Yuliang Guo

Redwood City, CA, USA

Tel: 401-573-0093 | Email: 33yuliangguo@gmail.com | Personal Website | Google Scholar | Linkedin

RESEARCH INTERESTS

Computer Vision, 3D Vision, Physical AI — My research focuses on enabling AI systems to operate in the physical world that learn new skills through interaction with 3D environments and generalize across new cameras, embodiments, and scenarios. I pursue this through a few core pillars:

1. **Unified 3D vision** that generalizes across diverse robotic platforms and real-world conditions.
2. **Scalable neural reconstruction and generation** for end-to-end closed-loop simulation.
3. **Robotic lifelong learning** through 3D experience (ongoing and future interest).

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

WORK EXPERIENCE

Bosch Research, Sunnyvale, CA
Lead Research Scientist (Tech Lead), Managed by Liu Ren	2024-Now
Senior Research Scientist (Tech Lead),	2021-2023

- Unified 3D vision generalizing to new cameras, embodiments and environments
- Casual 3D reconstruction, scene completion and end-to-end closed-loop simulation
- 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 (*Full list available on Google Scholar / Personal Website*)

[†] Project Lead / Corresponding Author

1. **Yuliang Guo**[†], Sparsh Garg, S. Mahdi H. Miangoleh, Xinyu Huang, and Liu Ren, *Depth Any Camera: Zero-Shot Metric Depth Estimation from Any Camera*, in CVPR 2025
2. Saimouli Katragadda, Cho-Ying Wu, **Yuliang Guo**[†], Xinyu Huang, Guoquan Huang, and Liu Ren, *Online Language Splatting*, in ICCV 2025
3. Zixun Huang, Cho-Ying Wu, **Yuliang Guo**[†], Xinyu Huang, and Liu Ren, *3DGEER: Exact and Efficient Volumetric Rendering with 3D Gaussians*, in arXiv 2025 (Under Review)
4. **Yuliang Guo**[†], Abhinav Kumar, Cheng Zhao, Ruoyu Wang, Xinyu Huang, and Liu Ren, *SUP-NeRF: A Streamlined Unification of Pose Estimation and NeRF for Monocular 3D Object Reconstruction*, in ECCV 2024
5. Abhinav Kumar, **Yuliang Guo**, Xinyu Huang, Liu Ren, and Xiaoming Liu, *SeaBird: Segmentation in Bird's View with Dice Loss Improves Monocular 3D Detection of Large Objects*, in CVPR 2024
6. Su Sun, Cheng Zhao, **Yuliang Guo**[†], Ruoyu Wang, Xinyu Huang, Victor Chen, and Liu Ren, *Behind the Veil: Enhanced Indoor 3D Scene Reconstruction with Occluded Surfaces Completion*, in CVPR 2024
7. Nathaniel Merrill, **Yuliang Guo**[†], Xingxing Zuo, Xinyu Huang, Stefan Leutenegger, Xi Peng, and Liu Ren, Guoquan Huang, *Symmetry and Uncertainty-Aware Object SLAM for 6DoF Object Pose Estimation*, in CVPR, 2022
8. Yuyan Li, **Yuliang Guo**[†], Zhixin Yan, Xinyu Huang, Ye Duan, Liu Ren, *OmniFusion: 360 Monocular Depth Estimation via Geometry-Aware Fusion*, in CVPR 2022 (Oral Presentation)
9. **Yuliang Guo**[†], Guang Chen, Peitao Zhao, Weide Zhang, Jinghao Miao, Jingao Wang, and Tae Eun Choe, *Gen-LaneNet: a generalized and scalable approach for 3D lane detection*, in ECCV 2020
10. Benjamin B. Kimia, Xiaoyan Li, **Yuliang Guo**, and Amir Tamrakar, *Differential Geometry in Edge Detection: Accurate Estimation of Position, Orientation and Curvature*, in TPAMI 2018

RECENT RESEARCH HIGHLIGHTS (Since 2022)

- 2025
  - 2 papers accepted to ICCV 2025
  - Co-Chair, *Robot Mapping 2* session, ICRA 2025
  - 1 paper accepted to CVPR 2025
  - 1 paper accepted to ICRA 2025
  - 1 paper accepted to IEEE IV 2025
- 2024
  - 2 papers accepted to ECCV 2024
  - 2 papers accepted to CVPR 2024
  - 1 paper accepted to IROS 2024
- 2023
  - 1 paper accepted to NeurIPS 2023
- 2022
  - 2 papers accepted to CVPR 2022 (*1 Oral Presentation*)
  - 1 paper accepted to WACV 2022

INDUSTRIAL IMPACT

- **Bosch Video-Only Autonomous Parking Solution** demonstrated at *Bosch Experience Day 2024*
- **AR-Assisted Assembly Production Lines** deployed at Bosch-Siemens Appliance Factories, *2022*
- **Baidu Apollo Autonomous Driving Platform**, the world's first open autonomous driving platform, *2019*