# XIAOWEI HU

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## EDUCATION

**The Chinese University of Hong Kong (CUHK)**          08/2016 - Present
Ph.D. in Computer Science and Engineering         Expected graduation date: 07/2020
Advisor: Prof. Pheng-Ann Heng & Prof. Chi-Wing Fu

**South China University of Technology (SCUT)**         09/2012 - 07/2016
B.Eng. in Computer Science and Technology
GPA: 3.95/4.0 (**rank** $1^{st}$ in All-English-Teaching Union Class)
⋆ Selected by SCUT for a special class for the most promising students

## RESEARCH INTERESTS

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

## HONORS AND AWARDS

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|---|---:|
| Hong Kong Ph.D. Fellowship (the **highest** 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 (**rank** $1^{st}$, 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

### Journal Papers

[J5] *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

[J4] *Saliency-Aware Texture Smoothing*
Lei Zhu⋆, **Xiaowei Hu**⋆, Chi-Wing Fu, Jing Qin, and Pheng-Ann Heng (⋆joint $1^{st}$ authors)
IEEE Transactions on Visualization and Computer Graphics (**TVCG**), 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**), 2019

[J2] *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

[J1] *Enhancing Augmented VR Interaction via Egocentric Scene Analysis*
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**), 2019

### Conference Papers

[C7] *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

[C6] *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**), 2018 (**Oral**, acceptance rate: **2.1%**)

[C4] *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**)

[C3] *$R^3$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 $1^{st}$ authors)
International Joint Conference on Artificial Intelligence (**IJCAI**), 2018 (**Oral**)

[C2] *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

[C1] *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

[1] *Anonymous*
**Xiaowei Hu**, Yitong Jiang, Chi-Wing Fu, and Pheng-Ann Heng
IEEE International Conference on Computer Vision (**ICCV**), 2019

[2] *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

[3] *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 $1^{st}$ authors)
IEEE Transactions on Medical Imaging (**TMI**)

[4] *$R^3$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**)

[5] *Aggregating Attentional Dilated Features for Salient Object Detection*
Lei Zhu, Jiaxing Chen, **Xiaowei Hu**, Chi-Wing Fu, Xuemiao Xu, Jing Qin, and Pheng-Ann Heng
IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**)

## WORK EXPERIENCE

**Research Intern, The Chinese University of Hong Kong** 06/2015 - 08/2015
Advisor: Prof. Pheng-Ann Heng
Worked on 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 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 a project of the intelligent transportation system (authorized three China invention patents)

## PROFESSIONAL ACTIVITIES

**Invited Talk**

⋄ AI Massive Open Online Course on "Direction-aware Spatial Context Features for Shadow Detection"      July 2018

**Conference Reviews**

$\diamond$ CVPR 2019, ICCV 2019, MICCAI 2019

**Journal Reviews**

$\diamond$ Neurocomputing, The Visual Computer, IEEE Access

**Teaching Assistant at CUHK**

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