

# Guangyao Zhai

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## Education

- **Technical University of Munich (TUM)** *Munich · Germany* Nov. 2021 – Ongoing  
PhD student in robot vision.
  - Affiliated with Chair for CAMP&AR, Department of Informatics
  - Supervisor: Prof. Dr. Nassir Navab (IEEE Fellow) / Mentor: Dr. Benjamin Busam
- **Zhejiang University** *Hangzhou · China* Sep. 2018 – Jun. 2021  
MSc in Control Science and Engineering
  - Affiliated with APRIL Lab, College of Control Science and Engineering
  - Supervisor: Prof. Dr. Yong Liu
- **Northwestern Polytechnical University** *Xi'an · China* Sep. 2014 – Jun. 2018  
BEng in Automation, Academic Record Percentage: 87/100

## Skills

- **Programming:** Python, C++, MATLAB, L<sup>A</sup>T<sub>E</sub>X
- **Framwork:** Robot Operating System (ROS), PyTorch

## Research

- **Journals**
  - **Guangyao Zhai**, Yu Zheng, Ziwei Xu, Xin Kong, Yong Liu, Benjamin Busam, Nassir Navab, and Zhengyou Zhang. *DA<sup>2</sup> Dataset: Toward Dual-Arm Dexterity-Aware Grasping*. **IEEE Robotics and Automation Letters** with **IROS 2022 presentation** [\[link\]](#)
  - Zhen Zhang, Jiaqing Yan, Xin Kong, **Guangyao Zhai** and Yong Liu. *Efficient Motion Planning based on Kinodynamic Model for Quadruped Robots Following Persons in Confined Spaces*. **IEEE/ASME Transactions on Mechatronics (2021)** [\[link\]](#)
  - **Guangyao Zhai**, Liang Liu, Linjian Zhang and Yong Liu. *PoseConvGRU: A Monocular Approach for Visual Ego-motion Estimation by Learning*. **Pattern Recognition (2020)** [\[link\]](#)
- **Conferences**
  - Xin Kong, Xuemeng Yang, **Guangyao Zhai** and Yong Liu et.al. *Semantic Graph Based Place Recognition for 3D Point Clouds*. **IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2020)** [\[link\]](#)
  - Xin Kong, **Guangyao Zhai**, Baoquan Zhong and Yong Liu. *PASS3D: Precise and Accelerated Semantic Segmentation for 3D Point Cloud*. **IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019)** [\[link\]](#)
  - Liang Liu, **Guangyao Zhai**, Wenlong Ye and Yong Liu. *Unsupervised Learning of Scene Flow Estimation Fusing with Local Rigidity*. **the Twenty-Eighth International Joint Conference on Artificial Intelligence (IJCAI 2019)** [\[link\]](#)
- **Preprint**
  - **Guangyao Zhai**, Zhen Zhang, Xin Kong, and Yong Liu. *Efficient Pedestrian Following by Quadruped Robots*. **IEEE International Conference on Robotics and Automation Workshop (ICRAW 2020)** [\[link\]](#)
  - **Guangyao Zhai**, Yong Liu et.al., *FlowMOT: 3D Multi-Object Tracking by Scene Flow Association*. *arXiv preprint arXiv:2012.07541* [\[link\]](#)

## Project

- **Research on the Perception and Decision of Legged Robots** May. 2019 – May. 2020

Collaborated with: **DeepRobotics Co. Ltd.**

– **Introduction:** I am cooperating with DeepRobotics to research the perception ability of legged robots. The main task is to achieve 3D real-time obstacle avoidance tracking for an interested moving target (SOT). The overall project is based on the ROS framework and is divided into four modules: Global Map Relocalization, Walkable Area Detection, 3D Single Object Tracking, Path Planning and Navigation.

– **Responsibilities:** I am the **project leader**, researching and making the module of Walkable Area Detection and Object Tracking in the project. I am also responsible for writing project materials, coordinating the progress, and connecting with other relevant fellows.

## Work Experience

- **Tencent** *Shenzhen · China* Apr. 2021 – Oct. 2021

Research Intern / **Tencent Robotics X, TEG**

– Designed a dual-arm robotic optimal grasping algorithm.

- **Huawei Technologies** *Shanghai · China* Apr. 2020 – Aug. 2020

Research Intern / **Noah's Ark Laboratory, 2012 Laboratories**

– Designed a 3D Multi-Object Tracking framework based on LiDAR.

## Awards and Honors

- **Awards**

– **Best Extended Abstract Award Finalist** *ICRA 2021: 5th Full-day Workshop on Legged Robots* 2021  
(*Top 3 (11) abstracts in the workshop*)

– **National Scholarship for Postgraduates** *Ministry of Education of the P. R. China* 2019 – 2020  
(*The highest prize for postgraduates in China's Mainland*)

– **Academic Scholarship** *Zhejiang University* 2018 – 2019

– **Second Prize Scholarship × 3** *Northwestern Polytechnical University* 2014 – 2017

- **Honors**

– **“Triple-A” Master Student** *Zhejiang University* 2019 – 2020  
(*Top 15% master students*)

– **Outstanding Master Student** *Zhejiang University* 2019 – 2020  
(*Top 35% master students*)

## Additional Information

- **Review Experience**

– IEEE Robotics and Automation Letters (RA-L)

– International Conference on Robotics and Automation (ICRA)

– International Conference on Intelligent Robots and Systems (IROS)

– International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR)

- **Language Skills**

– Mandarin *native*

– English *IELTS 6.5 (Listening: 6.5 Reading: 7 Speaking: 6.5 Writing: 6.5)*

- **Interests**

- Passionate about swimming (practicing for five years), fitness and cooking.

- **Values and Methodology**

- *Quality · Diligence · Self-reflection*