

XIAOWEI HU

Email: xw.hu@cse.cuhk.edu.hk ◊ Homepage: <https://xw-hu.github.io/>

Address: Rm 1024, SHB, The Chinese University of Hong Kong, Shatin, Hong Kong.

EDUCATION

The Chinese University of Hong Kong (CUHK)

Ph.D. in Computer Science and Engineering

Advisor: Prof. Pheng-Ann Heng & Prof. Chi-Wing Fu

08/2016 - Present

Expected graduation date: 07/2020

South China University of Technology (SCUT)

B.Eng. in Computer Science and Technology

GPA: 3.95/4.0 (**rank 1st** in All-English-Teaching Union Class)

★ Selected by SCUT for a special class for the most promising students

09/2012 - 07/2016

RESEARCH INTERESTS

Computer vision, image processing, low-level vision, and deep learning.

HONORS AND AWARDS

Hong Kong Ph.D. Fellowship (the **highest** scholarship for students studying in Hong Kong)

2016 - 2020

Outstanding Reviewer of ICCV 2019

2019

Excellent Teaching Assistant at CSE Department, CUHK

2018

Top 10 Outstanding Students at SCUT (**rank 1st**, the **highest** award for students at SCUT)

2016

Google Excellence Scholarship (one of 58 winners in **China**)

2015

Tencent Outstanding Scholarship (the **only** undergraduate winner at SCUT)

2015

National Scholarship (the **highest** national wide scholarship for undergraduate students in China)

2013

Gold Award of Pan-Pearl-River-Delta University IT Project Competition in China

2016

First Prize and Best Practical Award of University IT Project Competition in Guangdong Province

2016

First Prize of Adolescents Science & Technology Innovation Contest in Hebei Province

2011

PUBLICATION HIGHLIGHTS

Summary: CCF A (9), TPAMI/CVPR/ICCV/ECCV (6)

Journal Papers

[J1] *Direction-Aware Spatial Context Features for Shadow Detection and Removal*

Xiaowei Hu, Chi-Wing Fu, Lei Zhu, Jing Qin, and Pheng-Ann Heng

IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, IF: 17.730, CCF A), 2019

[J2] *Saliency-Aware Texture Smoothing*

Lei Zhu*, **Xiaowei Hu***, Chi-Wing Fu, Jing Qin, and Pheng-Ann Heng (*joint 1st authors)

IEEE Transactions on Visualization and Computer Graphics (**TVCG**, IF: 3.780, CCF A), 2019

[J3] *SINet: A Scale-Insensitive Convolutional Neural Network for Fast Vehicle Detection*

Xiaowei Hu, Xuemiao Xu, Yongjie Xiao, Hao Chen, Shengfeng He, Jing Qin, and Pheng-Ann Heng

IEEE Transactions on Intelligent Transportation Systems (**TITS**, IF: 5.744, CCF B), 2019

[J4] *Deep Attentive Features for Prostate Segmentation in 3D Transrectal Ultrasound*

Yi Wang, Haoran Dou, **Xiaowei Hu**, Lei Zhu, Xin Yang, Ming Xu, et al.

IEEE Transactions on Medical Imaging (**TMI**, IF: 7.816, CCF B), 2019

[J5] *Aggregating Attentional Dilated Features for Salient Object Detection*

Lei Zhu, Jiaying Chen, **Xiaowei Hu**, Chi-Wing Fu, Xuemiao Xu, Jing Qin, and Pheng-Ann Heng

IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**, IF: 4.046, CCF B), 2019

[J6] *Enhancing Augmented VR Interaction via Egocentric Scene Analysis*

Yang Tian, Chi-Wing Fu, Shengdong Zhao, Ruihui Li, Xiao Tang, **Xiaowei Hu**, and Pheng-Ann Heng

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**Ubicomp**, CCF A), 2019

Conference Papers

- [C1] *Mask-ShadowGAN: Learning to Remove Shadows from Unpaired Data*
Xiaowei Hu, Yitong Jiang, Chi-Wing Fu, and Pheng-Ann Heng
IEEE International Conference on Computer Vision (**ICCV**, CCF A), 2019
- [C2] *Deep Multi-Model Fusion for Single-Image Dehazing*
Zijun Deng, Lei Zhu, **Xiaowei Hu**, Chi-Wing Fu, Xuemiao Xu, Qing Zhang, Jing Qin, and Pheng-Ann Heng
IEEE International Conference on Computer Vision (**ICCV**, CCF A), 2019
- [C3] *Depth-Attentional Features for Single-Image Rain Removal*
Xiaowei Hu, Chi-Wing Fu, Lei Zhu, and Pheng-Ann Heng
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**, CCF A), 2019
- [C4] *Probabilistic Multilayer Regularization Network for Unsupervised 3D Brain Image Registration*
Lihao Liu, **Xiaowei Hu**, Lei Zhu, and Pheng-Ann Heng
International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2019
- [C5] *Direction-Aware Spatial Context Features for Shadow Detection*
Xiaowei Hu, Lei Zhu, Chi-Wing Fu, Jing Qin, and Pheng-Ann Heng
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**, CCF A), 2018 (**Oral**, acceptance rate: **2.1%**)
- [C6] *Recurrently Aggregating Deep Features for Salient Object Detection*
Xiaowei Hu, Lei Zhu, Jing Qin, Chi-Wing Fu, and Pheng-Ann Heng
AAAI Conference on Artificial Intelligence (**AAAI**, CCF A), 2018 (**Spotlight**)
- [C7] *R³Net: Recurrent Residual Refinement Network for Saliency Detection*
Zijun Deng*, **Xiaowei Hu***, Lei Zhu, Xuemiao Xu, Jing Qin, Guoqiang Han, and Pheng-Ann Heng (*joint 1st authors)
International Joint Conference on Artificial Intelligence (**IJCAI**, CCF A), 2018 (**Oral**)
- [C8] *Bidirectional Feature Pyramid Network with Recurrent Attention Residual Modules for Shadow Detection*
Lei Zhu, Zijun Deng, **Xiaowei Hu**, Chi-Wing Fu, Xuemiao Xu, Jing Qin, and Pheng-Ann Heng
European Conference on Computer Vision (**ECCV**, CCF B), 2018
- [C9] *Deep Attentional Features for Prostate Segmentation in Ultrasound*
Yi Wang, Zijun Deng, **Xiaowei Hu**, Lei Zhu, Xin Yang, Xuemiao Xu, Pheng-Ann Heng, and Dong Ni
International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2018

Papers Under Review

- [U1] *Single-Image Real-Time Rain Removal Based on Depth-Guided Non-Local Features*
Xiaowei Hu, Lei Zhu, Tianyu Wang, Chi-Wing Fu, and Pheng-Ann Heng
IEEE Transactions on Image Processing (**TIP**, IF: 6.790)
- [U2] *SAC-Net: Spatial Attenuation Context for Salient Object Detection*
Xiaowei Hu, Chi-Wing Fu, Lei Zhu, and Pheng-Ann Heng
IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**, IF: 11.683)
- [U3] *Ψ -Net: Stacking Densely Convolutional LSTMs for Sub-cortical Brain Structure Segmentation*
Lihao Liu*, **Xiaowei Hu***, Lei Zhu, Chi-Wing Fu, Jing Qin, and Pheng-Ann Heng (*joint 1st authors)
IEEE Transactions on Medical Imaging (**TMI**, IF: 7.816)
- [U4] *CANet: Cross-disease Attention Network for Joint Diabetic Retinopathy and Diabetic Macular Edema Grading*
Xiaomeng Li, **Xiaowei Hu**, Lequan Yu, Lei Zhu, Chi-Wing Fu, and Pheng-Ann Heng
IEEE Transactions on Medical Imaging (**TMI**, IF: 7.816)
- [U5] *GrabAR: Occlusion-aware Grabbing Virtual Objects in AR*
Xiao Tang, **Xiaowei Hu**, Chi-Wing Fu, and Daniel Cohen-Or
Eurographics, 2020
- [U6] *R³Net: Recurrent Residual Refinement Network for Saliency Detection*
Zijun Deng, Lei Zhu, **Xiaowei Hu**, Xuemiao Xu, Jing Qin, Guoqiang Han, and Pheng-Ann Heng
IEEE Transactions on Multimedia (**TMM**, IF: 5.452)

- [U7] *SALMNet: A Structure-Aware Lane Marking Detection Network*
 Xuemiao Xu, Tianfei Yu, **Xiaowei Hu**, Wing W. Y. Ng, Pheng-Ann Heng
 IEEE Transactions on Intelligent Transportation Systems (**TITS**, IF: 5.744)
- [U8] *Dually Guided Non-Local Network for Breast Lesion Segmentation in Ultrasound*
 Cheng Xue, Lei Zhu, Yunzhu Wu, **Xiaowei Hu**, Xiaomeng Li, Hai Zhang, and Pheng-Ann Heng
 IEEE Transactions on Medical Imaging (**TMI**, IF: 7.816)

WORK EXPERIENCE

- Research Intern, The Chinese University of Hong Kong** 06/2015 - 08/2015
 Advisor: Prof. Pheng-Ann Heng
 Worked on the deep learning techniques for vehicle detection
- Research Intern, Hong Kong Baptist University** 08/2014
 ★ Selected by the outstanding undergraduate research opportunity program
 Advisor: Prof. Yiu-Wing Leung & Doc. Hai Liu
 Worked on the fault-tolerant algorithms for cognitive radio networks
- Undergraduate Research Assistant, South China University of Technology** 01/2013 - 07/2016
 Advisor: Prof. Xuemiao Xu
 Led a team and worked on the intelligent transportation system (authorized three Chinese invention patents)

PROFESSIONAL ACTIVITIES

Invited Talks

- ◇ Hong Kong Computer Vision Workshop on “Mask-ShadowGAN: Learning to Remove Shadows from Unpaired Data” October 2019
- ◇ AI Massive Open Online Course on “Direction-aware Spatial Context Features for Shadow Detection” July 2018

Conference Services

- ◇ Programme Committee: AAAI 2020
- ◇ Reviewer: CVPR 2020, ICCV 2019 (Outstanding Reviewer), CVPR 2019, MICCAI 2019

Journal Reviews

- ◇ IEEE TCSVT, Neurocomputing, The Visual Computer, IEEE Access

Teaching Assistant at CUHK

- ◇ Advanced Topics in Computer Graphics and Visualization (Excellent Teaching Assistant) Spring 2018
- ◇ Digital Logic and Systems Fall 2016-2018
- ◇ Linear Algebra and Vector Calculus for Engineers Spring 2017