JIEQI SHI

The Hong Kong University of Science and Technology
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EDUCATION

The Hong Kong University of Science and Technology *Feb. 2024 - Present*
Department of Electronic and Computer Engineering
Postdoc Researcher

The Hong Kong University of Science and Technology *Sep. 2019 - Feb. 2024*
Department of Electronic and Computer Engineering
P.h.D

Peking University *Sep. 2014 - Jul. 2018*
School of Electrical Engineering and Computer Science
Bachelor of Science in Computer Science

PUBLICATIONS

You Only Label Once: 3D Box Adaptation from Point Cloud to Image with Semi-Supervised Learning.
Jieqi Shi, Peiliang Li, Xiaozhi Chen, Shaojie Shen
IEEE Robotics and Automation Letter. August 2023.

Are All Point Clouds Suitable for Completion? Weakly Supervised Quality Evaluation Network for Point Cloud Completion.
Jieqi Shi, Peiliang Li, Xiaozhi Chen, Shaojie Shen
In Proc. of the IEEE International Conference on Robotics and Automation (ICRA)

Efficient Implicit Neural Reconstruction Using LiDAR
Dongyu Yan , Xiaoyang Lyu , **Jieqi Shi**, Yi Lin
In Proc. of the IEEE International Conference on Robotics and Automation (ICRA)

Temporal point cloud completion with pose disturbance
Jieqi Shi, Peiliang Li, Lingyun Xu, Xiaozhi Chen, Shaojie Shen
IEEE Robotics and Automation Letter, January 2022, with ICRA 2022

Graph guided deformation for point cloud completion
Jieqi Shi, Lingyun Xu, Liang Heng, Shaojie Shen
IEEE Robotics and Automation Letters, 6(4), pp. 7081-7088, July 2021, with IROS 2021

Tracking from patterns: learning corresponding patterns in point clouds for 3D object tracking
Jieqi Shi, Peiiang Li, Shaojie Shen
In Proc. ECCV Workshop on Perception for Autonomous Driving (PAD) 2020,

Joint spatial-temporal optimization for stereo 3D object tracking.
Peiliang Li, **Jieqi Shi**, Shaojie Shen
In Proc. CVPR 2020,

Coarse-To-Fine Visual Localization Using Semantic Compact Map.
Ziwei Liao, **Jieqi Shi**, Xianyu Qi, Xiaoyu Zhang, Wei Wang, Yijia He, Ran Wei, Xiao Liu
In Proc. 3rd International Conference on Control and Robots, ICCR 2020, Tokyo,Japan, 26 - 29 December 2020,

An Efficient Volumetric Mesh Representation for Real-time Scene Reconstruction using Spatial Hashing
Wei Dong, **Jieqi Shi**, Weijie Tang, Xin Wang, Hongbin Zha
In Proc. ICRA 2018,

Smart RF Table Enables IoT on a Desk
Yue Wu, Caihua Li, **Jieqi Shi**
Mobicom17 poster

Patent: CN108875766B

RESEARCH EXPERIENCES

Research in 3D Perception for Autonomous Driving
Dji Automotive *Jan. 2021 - present*

- **Semi-Automatic 3D Labeling Tools**
  - Use deep-learning methods to assist 3D cuboid labeling
  - Submit to Ral
- **3D Point Cloud Completion**
  - Use deep learning methods to complete 3D lidar point clouds and output object models
  - Two RAL & one ICRA publications.

Research in 3D Status Estimation
HKUST (advisor: Prof. Shaojie Shen) *Sep. 2019 - present*

- **Road-map Estimation from Crowd-Source Data**
  - Use GPS trajectory from driving agents to estimate rough road maps, including stop points, road connection, intersection, e.t.c.
- **3D Tracking in Autonomous Driving**
  - Use deep learning methods to integrate association into 3D detection process and operate 3D tracking on lidar datasets.
- **Point Cloud Completion for Autonomous Driving**
  - Use 3D completion tasks to complete sparse lidar points and assist other 3D perception tasks.
- **Traditional Slam Methods**
  - ISMAR 2019 V-SLAM Challenge, VI-SLAM Track, First Place Winner

Research in SLAM
Megvii(face++) Co. *Jul. 2018 - June 2019*

- **Deep Learning Enhanced Visual Odometry**
  - Use deep features and TensorRT to enhance VO methods and accelerate the pipeline. **Integrated in Megbot-VL.**
- **Deep Semantic SLAM**
  - Integrate semantic segmentation to enhance localization methods. Combine particle filter with visual semantic.

Research in SLAM
Carnegie Mellon University (advisor: Prof. Michael Kaess) *Jul. 2017 - Sep. 2017*

- **SLAM-based dense reconstruction**
  - In air and underwater 3D feature-based dense reconstruction with stereo cameras and one-shot structured light.

Research in 3D reconstruction and geometry
3D reconstruction lab of CS department, Peking University advisor: Prof. Hongbin Zha *Sep. 2015 - Jul.2018*

- **PSDF Fusion: On-the-fly Probabilistic Scene Reconstruction using Mixed 3D Representations**
  - Integrate probability into SDF denoting the spatial uncertainty from limited voxel resolutions and input data noise
- **An Efficient Volumetric Mesh Representation for Real-time Scene Reconstruction using Spatial Hashing**
  - Improve real time slam algorithms based on voxel hash methods.
- **3D reconstruction of Longmen in Visual Reality**
  - Reconstruct the Buddha statue in Longmen and build their 3D models.
- **Parametric Shape Detection with Curves**
  - Use linear operation to extract fibers and recover shapes.

Research in Computer Vision and Machine Learning
Megvii(face++) Co. *Summer 2016*

- **Semantic segmentation and Instance segmentation of large numbers of objects**

- Design and implement a teacher-student framework to help collect and label datasets
- 2017 MIT Place Challenge **first place**

- **Semantic segmentation of passers-by**
  - Design and implement a small and efficient models for human parsing. **Integrated in Megvideo**

WORKING EXPERIENCE

Megvii(face++) Co., Beijing
Research & Develop Engineer *Jul. 2018 - Jun. 2019*

- SLAM, semantic and instance segmentation, robotics

SELECTED AWARDS

HKUST Redbird Academic Excellence Award for Continuning Phd Students *2021/22*
ISMAR 2019 V-SLAM Challenge, VI-SLAM Track, First Place Winner *2019*
Outstanding graduates of Beijing City *2018*
Outstanding graduation project of Peking University *2018*
MIT Places Challenge, first place *2017*
Mobicom Student Research Competition, second place
Member of top-notch class of EECS Department *2017*
National Scholarship (Top 20 out of over 300 students) *2016*
National Scholarship (Top 20 out of over 300 students) *2015*
Merit Student of Peking University (Top 10%) *2015*
Meritorious Winner of MCM/ICM *2015*
2015 Mathematical Contest In Modeling of Beijing, first prize *2015*

TEACHING

Teaching Assistant of Introduction to Computer Organization and Design *Autumn, 2020*
Teaching Assistant of Introduction to Computer System *Autumn, 2016*

TECHNICAL SKILLS

Programming: C&C++, Python, Java, Matlab

MISCELLANEOUS

Leadership

- Vice Minister of International Communication Department, Students' Union

Hobbies

- Reading, Swimming, Piano