, Git, CMake, Docker, Singularity Containers.