

Kexin Shi

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EDUCATION

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 - Now

Xi'an Jiaotong University

Bachelor in Computer Science, advised by Dr. Liang He

Xi'an, China

2016.9 - 2020.6

National University of Singapore

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

Singapore

2019.7 - 2019.8

University of Cambridge

Visiting Student in Artificial Intelligence

Cambridge, UK

2019.1 - 2019.2

Shanghai Jiao Tong University

Summer Student in Computer Science

Shanghai, China

2018.7 - 2018.8

PUBLICATIONS

* 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

Learning for Embodied Action and Perception (LEAP) Lab, 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

2019.8 - 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.

AWARDS

- 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

REVIEWERS

- 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

- **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, MuJoCo, IsaacGym, Unity, Blender, Git, Latex.
- **Robots:** Unitree A1, ANYmal, SuperMegaBot, Quadrotor.