Guangyao Zhai

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Education

- **Technical University of Munich (TUM)** *Munich · Germany* Mar. 2022 – Jan. 2026
  PhD student in robot vision
  - Affiliated with Computer Vision Group at the Chair for CAMP&AR, Department of Informatics
  - Supervisors: Prof. Dr. Nassir Navab, Dr. Benjamin Busam, and PD. Dr. Federico Tombari (Google)
- **ETH Zurich** *Zurich · Switzerland* Nov. 2024 – Jun. 2025
  Academic guest
  - Affiliated with Computer Vision and Geometry Lab, Institute for Visual Computing
  - Host: Prof. Dr. Marc Pollefeys
- **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

Selected Research

[***Co-first,** †**Last author**]

- **Journals**
  - ***Guangyao Zhai**, Yu Zheng, Ziwei Xu, Xin Kong, Yong Liu, Benjamin Busam, Nassir Navab, and Zhengyou Zhang. DA^2 Dataset: Toward Dual-Arm Dexterity-Aware Grasping.* **IEEE Robotics and Automation Letters** [link]
  - ***Guangyao Zhai**, Liang Liu, Linjian Zhang, and Yong Liu. PoseConvGRU: A Monocular Approach for Visual Ego-motion Estimation by Learning.* **Pattern Recognition** [link]
- **Conferences**
  - *Rui Huang*, **Guangyao Zhai***, Zuria Bauer, Marc Pollefeys, Federico Tombari, Leonidas Guibas, Gao Huang, and Francis Engelmann. Video Perception Models for 3D Scene Synthesis.* **NeurIPS 2025** [link]
  - *Bingran Chen, Baorun Li, Jian Yang, Yong Liu, and **Guangyao Zhai** †. KGN-Pro: Keypoint-Based Grasp Prediction through Probabilistic 2D-3D Correspondence Learning.* **IROS 2025** [link]
  - *Zhifei Yang, et al, and **Guangyao Zhai** †. MMGDreamer: Mixed-Modality Graph for Geometry-Controllable 3D Indoor Scene Generation.* **AAAI 2025** [link]
  - ***Guangyao Zhai**, Evin Pınar Örnek, Dave Zhenyu Chen, Ruotong Liao, Yan Di, Nassir Navab, Federico Tombari, and Benjamin Busam. EchoScene: Indoor Scene Generation via Information Echo over Scene Graph Diffusion.* **ECCV 2024 with Nectar Track Spotlight at 3DV 2025** [link]
  - *HyunJun Jung*, Shun-Cheng Wu*, Patrick Ruhkamp*, **Guangyao Zhai***, Hannah Schieber*, et al. HouseCat6D–A Large-Scale Multi-Modal Category Level 6D Object Pose Dataset with Household Objects in Realistic Scenarios.* **CVPR 2024 Highlight** [link]
  - ***Guangyao Zhai**, Xiaoni Cai, Dianye Huang, Yan Di, Fabian Manhardt, Federico Tombari, Nassir Navab, and Benjamin Busam. Sg-bot: Object rearrangement via coarse-to-fine robotic imagination on scene graphs.* **ICRA 2024** [link]
  - ***Guangyao Zhai**, Evin Pınar Örnek, Shun-Cheng Wu, Yan Di, Federico Tombari, Nassir Navab, and Benjamin Busam. CommonScenes: Generating Commonsense 3D Indoor Scenes with Scene Graphs.* **NeurIPS 2023** [link]

– *Dekai Zhu*, **Guangyao Zhai***, Yan Di, Fabian Manhardt, Hendrik Berkemeyer, Tuan Tran, Nassir Navab, Federico Tombari, Benjamin Busam. IPCC-TP: Utilizing Incremental Pearson Correlation Coefficient for Joint Multi-Agent Trajectory Prediction.* **CVPR 2023** [link]

– ***Guangyao Zhai**, Dianye Huang, Shun-Cheng Wu, HyunJun Jung, Yan Di, Fabian Manhardt, Federico Tombari, Nassir Navab, and Benjamin Busam. MonoGraspNet: 6-DoF Grasping with a Single RGB Image.* **ICRA 2023** [link]

- **Preprints**

  – ***Guangyao Zhai**, Xingyuan Zhang, Nassir Navab. Recurrent World Model with Tokenized Latent States.* **ICLR 2025 World Model Workshop** [link]

  – ***Guangyao Zhai**, Zhen Zhang, Xin Kong, and Yong Liu. Efficient Pedestrian Following by Quadruped Robots.* **ICRA 2021 Legged Robot Workshop** [link]

☆ **For full research:** [Google Scholar] / [ResearchGate]

Teaching Experience

- **Modern Computer Vision Methods Seminar** *Technical University of Munich* WS 2022/23

  Tutor on the topic of robotic grasping.

- **MA Thesis Supervision** *Technical University of Munich*

  Object pose estimation on foundational models. (WS 2023/24)

  – Student: Ms. Yamei chen. Material: One CVPR'24 paper [link].

  Robotic manipulation guided by holistic scene understanding. (SS 2023)

  – Student: Ms. Xiaoni Cai. Material: One ICRA'24 paper [link].

  Motion prediction in the autonomous driving field. (WS 2022/23)

  – Student: Mr. Dekai Zhu. Material: One CVPR'23 paper [link].

Work Experience

- **Sony** *Tokyo · Japan* Jul. 2024 – Oct. 2024

  Research Intern @ Sony Research

  – Designed a recurrent world model based on foundation visual features.

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

  Research Intern @ Tencent Robotics X, TEG

  – Designed a dual-arm robotic optimal grasping algorithm.

- **Huawei** *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**

  Qualcomm Innovation Fellowship *Qualcomm* 2025
  – *One of five winners in Europe*

  ICRA 2024 Quadruped Robot Challenge Champion *IEEE Robotics and Automation Society* 2024

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

- **Honors**

  CAA Outstanding Master's Thesis *Chinese Association of Automation* 2022

  Zhejiang Outstanding Master's Thesis *Zhejiang Postgraduate Education Society* 2022

  Best Extended Abstract Award Finalist *ICRA 2021: 5th Full-day Workshop on Legged Robots* 2021

  Triple-A Master Student *Zhejiang University* 2019 – 2020

Additional Information

- **Review Experience**
  - Journals: IEEE Transactions, IJCV, AuRo, RA-L, Frontiers
  - Conferences: CVPR, ICCV, NeurIPS, ICML, SIGGRAPH, ICRA, IROS
- **Organizing Experience**
  - ICCV TRICKY Workshop 2025 organizer [link]
- **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*