

SHIJIE LI

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EDUCATION

Bonn University *Oct 2019 - Now*
Ph.D. in Computer Science (Advisor: Prof. Juergen Gall)

Nankai University (NKU) *Sep 2016 - Jun 2019*
M.S. in Computer Science (Advisor: Prof. Ming-Ming Cheng)

University of Electronic Science and Technology of China (UESTC) *Sep 2012 - Jun 2016*
B.S. in Automation Engineering (GPA : 3.9 / 4.0)

RESEARCH EXPERIENCE

Research Assistant *Oct 2019 - Now*
Computer Vision Group (leded by Prof. Juergen Gall), Bonn University, Germany

Build the perception system in autonomous driving which can perceive and understand the current surrounding environment while anticipating future situations.

- To understand the surrounding environment, we have done the research for highly efficient visual recognition of Lidar point clouds, including 3D semantic segmentation and moving object segmentation. Our proposed models are compact (only 1M) and can run in real-time on an embedded platform (JETSON AGX), thus suitable for autonomous driving. (IEEE RA-L)
- To anticipate the future environment, we also explore new techniques for better processing the sequential data. Our research lies at the fields like action segmentation (IEEE TPAMI), action recognition (IEEE RA-L), and trajectory forecasting (ICCV).
- To alleviate the lack of training data, we work on semantic image synthesis. Our work can improve image quality by -3.6 (FID) and semantic consistency by +4.3 (mIoU), with the generation of more realistic objects.

Research Assistant *Oct 2015 - Jun 2019*
Media Computing Lab (leded by Prof. Ming-Ming Cheng), Nankai University, China
Build an accurate and efficient SLAM system.

- Design a more efficient data structure to store reconstructed 3D scenes, which is published in IROS.
- Design a point-line-based mono visual odometry that makes a good balance between accuracy and efficiency which is published in ICRA.

Research Assistant *Oct 2018 - Dec 2018*
Technische Universität München, Germany
Work on 3D scene understanding and achieve 3% improvement on mIoU compared to the previous point cloud semantic segmentation method by combining geometry and color information.

INTERNSHIP EXPERIENCE

Mobile Robot Perception Intern *Jun 2018 - Aug 2018*
Alibaba DAMO Academy, Alibaba Group, China
Design and deploy the algorithm for 2D Lidar prediction on a real mobile robot.

Autonomous Driving Localization and Mapping Intern *Jun 2017 - Feb 2018*
Uisee Technology, China
Work on the SLAM algorithm under an autonomous driving scenario and apply two patterns.

PUBLICATION

Journal

- MS-TCN++: Multi-Stage Temporal Convolutional Network for Action Segmentation
ShiJie Li, Yazan Abu Farha, Yun Liu, Ming-Ming Cheng, Juergen Gall *IEEE TPAMI*
- Rethinking 3D LiDAR Point Cloud Segmentation
ShiJie Li, Yun Liu, Juergen Gall *IEEE TNNLS*
- RefinedBox: Refining for Fewer and High-quality Object Proposals
Yun Liu, ShiJie Li, Ming-Ming Cheng *Neurocomputing*
- Multi-scale Interaction for Real-time LiDAR Data Segmentation on an Embedded Platform
ShiJie Li, Xieyuanli Chen, Yun Liu, Dengxin Dai, Cyrill Stachniss, Juergen Gall *IEEE RA-L*
- Pose Refinement Graph Convolutional Network for Skeleton-based Action Recognition
ShiJie Li, Jinhui Yi, Yazan Abu Farha, Juergen Gall *IEEE RA-L*
- Moving Object Segmentation in 3D LiDAR Data: A Learning-based Approach Exploiting ...
Xieyuanli Chen, ShiJie Li, Benedikt Mersch, Louis Wiesmann, Juergen Gall, Jens Behley, Cyrill Stachniss *IEEE RA-L*

Conference

- Spatial-Temporal Consistency Network for Low-Latency Trajectory Forecasting
ShiJie Li, Yanying Zhou, Jinhui Yi, Juergen Gall *ICCV 2021*
- MiniSeg: An Extremely Minimum Network for Efficient COVID-19 Segmentation
Yu Qiu, Yun Liu, ShiJie Li, Jing Xu *AAAI 2021*
- CubemapSLAM: A Piecewise-Pinhole Monocular Fisheye SLAM System
Yahui Wang, Shaojun Cai, ShiJie Li, Yun Liu, Yangyan Guo, Tao Li, Ming-Ming Cheng *ACCV 2018*
- Structured Skip List: A Compact Data Structure for 3D Reconstruction
ShiJie Li, Ming-Ming Cheng, Yun Liu, Shao-Ping Lu, YaHui Wang, Victor Adrian Prisacariu *IROS 2018*
- Direct line guidance odometry
ShiJie Li, Bo Ren, Yun Liu, Ming-Ming Cheng, Duncan Frost, Victor Adrian Prisacariu *ICRA 2018*
- DEL: Deep Embedding Learning for Efficient Image Segmentation
Yun Liu, Peng-Tao Jiang, Vahan Petrosyan, ShiJie Li, Jiawang Bian, Le Zhang, Ming-Ming Cheng *IJCAI 2018*

Preprint

- Dual Pyramid Generative Adversarial Networks for Semantic Image Synthesis
Shijie Li, Juergen Gall *2022*
- Semantic RGB-D Image Synthesis
Shijie Li, Juergen Gall *2022*
- A Simple and Efficient Semantic Image Synthesis baseline with Transformer
Shijie Li, Juergen Gall *2022*

AWARD

Fortis Enterprise Scholarship (UESTC, 2013), National Inspirational Scholarship (UESTC, 2014), First Class Scholarship (UESTC, 2015), Outstanding graduates (UESTC, 2016), First class award (NKU, 2018)

SKILLS

Research Interests: 3D Scene Understanding, Sequential Data Analysis, Image Synthesis
Programming: Python (Pytorch, Numpy, Matplotlib, Scikit-learn), C/C++, Latex and others

SERVICE

Reviewer: IEEE TPAMI, IEEE TNNLS, IEEE TMM, IEEE RA-L, PR, ICRA, IROS, BMVC