Sep 2, 2021

Yi Wei

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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

ByteDance – Beijing, China   2019
[Intern] Group "SLAM & 3D Vision", Advised by Hengkai Guo.
· 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   2018
[Research Intern] Intelligent Multimedia Group. Advised by Dr. Chunyu Wang.
· Research topic: multi-view hand pose estimation.

Tsinghua University – Beijing, China   2018
Intelligent Vision Group (IVG). Advised by Prof. Jiwen Lu.
· Conditional single-view shape modeling for multi-view reconstruction (CVPR 2019).
· Developed an improved evaluation framework to partially address the problem of FID.

Sensetime – Beijing, China   2017
[Research Intern] Group "Video Intelligence" (camera department). Advised by Dr. Hongwei Qin.
· 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).

Tsinghua University – Beijing, China   2017
Visual Computing Lab. Advised by Prof. Guijin Wang.
· Designed the Two-Stream Binocular Network (TSBnet) to detect fingertips from binocular images and created a binocular dataset (VCIP 2017).

DeePhi Tech (Xilinx)– Beijing, China   2016
[Engineer Intern] Advised by Hong Luo.
· Major developer of a real-time detector using Squeezenet and R-FCN (already been applied to company demo).

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PUBLICATIONS

·**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*,** 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

· 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, LᴬTᴇX, Linux/Unix
Language: Mandarin, English