Xiaoyang Guo

The Chinese University of Hong Kong
(+852) 97949699 • xyguo@link.cuhk.edu.hk • xy-guo.github.io

EDUCATION

The Chinese University of Hong Kong, Hong Kong SAR

- Ph.D. Student in Electronic Engineering — Aug 2017 – Present
  - Supervised by Prof. Xiaogang Wang & Prof. Hongsheng Li
  - Focus on deep learning and computer vision
  - Awardee of Hong Kong PhD Fellowship Scheme (HKPFS)

Tsinghua University, Beijing, China

- B.Eng. in Computer Science and Technology — Aug 2013 – Jul 2017
  - GPA: 92 / 100, Rank: 5 / 107

RESEARCH INTERESTS

- 3D Vision: 3D Geometry, Multi-view Geometry, Depth Estimation, SLAM
- Low-level Computer Vision: Optical Flow, Stereo Matching

ACADEMIC EXPERIENCE

National Tsing Hua University, Hsinchu, Taiwan

- Parallel Computing Summer School — Jul 2015
  - Taught by Prof. Yeh-Ching Chung. Focus on MPI and CUDA

Carnegie Mellon University, Pittsburgh, USA

- Summer Research Intern — Jul 2016 – Aug 2016
  - Supervised by Prof. Abhinav Gupta
  - Utilize human pose trajectories to improve video action recognition accuracy.

SenseTime Group Limited, Beijing, China

- Research Intern — Oct 2016 – Mar 2017
  - Supervised by Yi Sun and Junjie Yan
  - Design neural network structures to improve face recognition algorithms.

The University of Western Australia, Perth, Australia

- Undergraduate Research on Parallel Computing — Apr 2017 – Jun 2017
  - Supervised by Prof. Zhihui Du (Tsinghua) and Prof. Linqing Wen (UWA)
  - Optimize and reduce the latency of gravitational wave data analysis programs using CUDA.

SenseTime Group Limited, Beijing, China

- Research Intern — May 2018 – Sep 2018
  - Improve the accuracy and the generalization ability of face anti-spoofing algorithms.
  - Build up multi-spectral face anti-spoofing systems.

AWARDS & SCHOLARSHIPS

- Scholarship for Academic Excellence - Beijing, China — 2014
- National Scholarship - Beijing, China — 2015
- Apac Tsinghua Ceo Cci Bhd Scholarship - Beijing, China — 2016
- Hong Kong PhD Fellowship - Hong Kong SAR — 2017

PUBLICATIONS

[1] **Xiaoyang Guo**, Kai Yang, Wukui Yang, Hongsheng Li, and Xiaogang Wang. Group-wise correlation stereo network. In *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019

- We propose a new operation called group-wise correlation to construct cost volumes for stereo matching, which provides better and more efficient similarity measures. The proposed method achieves better performance than state-of-the-art methods on KITTI.

[2] Mingyang Liang*, **Xiaoyang Guo***, Hongsheng Li, Xiaogang Wang, and You Song. Unsupervised cross-spectral stereo matching by learning to synthesize. In *33rd AAAI Conference on Artificial Intelligence (AAAI)*, 2019 **(Oral)**

▪ We propose a novel unsupervised cross-spectral stereo matching framework. Appearance variations between multi-spectral images are minimized by a style adaptation network with cycle consistency and adversarial learning, which is end-to-end optimized with an unsupervised stereo matching network.

[3] **Xiaoyang Guo**, Hongsheng Li, Shuai Yi, Jimmy Ren, and Xiaogang Wang. Learning monocular depth by distilling cross-domain stereo networks. In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2018

▪ A stereo matching network is utilized as a proxy to learn depth from large-scale synthetic data, which is then used to supervise monocular depth estimation networks. Experiments show state-of-the-art results of monocular depth estimation.

[4] Hongyang Li, **Xiaoyang Guo**, Bo Dai, Wanli Ouyang, and Xiaogang Wang. Neural network encapsulation. In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2018

▪ We approximate the routing process in Capsule networks with a two-branch design. The complexity and runtime of the model are decreased by a large margin.

OTHER PROJECTS

THCO MIPS CPU in VHDL 2016

▪ This is the final group project for the course *Principles of Computer Organization*. A simplified pipelined MIPS processor is implemented with VHDL.

SKILLS

▪ Computer Languages: C, C++, CUDA, Python, HTML, JavaScript

▪ Softwares & Platforms: Proficient in Linux, PyTorch