

Chaoyang Wang

MSR student of CMU Robotics Institute

Interested in computer vision & machine learning.

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Education

- **Carnegie Mellon University** M.S. in robotics
Supervised by Prof. Simon Lucey 2016 - 2018
- **Shanghai Jiao Tong University** M.S. & B.E. in CS
Member of ACM Teaching Reform Class(top 28 students selected) 2009 - 2016

Publications

1. "Learning Depth from Monocular Videos using Direct Methods", **submitted to CVPR 2018**,
Chaoyang Wang, Jose Miguel Buenaposada, Rui Zhu, Simon Lucey.
2. "Semantic Photometric Bundle Adjustment on Natural Sequences", **submitted to CVPR 2018**,
Rui Zhu, Chaoyang Wang, Ziyang Wang, Simon Lucey.
3. "Deep-LK for Efficient Adaptive Object Tracking", **ICRA 2018**,
Chaoyang Wang, Hamed Kiani, Chen-Hsuan Lin, Simon Lucey.
4. "Object-Centric Photometric Bundle Adjustment with Deep Shape Prior", **WACV 2018**,
Rui Zhu, Chaoyang Wang, Chen-Hsuan Lin, Simon Lucey.
5. "Rethinking Reprojection: Closing the Loop for Pose-aware Shape Reconstruction from a Single Image", **ICCV(spotlight) 2017**,
Rui Zhu, Hamed Kiani, Chaoyang Wang, Simon Lucey.
6. "Object Proposal by Multi-branched Hierarchical Segmentation", **CVPR 2015**,
Chaoyang Wang, Long Zhao, Shuang Liang, Liqing Zhang, Jinyuan Jia, Yichen Wei,
7. "Binocular Photometric Stereo Acquisition and Reconstruction for 3D Talking Head Applications",
INTERSPEECH 2013,
Chaoyang Wang, Lijuan Wang, Yasuyuki Matsushita, Bojun Huang, Magnetron Chen, Frank K. Soong.

Research Experience

- **Carnegie Mellon University, CI2CV Lab** 09/2016 - present
Advisor: Prof. Simon Lucey, collaborate with Prof. Hongdong Li
 - Incorporated direct visual SLAM techniques for the purpose of unsupervised learning a monocular depth estimator from ego-centric videos. Achieved comparable accuracy compared to state of the arts trained with supervision.
 - Proposed a Deep-LK object tracker, which achieves comparable accuracy compared to state of the arts, while running at 100fps on GPU, and over 20fps on CPU.
 - Trained a 3D object reconstruction network with supervision from both synthetic data and objects' silhouette in real-life photos. This work was the first of its kind able to predict 3D voxel representation of an object together with its pose.
- **Microsoft Research Asia, Visual Computing Group** 07/2014-05/2015
Advisor: Dr. Yichen Wei

- Proposed a multi-branch hierarchical region proposal algorithm to speed up and improve object detection.
- Developed a cost-sensitive learning algorithm to optimize the face detection and facial landmark regression pipeline, sped up by more than 40% with minor accuracy reduction.

• **Brain-like Computing&Machine Intelligence Lab**

09/2013-05/2014

Advisor: Prof. Liqing Zhang

- Learning discriminative object part detectors from multi-layer CNN features.
- Line-of-interest pedestrian counting in surveillance video.

• **Microsoft Research Asia, Speech Group**

07/2012 - 03/2013

Advisor: Prof. Frank K. Soong, Prof. Yasuyuki Matsushita, Dr. Lijuan Wang

- Worked on photo-realistic text-to-speech talking head synthesis.
- Built a binocular photometric stereo system for facial performance data acquisition. The system is able to reconstruct accurate 3D human face with fine surface details such as wrinkles.

Recent Awards, Grants & Honours

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|---|-------------------|
| National Scholarship (top 2%) | 2015 |
| Microsoft Research Asia Excellent Internship Award | 2015 |
| First-class Academic Scholarship, Shanghai Jiao Tong Univ(top 10%). | 2013, 2014 & 2015 |
| Microsoft Research Asia Young Fellowship(3 students each school) | 2012 |
| Second Prize in Physics Contest for Shanghai College Students | 2010 |

Professional Activities

- Reviewer for ICRA 2018 and 3DV 2017.
- Teaching assistant for “CS377: Project Workshop of Database System”, 2013.
- Student volunteer for IEEE FG 2013.

Programming Skills

- C, C++, Matlab, Java, Python, Lua

English Test Scores

- TOFEL: 106 (S:22, W:28, L:29, R:27)
- GRE: 323 (V:153, Q:170), AW:3.5