KEJIE LI

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WORK EXPERIENCE

Research Scientist 2023 - Present
ByteDance/Tiktok

- As a member of the core algorithm team that developed ByteDance's foundation text-to-image model, I lead the network architecture design and also contribute to other algorithm designs, and data collection and filtering.
- I co-lead and contribute to other AIGC research projects, including text-to-3D, image-to-3D, text-to-video generation.

Postdoctoral Researcher 2021 - 2023
the University of Oxford

- I lead a research project funded by a top-tier tech company on high-resolution 3D reconstruction. My work has been at the forefront of 3D mapping and modeling, contributing to several groundbreaking projects.
- I mentor several PhD students in the lab working on large-scale neural rendering, camera relocalization, and 3D scene understanding.

External Research Collaborator 2020 - 2021
Facebook Reality Lab Research

- I collaborate with a research team in Facebook Reality Lab to advance 3D spatial understanding.
- ODAM: Object Detection, Association, and Mapping using Posed RGB Video, published at ICCV 2021 with an oral presentation (acceptance rate: 3%), was the state-of-the-art system that does object-level mapping with 3D primitives.

Research Intern 2019 - 2020
Facebook Reality Lab Research

- I develop the first object-level spatial mapping systems combining deep-learned object prior and online optimization.

EDUCATION

Doctor of Philosophy 2017 - 2021
University of Adelaide, Australia

· PhD thesis: Object-centric Mapping.
· Object-centric mapping is a task of reconstructing the 3D environment at the level of individual objects. This task is crucial for enabling advanced spatial AI systems to comprehend both the geometry and semantic information of their surroundings.

Bachelor of Advanced Computing (Honours) 2014 - 2016
the Australian National University, Australia

· First Class Honours
· Thesis: Improved CNN Regression Model for Depth Estimation from a Single Image

Bachelor of Computer Science 2012 - 2014
Shandong University, China

AWARDS AND SCHOLARSHIPS

- University of Adelaide International Wildcard Scholarship, University of Adelaide, 2017-2019
- Adelaide Graduate Research Scholarship, University of Adelaide, 2019-2020
- Australian Centre for Robotic Vision (ACRV) Top-up Scholarship, ACRV, 2018-2020
- International University Partnership Scholarship, ANU, 2014
- First Class National Scholarship, China, 2014
- First Class National Scholarship, China, 2013

SELECTED PUBLICATIONS

[Link] to Google Scholar for full publication list and citations

- Yichun Shi, Peng Wang, Jianglong Ye, Long Mai, **Kejie Li**, Xiao Yang, "MVDream: Multi-view Diffusion for 3D Generation", ICLR 2024
- Jianglong Ye, Peng Wang, **Kejie Li**, Yichun Shi, Heng Wang, "Consistent-1-to-3: Consistent Image to 3D View Synthesis via Geometry-aware Diffusion Models", 3DV 2024
- Qianyi Wu, Kaisiyuan Wang, **Kejie Li**, Jianmin Zheng, Jianfei Cai, "ObjectSDF++: Improved Object-Compositional Neural Implicit Surfaces", ICCV 2023
- Sandika Biswas, **Kejie Li**, Biplab Banerjee, Subhasis Chaudhuri, Hamid Rezatofighi, "Physically Plausible 3D Human-Scene Reconstruction From Monocular RGB Image Using an Adversarial Learning Approach", IEEE Robotics and Automation Letters, 2023
- **Kejie Li**, Jia-Wang Bian, Robert Castle, Philip HS Torr, Victor Adrian Prisacariu, "MobileBrick: Building LEGO for 3D Reconstruction on Mobile Devices", CVPR 2023
- Wenjing Bian, Zirui Wang, **Kejie Li**, Jia-Wang Bian, Victor Adrian Prisacariu, "NoPe-NeRF: Optimising Neural Radiance Field with No Pose Prior", CVPR 2023
- Qianyi Wu, Xian Liu, Yuedong Chen, **Kejie Li**, Chuanxia Zheng, Jianfei Cai, Jianmin Zheng, "Object-compositional neural implicit surfaces", ECCV 2022
- **Kejie Li**, Yansong Tang, Victor Adrian Prisacariu, Philip H.S. Torr, "BNV-Fusion: Dense 3D Reconstruction using Bi-level Neural Volume Fusion", CVPR 2022
- **Kejie Li**, Daniel DeTone, Steven Chen, Minh Vo, Ian Reid, Hamid Rezatofighi, Chris Sweeney, Julian Straub, Richard Newcombe, "ODAM: Object Detection, Association, and Mapping using Posed RGB Video", ICCV 2021 (oral)
- **Kejie Li**, Hamid Rezatofighi, Ian Reid, "MOLTR: Multiple Object Localization, Tracking and Reconstruction From Monocular RGB Videos", IEEE Robotics and Automation Letters, 2021
- **Kejie Li***, Martin Rünz*, Meng Tang, Lingni Ma, Chen Kong, Tanner Schmidt, Ian Reid, Lourdes Agapito, Julian Straub, Steven Lovegrove, Richard Newcombe, "FroDO: From Detections to 3D Objects", CVPR 2020
- **Kejie Li**, Ravi Garg, Ming Cai, Ian Reid, "Optimizable Object Reconstruction from a Single View", BMVC 2019 (oral)
- Mehdi Hosseinzadeh, **Kejie Li**, Yasir Latif, Ian Reid, "Real-time Monocular Object-model Aware Sparse SLAM", ICRA 2019
- **Kejie Li**, Trung Pham, Huangying Zhan, Ian Reid, "Efficient Dense Point Cloud Object Reconstruction using Deformation Vector Fields", ECCV 2018

- Huangying Zhan, Ravi Garg, Chamara Saroj Weerasekera, **Kejie Li**, Harsh Agarwal, Ian Reid, "Unsupervised Learning of Monocular Depth Estimation and Visual Odometry with Deep Feature Reconstruction", CVPR 2018

PROFESSIONAL SERVICES

- Conference reviewer: CVPR, ECCV, ICCV, NeurIPS, ICML, ICLR, ICRA, IROS
- Journal reviewer: RA-L, RSS

REFERENCES

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