

# RUIHUI LI

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## EDUCATION

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### Ph.D. in Computer Science and Engineering

08/2017 - 06/2021

The Chinese University of Hong Kong (CUHK), Hong Kong, China

Advisor: Prof. Chi-Wing Fu

### B.E & M. Sc. in Computer Science and Technology

09/2010 - 07/2017

Hunan University (HNU), Changsha, China

## RESEARCH INTERESTS

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3D Vision (CG&CV), particularly interested for 3D shape generation with certain controllability

Specifically, I am dedicated to designing efficient frameworks to enhance the quality and quantity of 3D data. It includes a series of upsampling, denoising networks for high-quality restoration, and also includes auto-augmentation, unsupervised generation models for artificially enlarging the diversity of 3D dataset.

Besides, I am also open-mind to bring geometric learning onto protein surface modelling.

## PUBLICATION HIGHLIGHTS

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- [1] *SP-GAN: Sphere-Guided 3D Shape Generation and Manipulation*  
**Ruihui Li**, Xianzhi Li, Ka-Hei Hui, and Chi-Wing Fu  
ACM Transactions on Graphics (TOG) (**SIGGRAPH**), 2021.
- [2] *Point Cloud Upsampling via Disentangled Refinement*  
**Ruihui Li**, Xianzhi Li, Pheng-Ann Heng, and Chi-Wing Fu  
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
- [3] *A Rotation-Invariant Framework for Deep Point Cloud Analysis* (<sup>†</sup>corresponding author)  
Xianzhi Li, **Ruihui Li**<sup>†</sup>, Guangyong Chen, Chi-Wing Fu, Daniel Cohen-Or, Pheng-Ann Heng  
IEEE Transactions on Visualization and Computer Graphics (**TVCG**), 2021.
- [4] *PointAugment: an Auto-Augmentation Framework for Point Cloud Classification*  
**Ruihui Li**, Xianzhi Li, Pheng-Ann Heng, and Chi-Wing Fu  
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR, Oral**), 2020.
- [5] *DNF-Net: a Deep Normal Filtering Network for Mesh Denoising*  
Xianzhi Li, **Ruihui Li**, Lei Zhu, Chi-Wing Fu, Pheng-Ann Heng  
IEEE Transactions on Visualization and Computer Graphics (**TVCG**), 2020.
- [6] *PU-GAN: a Point Cloud Upsampling Adversarial Network*  
**Ruihui Li**, Xianzhi Li, Chi-Wing Fu, Daniel Cohen-Or, Pheng-Ann Heng  
IEEE International Conference on Computer Vision (**ICCV**), 2019.
- [7] *Enhancing Augmented VR Interaction via Egocentric Scene Analysis*  
Yang Tian, Chi-Wing Fu, Shengdong Zhao, **Ruihui Li**, Xiao Tang, Xiaowei Hu, Pheng-Ann Heng  
ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**Ubicomp**), 2019.
- [8] *Aggregating Complementary Boundary Contrast with Smoothing for Salient Region Detection*  
**Ruihui Li**, Jianrui Cai, Hanling Zhang, Taihong Wang  
The Visual Computer (**TVC**), 2017.

Manuscripts (under review):

- [1] *Point Set Self-Embedding*  
**Ruihui Li**, Xianzhi Li, Tien-Tsin Wong, and Chi-Wing Fu  
Submitted to IEEE International Conference on Computer Vision (**ICCV**), 2021.
- [2] *Non-Local Part-Aware Point Cloud Denoising*  
Chao Huang\*, **Ruihui Li**\*, Xianzhi Li, Pheng-Ann Heng, Chi-Wing Fu (\*co-first author)  
In arXiv 2003.06631.
- [3] *3DMol-Net: Learn 3D Molecular Representation using Adaptive Graph Convolutional Network Based on Rotation Invariance*  
Chunyan Li, **Ruihui Li**, Junfeng Yao, Xiangxiang Zeng  
Submitted to Information Sciences, 2021.
- [4] *Inferring RNA-binding protein target preferences using adversarial domain adaptation*  
Ying Liu, **Ruihui Li**, Jiawei Luo, Zhaolei Zhang  
Submitted to PLOS Computational Biology, 2021.

## AWARDS AND HONORS

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|   |                |
|---|----------------|
| National Scholarships (the <b>highest</b> scholarship for graduate students in China) | 2016           |
| Second Prize in Intel Cup Undergraduate Electronic Design Contest (Advisor: Xu Cheng) | 2014           |
| Gold Award of Pan-Pearl-River-Delta University IT Project Competition in China        | 2014           |
| First Prize Undergraduate Scholarship   | 2011&2012&2013 |
| Award of Pacemaker to Merit Student   | 2011           |

## TEACHING ASSISTANT

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| CSCI 5210 Advanced Topics in Computer Graphics and Visualization | Spring 2020    |
| CSCI 3260 Principles of Computer Graphics                        | Fall 2018&2019 |
| CSCI 3180 Principles of Programming Language                     | Spring 2019    |
| ENGG 1110J Problem Solving by Programming                        | Spring 2018    |
| CSCI 1130 Introduction to Computing Using Java                   | Fall 2017      |

## PROFESSIONAL ACTIVITIES

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### Invited Talks:

- Point Cloud Analysis via Deep Learning (Peking University) 2021.07
- Point Cloud Upsampling: challenge and solution (Wuhan University) 2021.03
- Deep learning in point cloud recognition (Shenlan Xueyuan) 2020.04

### Reviews:

- TPAMI, TIP, ICCV 2021, CVPR 2021, ECCV 2020, CVPR 2020, etc.

### Research Habits:

- Slogan: Think is broad, Do it specific
- Making a survey, taking note using slides, and then digging smart ideas for my own topics.  
Already accumulated around 70 slides, including various 2D/3D topics
- Maintaining a reading list on GitHub (Stars : 43)