Yiming Xie

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Education

Zhejiang University, Hangzhou, China *Sep. 2015 - June. 2019*
- *Bachelor of Opto-Electronics Information Science and Engineering* *Jr./Sr. GPA:3.57/4.0*
- **Related Courseworks:** Advanced Data Structures & Algorithm Analysis, Object-Oriented Programming, Linux Application, Computer Networks

Research Interests

- 3D computer vision and machine learning with a focus on scene understanding and reconstruction.

Publications

- **Yiming Xie***, Jiaming Sun*, Siyu Zhang, Hujun Bao, and Xiaowei Zhou. You don't only look once: Constructing visuospatial working memory for integrated 3d object detection and tracking. In submission
- Jiaming Sun*, Linghao Chen*, **Yiming Xie**, Siyu Zhang, Qinhong Jiang, Xiaowei Zhou, and Hujun Bao. Disp r-cnn: Stereo 3d object detection via shape prior guided instance disparity estimation. In *CVPR*, June 2020

Note: * above denotes equal contribution

Research Experience

ZJU-SenseTime Joint Lab of 3D Vision Zhejiang University, Hangzhou

Supervisor: *Dr. Xiaowei Zhou, Jiaming Sun*

Real-Time 3D Scene Reconstruction from Monocular Images *Feb. 2020 - Present*
- Design a real-time, high accuracy and memory-efficient method for RGB scene reconstruction.
- Proposed a view-independent part volume and incremental deep fusion pipeline to avoid redundant computations and decrease memory consuming.
- Directly regress TSDF rather than an intermediate representation of depth maps.

3D Object Detection and Tracking via Constructing Visuospatial Working Memory *Feb. 2019 - Nov. 2019*
- Designed a novel framework for integrated 3D detection and tracking.
- Proposed an early integration scheme based on a new representation to speed up object detection.
- Proposed a novel way to fuse predictions from previous frames with estimations at the current frame.
- Achieved better detection performance and truncation or occlusion handling.

Shape Prior Guided Instance Disparity Estimation for Stereo 3D Object Detection *June. 2019 - Nov. 2019*
- Proposed a novel framework to estimate object instance disparity in 3D object detection with stereo images.
- Proposed a pseudo-ground-truth generation process to supervise the instance disparity estimation network.
- Guided the disparity estimation to learn object shape prior that is suitable for object detection.
- Outperformed state-of-the-art baselines on both accuracy and runtime speed.

State Key Laboratory of CAD&CG Zhejiang University, Hangzhou

Supervisor: *Dr. Xiaowei Zhou*

Deep Scene Flow Estimation with Iterative Soft-argmin and Edge-aware Regression *July. 2018 - Jan. 2019*
- Explored methods of improving the performance of scene flow estimation based on PWCNet.
- Proposed an iterative soft argmin to cope with the multi-modal distributions of cost volume.
- Proposed an edge-aware policy to improve the over-smoothing problem and utilized contrastive loss to learn a more discrimitive descriptor.
- Conducted experiments to show that our proposed metholds leads to improvement in terms of both optical flow and disparity estimation.

National Engineering Research Center of Optical Instrumentation Zhejiang University, Hangzhou

Supervisor: *Prof. Bin Lin*

Robust Stereo Face Recognition Using Convolutional Neural Networks *Nov. 2017 - May. 2018*
- Proposed a simple CNN-based face recognition approach that incorporates disparity information.
- Proposed to utilize RGB-D fusion at different levels and adaboost to conbine RGB-D information.
- Conducted experiments to show that our model improves the robustness and the performance compared to RGB input.

Professional Experience

Research Intern | SenseTime, Hangzhou, China *Nov. 2018 - Present*

Supervisor: *Jiaming Sun*
- scene reconstruction, 3D detection and tracking

Skills

Programming Languages: C, C++, Python, LaTex
Technical: Pytorch, Git, Linux, Blender, Final cut pro