

# XIAOWEI HU

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## 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 1<sup>st</sup>** 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, deep learning, low-level vision, and saliency computation.

## HONORS AND AWARDS

Hong Kong Ph.D. Fellowship (the <b>highest</b> scholarship for students studying in Hong Kong)	2016 - 2020
Certificate of Merit for Excellent Teaching Assistant awarded by CSE Department, CUHK	2018
Top 10 Outstanding Students at SCUT ( <b>rank 1<sup>st</sup></b> , the <b>highest</b> award for students at SCUT)	2016
Google Excellence Scholarship (one of 58 winners in <b>China</b> )	2015
Tencent Outstanding Scholarship (the <b>only</b> undergraduate winner at SCUT)	2015
National Scholarship (the <b>highest</b> 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

- [1] *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**), 2019
- [2] *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**), 2019
- [3] *Saliency-aware Texture Smoothing*  
Lei Zhu\*, **Xiaowei Hu**\*, Chi-Wing Fu, Jing Qin, and Pheng-Ann Heng (\*joint 1<sup>st</sup> authors)  
IEEE Transactions on Visualization and Computer Graphics (**TVCG**), 2019
- [4] *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**), 2019
- [5] *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
- [6] *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**), 2019
- [7] *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**), 2018 (**Oral**, acceptance rate: **2.1%**)

- [8] *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**), 2018 (**Spotlight**)
- [9] *R<sup>3</sup>Net: Recurrent Residual Refinement Network for Saliency Detection*  
 Zijun Deng\*, **Xiaowei Hu**\*, Lei Zhu, Xuemiao Xu, Jing Qin, Guoqiang Han, and Pheng-Ann Heng (\*joint 1<sup>st</sup> authors)  
 International Joint Conference on Artificial Intelligence (**IJCAI**), 2018 (**Oral**)
- [10] *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**), 2018
- [11] *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

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- [1] *Anonymous*  
**Xiaowei Hu**, Yitong Jiang, Chi-Wing Fu, and Pheng-Ann Heng  
 IEEE International Conference on Computer Vision (**ICCV**), 2019
- [2] *Anonymous*  
**Xiaowei Hu**, Chi-Wing Fu, Lei Zhu, and Pheng-Ann Heng  
 IEEE International Conference on Computer Vision (**ICCV**), 2019
- [3] *Anonymous*  
 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**), 2019
- [4]  *$\Psi$ -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 1<sup>st</sup> authors)  
 IEEE Transactions on Medical Imaging (**TMI**)
- [5] *Anonymous*  
 Xiaomeng Li, Lequan Yu, **Xiaowei Hu**, Chi-Wing Fu, and Pheng-Ann Heng  
 International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2019
- [6] *R<sup>3</sup>Net: 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**)
- [7] *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**)
- [8] *Anonymous*  
 Lei Zhu, Zijun Deng, **Xiaowei Hu**, Chi-Wing Fu, Xuemiao Xu, Jing Qin and Pheng-Ann Heng  
 ACM Multimedia (**ACM MM**), 2019
- [9] *Anonymous*  
 Yang Tian, Ruihui Li, Xiao Tang, **Xiaowei Hu**, Shengdong Zhao, Chi-Wing Fu, and Pheng-Ann Heng  
 Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT**)

## WORK EXPERIENCE

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| <b>Research Intern, The Chinese University of Hong Kong</b><br>Advisor: Prof. Pheng-Ann Heng<br>Worked on deep learning techniques for vehicle detection   | 06/2015 - 08/2015 |
| <b>Research Intern, Hong Kong Baptist University</b><br>★ Selected by the outstanding undergraduate research opportunity program<br>Advisor: Prof. Yiu-Wing Leung & Doc. Hai Liu<br>Worked on fault-tolerant algorithms for cognitive radio networks | 08/2014           |

**Undergraduate Research Assistant, South China University of Technology**

01/2013 - 07/2016

Advisor: Prof. Xuemiao Xu

Led a team and worked on a project of the intelligent transportation system (authorized three China invention patents)

## **PROFESSIONAL ACTIVITIES**

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### **Invited Talk**

- ◇ AI Massive Open Online Course on “Direction-aware Spatial Context Features for Shadow Detection” July 2018

### **Conference Reviews**

- ◇ CVPR 2019, ICCV 2019, MICCAI 2019

### **Journal Reviews**

- ◇ Neurocomputing, The Visual Computer, IEEE Access

### **Teaching Assistant at CUHK**

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