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Yi Wei

Department of Automation, Tsinghua University

Tel: (+86) 18513216395, Email: y-wei19@mails.tsinghua.edu.cn, Website: <https://weiyithu.github.io/>

RESEARCH INTEREST

My research interests include computer vision, robotics and computer graphics. In particular, I am interested in 3D scene understanding and 3D reconstruction. I love the research topic which has practical application, such as AR/VR and autonomous driving. I would like to leverage 3D vision techniques to benefit our lives.

EDUCATION

Tsinghua University, Department of Automation Sep 2019 – Present

PhD student in Automation, supervised by Prof. Jiwen Lu

Tsinghua University, Department of Electronic Engineering Aug 2015 – Jun 2019

Bachelor student in Electronic Engineering, GPA: 3.66/4.0 (rank: 6/245)

Beijing No.5 High School Sep 2009 – Jul 2015

EXPERIENCE

Gaussian Robotics– Beijing, China

Gaussian-Tsinghua joint laboratory

- LiDAR-camera joint calibration, drivable space detection, low-beam LiDAR-based 3D object detection.

Xpeng Inc – Beijing, China

LiDAR Group

- LiDAR-based 3D object detection heavy model, LiDAR-based model quantization

ByteDance – Beijing, China

SLAM & 3D Vision Group

- Research topic: self-supervised depth estimation, plane-assisted multi-view stereo, multiple plane detection.
- Engineer topic: Shape AR, rectangle tracking.

Microsoft Research Asia - Beijing, China

Intelligent Multimedia Group.

- Research topic: multi-view hand pose estimation.

Sensetime – Beijing, China

Group "Video Intelligence" (camera department).

- Leveraged quantization and mimic to compress tiny model for object detection (ECCV 2018).
- Developed an framework iterated between quantization and channel pruning for model compression (already been applied to market products).

DeePhi Tech (Xilinx)– Beijing, China

- Major developer of a real-time detector using Squeezenet and R-FCN (already been applied to company demo).

PUBLICATIONS

Aug 15, 2022

- **Yi Wei**, Zibu Wei, Yongming Rao, Jiaxin Li, Jiwen Lu, and Jie Zhou, "LiDAR Distillation: Bridging the Beam-Induced Domain Gap for 3D Object Detection". ECCV 2022.
- Zhenyu Wu, Ziwei Wang, Zibu Wei, **Yi Wei**, Haibin Yan, "Smart Explorer: Recognizing Objects in Dense Clutter via Interactive Exploration". IROS 2022.
- **Yi Wei**, Shaohui Liu, Yongming Rao, Wang Zhao, Jiwen Lu, and Jie Zhou, "NerfingMVS: Guided Optimization of Neural Radiance Fields for Indoor Multi-view Stereo". ICCV 2021 (Oral).
- Yongming Rao*, Benlin Liu*, **Yi Wei**, Jiwen Lu, Cho-Jui Hsieh, and Jie Zhou, "RandomRooms: Unsupervised Pre-training from Synthetic Shapes and Randomized Layouts for 3D Object Detection". ICCV 2021.
- Wang Zhao*, Shaohui Liu*, **Yi Wei**, Hengkai Guo, and Yong-jin Liu, "A Confidence-based Iterative Solver of Depths and Surface Normals for Deep Multi-view Stereo". ICCV 2021.
- **Yi Wei***, Ziyi Wang*, Yongming Rao *, Jiwen Lu and Jie Zhou, "PV-RAFT: Point-Voxel Correlation Fields for Scene Flow Estimation of Point Clouds". CVPR 2021.
- **Yi Wei**, Shang Su, Jiwen Lu and Jie Zhou, "FGR: Frustum-Aware Geometric Reasoning for Weakly Supervised 3D Vehicle Detection". ICRA 2021.
- **Yi Wei**, Hengkai Guo, Jiwen Lu and Jie Zhou, "Iterative Feature Matching for Self-Supervised Indoor Depth Estimation". TCSVT 2021.
- **Yi Wei***, Shaohui Liu*, Wang Zhao*, Jiwen Lu and Jie Zhou, "Conditional Single-view Shape Generation for Multi-view Stereo Reconstruction". CVPR 2019.
- **Yi Wei**, Xinyu Pan , Hongwei Qin and Junjie Yan, "Quantization mimic: Towards very tiny cnn for object detection". ECCV 2018.
- **Yi Wei**, Guijin Wang , Cairong Zhang , Hengkai Guo , Xinghao Chen , Huazhong Yang, "Two-stream binocular network: Accurate near field finger detection based on binocular images". VCIP 2017 **Best Student Paper**.

AWARDS

- 2021 National Scholarship, Tsinghua University
- 2019 Beijing Outstanding Graduate
- 2018 Caixiong Scholarship (Tsinghua Research Excellence Scholarship) – 10 people in Tsinghua University
- 2018 Baogang Outstanding Scholarship – 1 person in Tsinghua University
- 2017 Qualcomm Scholarship – 30 people in Tsinghua University
- 2017 SenseTime Undergraduate Scholarship – 30 people in China
- 2017 National Scholarship, Tsinghua University
- VCIP 2017 Best Student Paper Award

TECHNICAL SKILLS

Programming: C/C++, Python, MATLAB, SQL, Verilog, L^AT_EX, Linux/Unix

Language: Mandarin, English