Leisheng Zhong

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Education

Tsinghua University, Beijing, China   **GPA: 90.0/100**
Ph.D. Candidate   *2015 – Present*
Institute of Information Cognition & Intelligent System, Department of Electronic Engineering

Tsinghua University, Beijing, China   **GPA: 90.5/100**
B.Eng.   *2009 – 2013*
Department of Electronic Engineering

Research Interests and Skills

Research Interests: 3D Computer Vision, Multiview Geometry, Robotic Vision, Computer Graphics, Machine Learning.
Research Experiences: Pose Estimation, AR/VR, Rendering, Visual/Lidar/RGB-D SLAM, 3D Reconstruction, CNN, GAN.
Languages and Tools: C++ (with CUDA), Python, Matlab, OpenCV, OpenGL, PCL, Tensorflow, Pytorch.

Publications

o **Leisheng Zhong**, Li Zhang. A Robust Monocular 3D Object Tracking Method Combining Statistical and Photometric Constraints. *International Journal of Computer Vision (IJCV)*, vol.127, no.8, pp.973-992, 2019.

o **Leisheng Zhong**, Ming Lu, Li Zhang. A Direct 3D Object Tracking Method Based on Dynamic Textured Model Rendering and Extended Dense Feature Fields. *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, vol.28, no.9, pp.2302-2315, 2018.

o **Leisheng Zhong**, Xiaolin Zhao, Yu Zhang, Shunli Zhang, Li Zhang. Occlusion-aware Region-based 3D Object Tracking with Temporally Consistent Polar-based Local Partitioning. *IEEE Transactions on Image Processing (TIP)*, 2019. (Under Review)

Work Experience

o **Internship at Tencent Autonomous Driving Center, Summer 2019.**
- Help to develop a dynamic object removal method in point cloud data based on probabilistic mapping.
- Work on large scale voxel mapping, submap generation, robust submap matching for loop detection and pose refinement.
- Learn a lot about different aspects of the whole autonomous driving pipeline.

Projects

Demo videos of these projects could be found in my homepage: ⚲ `https://zx007zls.github.io`

3D Object Tracking for Augmented Reality   *2017–2019*
- Real-time Augmented Reality (AR) demo based on our research about 3D object tracking.
- Fast and accurate 3D tracking of different kinds of objects, contributing to realistic AR renderings.
- Robust to surface texture, background cluttering, illumination changes, partial occlusion and fast motions.

A Stereo-Lidar SLAM System   *2016–2017*
- Build a Simultaneously Localization and Mapping (SLAM) system based on a line-scan Lidar and a stereo camera pair.
- Independently build both hardware (sensors, servo, controller, etc.) and software (loosely coupled visual-lidar SLAM).
- Realize 3D reconstruction of both indoor and outdoor environment with high precision.

Honors and Awards

First-Class Academic Scholarship in Tsinghua University, 2018

National Scholarship for Doctoral Students, 2017

Outstanding Graduates of Beijing, 2013

National Scholarship for Undergraduate Students, 2012

Tsinghua-Samsung Scholarship, 2011