

Yuliang Guo

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RESEARCH INTERESTS

Computer Vision, 3D Vision, Embodied AI

EDUCATION

Brown University

Ph.D. in Computer Science, Advised by [Benjamin Kimia](#), [Thomas Serre](#) 2012-2018

M.S. in Computer Engineering, Advised by Benjamin Kimia 2009-2011

Shanghai Jiao Tong University

B.S. in Material Science 2005-2009

INDUSTRIAL EXPERIENCE

Bosch Research, Sunnyvale, CA

Lead Research Scientist (Tech Lead), Managed by [Liu Ren](#) 2024-Now

Senior Research Scientist (Tech Lead), 2021-2023

- Universal representation for cross-camera, cross-embodiment perception and AI
- Interactable 3D world reconstruction for robot navigation and manipulation
- Active vision and spatial computing for augmented reality (AR) in industrial assembly assistance
- Precision 3D perception for advanced vehicle parking assistance

OPPO Research, Palo Alto, CA

Senior Research Scientist, Managed by [Yi Xu](#) 2019-2020

- Real-time human posture estimation for avatar motion control
- 3D perception and reconstruction for AR devices

Baidu USA, Sunnyvale, CA

Senior Research Engineer, Managed by [Tae Eun Choi](#) 2018-2019

- 3D perception system for Apollo autonomous driving platform

SELECTED PUBLICATIONS

[†] Project Lead / Corresponding Author

1. “Depth Any Camera: Zero-Shot Metric Depth Estimation from Any Camera”, **Yuliang Guo[†]**, Sparsh Garg, S. Mahdi H. Miangoleh, Xinyu Huang, Liu Ren, arXiv 2025
2. “Online Language Splatting”, Saimouli Katragadda, Cho-Ying Wu, **Yuliang Guo[†]**, Xinyu Huang, Guoquan Huang, Liu Ren, arXiv 2025

3. "SUP-NeRF: A Streamlined Unification of Pose Estimation and NeRF for Monocular 3D Object Reconstruction", **Yuliang Guo**[†], Abhinav Kumar, Cheng Zhao, Ruoyu Wang, Xinyu Huang, Liu Ren, ECCV 2024
4. "TCLC-GS: Tightly Coupled LiDAR-Camera Gaussian Splatting for Surrounding Autonomous Driving Scenes", Cheng Zhao, Su Sun, Ruoyu Wang, **Yuliang Guo**, Junjun Wan, Zhou Huang, Xinyu Huang, Victor Chen, Liu Ren, ECCV 2024
5. "SeaBird: Segmentation in Bird's View with Dice Loss Improves Monocular 3D Detection of Large Objects", Abhinav Kumar[†], **Yuliang Guo**[†], Xinyu Huang, Liu Ren, Xiaoming Liu, CVPR 2024
6. "Enhancing Online Road Network Perception and Reasoning with Standard Definition Maps", Hengyuan Zhang, David Paz, **Yuliang Guo**, Arun Das, Xinyu Huang, Haug Karsten, Henrik Iskov Christensen, Liu Ren, IROS 2024
7. "Behind the Veil: Enhanced Indoor 3D Scene Reconstruction with Occluded Surfaces Completion", Su Sun, Cheng Zhao[†], **Yuliang Guo**[†], Ruoyu Wang, Xinyu Huang, Victor Chen, Liu Ren, CVPR 2024
8. "3D Copy-Paste: Physically-Plausible Object Insertion for Monocular 3D Detection", Yuhao Ge, Hong-Xing Yu, Cheng Zhao, **Yuliang Guo**, Xinyu Huang, Liu Ren, Laurent Itti, Jiajun Wu, NeurIPS 2023
9. "Symmetry and Uncertainty-Aware Object SLAM for 6DoF Object Pose Estimation", Nathaniel Merrill[†], **Yuliang Guo**[†], Xingxing Zuo, Xinyu Huang, Stefan Leutenegger, Xi Peng, Liu Ren, Guoquan Huang, CVPR, 2022
10. "OmniFusion: 360 Monocular Depth Estimation via Geometry-Aware Fusion", Yuyan Li, **Yuliang Guo**[†], Zhixin Yan, Xinyu Huang, Ye Duan, Liu Ren, CVPR (**Oral Presentation**) 2022
11. "PoP-Net: Pose over Parts Network for Multi-Person 3D Pose Estimation from a Depth Image", **Yuliang Guo**[†], Zhong Li, Zekun Li, Xiangyu Du, Shuxue Quan, Yi Xu, WACV 2022
12. "Gen-LaneNet: a generalized and scalable approach for 3D lane detection", **Yuliang Guo**[†], Guang Chen, Peitao Zhao, Weide Zhang, Jinghao Miao, Jingao Wang, Tae Eun Choe, ECCV 2020
13. "Robust pose tracking with a joint model of appearance and shape", **Yuliang Guo**[†], Lakshmi N. Govindarajan, Benjamin B. Kimia, Thomas Serre, arXiv, 2018
14. "Differential Geometry in Edge Detection: accurate estimation of position, orientation and curvature", Benjamin B. Kimia, Xiaoyan Li, **Yuliang Guo**[†], Amir Tamrakar, TPAMI 2018
15. "A systematic comparison between visual cues for boundary detection", David A. Mely, Junkyung Kim, Mason McGill, **Yuliang Guo**, Thomas Serre, Vision Research 2016
16. "A Multi-stage Approach to Curve Extraction", **Yuliang Guo**[†], Naman Kumar, Maruthi Narayanan, Benjamin B Kimia, ECCV 2014

ENTERPRISE SOLUTIONS

- Demonstrated Bosch's video-only parking solution to automotive clients at Bosch Experience Day 2024
- Developed AR-assisted assembly production lines at Bosch-Siemens Appliance factories in 2022
- Contributed to the Baidu Apollo autonomous driving platform, the first AD open platform in 2019

TECHNICAL SKILLS

Programming: Python, C/C++

Applications/library platform: Pytorch, Tenterflow, OpenCV