

# Kexin Shi

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## EDUCATION

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### Carnegie Mellon University

Visiting Scholar at Robotics Institute, advised by Prof. Deepak Pathak

Pittsburgh, USA

2023.3 - Now

### University of Zürich & ETH Zürich

Zürich, Switzerland

Master in Informatics & Special Master in Robotics, advised by Prof. Davide Scaramuzza

2020.9 - 2023.10

### Xi'an Jiaotong University

Xi'an, China

Bachelor in Computer Science, advised by Dr. Liang He

2016.9 - 2020.6

### National University of Singapore

Singapore

Summer Student in Computer Science, advised by Dr. Lek Hsiang Hui

2019.7 - 2019.8

### University of Cambridge

Cambridge, UK

Visiting Student in Artificial Intelligence

2019.1 - 2019.2

### Shanghai Jiao Tong University

Shanghai, China

Summer Student in Computer Science

2018.7 - 2018.8

## PUBLICATIONS

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\* denotes equal contribution

### Extreme Parkour with Legged Robots

Xuxin Cheng\*, Kexin Shi\*, Ananye Agarwal, Deepak Pathak

*arXiv 2023*

### Learning Perception-Aware Agile Flight in Cluttered Environments

Yunlong Song\*, Kexin Shi\*, Robert Penicka, Davide Scaramuzza

*International Conference on Robotics and Automation (ICRA) 2023*

## EXPERIENCES

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### Learning for Embodied Action and Perception (LEAP), CMU

Pittsburgh, USA

Visiting Scholar, advised by Prof. Deepak Pathak

2023.3 - Now

- Proposed an end-to-end data-driven approach that can scale to the challenging task of precise and extreme parkour using onboard sensing, with deep reinforcement learning methods and sim-to-real technologies.

### Advanced Interactive Technologies Lab (AIT), ETHz

Zürich, Switzerland

Research Assistant, advised by Prof. Otmar Hilliges

2023.1 - 2023.6

- Improved the algorithm performance to reconstruct action-conditioned Human-Object Interactions (HOI) using commonsense knowledge priors on BEHAVE dataset.

### Robotics and Perception Group (RPG), UZH & ETHz

Zürich, Switzerland

Graduate Student Researcher, advised by Prof. Davide Scaramuzza

2021.9 - 2022.10

- Leveraged deep reinforcement learning and learning-by-cheating framework to achieve perception-aware, minimum-time flight in cluttered environments for quadrotors, with real world validation via Hardware-in-the-loop (HITL).
- Adjusted point-voxel models to fit in event data, fused voxel features and point features effectively, improved performance in classification task on N-Caltech 101 dataset and optical flow regression task on DSEC dataset.

### Computer Vision and Geometry Group (CVG), ETHz

Zürich, Switzerland

Graduate Student Researcher, advised by Prof. Marc Pollefeys

2022.2 - 2022.6

- Leveraged the advantages of both COLMAP and ORB-SLAM and built an offline python SLAM using monocular camera.
- Conducted benchmarking experiments on TUM-RGBD and KITTI datasets.

### Robotic Systems Lab (RSL), ETHz

Zürich, Switzerland

Graduate Student Researcher, advised by Prof. Macro Hutter

2022.2 - 2022.6

- Generated an accurate dataset containing RGB images, ground truth 6D pose of the based of ANYmal using Kalibr.
- Adopted EfficientPose model on the generated dataset to detect location and estimate 6D pose of ANYmal.

### Institute of Robotics and Intelligent Manufacturing (IRIM), CUHKSZ

Shenzhen, China

Research Assistant, advised by Dr. Jiaming Zhang

2019.10 - 2019.12

- Learned a gesture interaction algorithm with data extracted from Kinect sensor as a part implementation of a rehabilitation robot.
- This project was awarded as an excellent product in the 21st China Hi-Tech Fair 2019.

## INVITED TALKS

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- **Robotics and Embodied Artificial Intelligence Lab**, Stanford University, USA 2023.10
- **Robotics and Perception Group**, University of Zürich, Switzerland 2023.10

## AWARDS

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- The first prize at university level in **The 18th “Ascendas Cup” Extracurricular Academic Science and Technology Competition.** 2019.3
- The first price at national level in **The National Mathematical Contest in Modeling.** 2018.9
- University Academic Scholarships. 2017-2020

## REVIEWER SERVICE

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- International Conference on Robotics and Automation (ICRA) 2023, 2024
- International Conference on Intelligent Robotics and Systems (IROS) 2023
- Robotics and Automation Letters (RAL) 2023

## SKILLS

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- **Relevant Coursework:** Deep Learning, Reinforcement Learning, Computer Vision, 3D Vision, Planning and Decision Making, Optimal Control.
- **Programming:** C++, Python, Matlab, HTML, ROS.
- **Software:** Pytorch, Tensorflow, Flightmare, Agilicious, IssacGym, Unity, Blender, Git, Latex.
- **Robots:** Unitree A1, ANYmal, SuperMegaBot, Quadrotor.