Fan Lu

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Education

Tongji University, Shanghai, China *September 2020 – Present*

Ph.D. student of Automotive Engineering
Supervisor: Prof. Guang Chen
Research Interests: 3D computer vision, deep learning, SLAM, autonomous driving, especially deep learning-based methods for large scale LiDAR point cloud processing.

Tongji University, Shanghai, China *September 2015 – July 2020*

Bachelor of Automotive Engineering

Publications

RSKDD-Net: Random Sample-based Keypoint Detector and Descriptor
Fan Lu, Guang Chen, Yinlong Liu, Zhongnan Qu, Alois Knoll
Advances in Neural Information Processing Systems (**NeurIPS**), 2020
We propose a random sample-based keypoint detector and descriptor for registration of large scale LiDAR point clouds. With some novel strategies, the proposed method can achieve state-of-the-art performance with 15× faster speed than existing learning-based methods.

PointINet: Point Cloud Frame Interpolation Network
Fan Lu, Guang Chen, Sanqing Qu, Zhijun Li, Yinlong Liu, Alois Knoll
AAAI Conference on Artificial Intelligence (**AAAI**), 2021
We study a novel task named *Point Cloud Frame Interpolation*, which aims to predict intermediate point clouds between two consecutive point cloud frames. The proposed method can upsample low frame rate point cloud streams to higher frame rates.

MoNet: Motion-based Point Cloud Prediction Network
Fan Lu, Guang Chen, Yinlong Liu, Zhijun Li, Sanqing Qu, Tianpei Zou
Arxiv preprint, 2020
We propose a novel learning-based framework for future LiDAR point clouds prediction, which combines content features and motion features to improve the accuracy and also quality of the predicted point clouds.

Honors and Awards

- Shanghai Outstanding Graduate, 2020
- Second Prize of National Post-Graduate Mathematical Contest in Modeling, 2020
- First Class Scholarship of Tongji University, 2018-2019
- First Prize of "Challenge Cup" in Shanghai, 2019
- Second Prize of Formula Student Electric China, 2018