

Jun Han

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Research Interests

My research interests lie in the general area of visual computing and deep learning, particularly in representation learning, generative models, reinforcement learning as well as their applications for scientific data.

Employment

The Chinese University of Hong Kong, Shenzhen

Assistant Professor

School of Data Science

Shenzhen, China

2022.6 - present

Education

University of Notre Dame

Ph.D., Advised by Prof. Chaoli Wang

Majored in Computer Science and Engineering

Notre Dame, USA

2017.07- 2022.03

Xidian University

Master of Science

Majored in Computer Software and Theory

Xi'an, China

2014.08-2017.06

Xidian University

Bachelor of Science

Majored in Software Engineering

Xi'an, China

2010.08-2014.06

Professional Experience

- **Research Assistant**

University of Notre Dame

2017.07-2022.3

- **Research Aide**, Advised by Dr. Hanqi Guo

Argonne National Laboratory

2018.05-2018.08

- **Teaching Assistant**

University of Notre Dame

2017.09-2018.05

Publications

o Book Chapter

1. Sebastian Weiss, **Jun Han**, Chaoli Wang, and Rüdiger Westermann. Deep Learning-Based Upscaling for In Situ Volume Visualization. In Hank Childs, Janine Bennett, and Christoph Garth (Eds.) *In Situ Visualization for Computational Science*, Springer, 2021.

o Journal Paper

2. **Jun Han** and Chaoli Wang. CoordNet: Data Generation and Visualization Generation for Time-Varying Volumes via a Coordinate-Based Neural Network. *IEEE Transactions on Visualization and Computer Graphics*, Major Revision.
3. Chaoli Wang and **Jun Han**. DL4SciVis: A State-of-the-Art Survey on Deep Learning for Scientific Visualization *IEEE Transactions on Visualization and Computer Graphics*, Accepted.
4. **Jun Han** and Chaoli Wang. SurfNet: Learning Surface Representations via Graph Convolutional Network. *Computer Graphics Forum Computer Graphics Forum (EuroVis 2022)*, 41(3), Jun 2022.
5. **Jun Han** and Chaoli Wang. VCNet: A Generative Model for Volume Completion. *Visual Informatics*.
6. **Jun Han** and Chaoli Wang. TSR-VFD: Temporal Super-Resolution for Vector Field Data Analysis and Visualization. *Computers and Graphics*, 103:168-179, Apr 2022.
7. **Jun Han** and Chaoli Wang. SSR-TVD: Spatial Super-Resolution for Time-Varying Data Analysis and Visualization ([Selected for Presentation at IEEE VIS 2021](#)). *IEEE Transactions on Visualization and Computer Graphics*.
8. Pengfei Gu, **Jun Han**, Danny Z. Chen, and Chaoli Wang. VFR-UFD: Vector Field Reconstruction for Unsteady Flow Data Analysis and Visualization. *IEEE Computer Graphics and Applications (Special Issue on Powering Visualization with Deep Learning)*, 41(6), Nov/Dec 2021.
9. **Jun Han**, Hao Zheng, Danny Z. Chen, and Chaoli Wang. STNet: An End-to-End Generative Framework for Synthesizing Spatiotemporal Super-Resolution Volumes. *IEEE Transactions on Visualization and Computer Graphics (IEEE VIS 2021)*, 28(1), Jan 2022.
10. **Jun Han**, Hao Zheng, Yunhao Xing, Danny Z. Chen, and Chaoli Wang. V2V: A Deep Learning Approach to Variable-to-Variable Selection and Translation for Multivariate Time-Varying Data. *IEEE Transactions on Visualization and Computer Graphics (IEEE SciVis 2020)*, 27(2), Feb 2021.
11. **Jun Han**, Jun Tao, and Chaoli Wang. FlowNet: A Deep Learning Framework for Clustering and Selection of Streamlines and Stream Surfaces ([Selected for Presentation at IEEE VIS 2019](#)). *IEEE Transactions on Visualization and Computer Graphics*, 26(4), Apr 2020.
12. **Jun Han** and Chaoli Wang. TSR-TVD: Temporal Super-Resolution for Time-Varying Data Analysis and Visualization. *IEEE Transactions on Visualization and Computer Graphics (IEEE SciVis 2019)*, 26(1), Jan 2020.
13. **Jun Han**, Jun Tao, Hao Zheng, Hanqi Guo, Danny Z. Chen, and Chaoli Wang. Flow Field Reduction via Reconstructing Vector Data from 3D Streamlines Using Deep Learning ([Selected for Presentation at IEEE VIS 2020](#)). *IEEE Computer Graphics and Applications (Special Issue on Deep Learning in Visualization and Image Processing)*, 39(4):54-67, Jul/Aug 2019.

14. Sicong Liu, Zimu Zhou, Junzhao Du, Longfei Shangguan, **Jun Han**, and Xin Wang. UbiEar: Bringing Location-independent Sound Awareness to the Hard-of-hearing People with Smartphones (**Distinguished Paper Award at ACM UbiComp 2018**). *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 1(2):17:1-17:24, Sep 2017.

o Conference Paper

15. Pengfei Gu, **Jun Han**, Danny Z. Chen, and Chaoli Wang. Scalar2Vec: Translating Scalar Fields to Vector Fields via Deep Learning. *IEEE Pacific Visualization Symposium*, April, 2022.
16. Reshika Palaniyappan Velumani, Meng Xia, **Jun Han**, Chaoli Wang, Alexis K Lau Lau, and Huaming Qu. AQX: Explaining Air Quality Forecast for Verifying Domain Knowledge using Feature Importance Visualization. *ACM Conference on Intelligent User Interfaces*, pages 720-733, Mar 2022.
17. Hao Zheng, **Jun Han**, Hongxiao Wang, Yang Lin, Zhuo Zhao, Chaoli Wang, and Danny Z. Chen. Hierarchical Self-Supervised Learning for Medical Image Segmentation Based on Multi-Domain Data Aggregation. In *Proceedings of International Conference on Medical Image Computing and Computer Assisted Intervention*, pages 622-632, Sep 2021.
18. Yang Zhang, Xiangyu Dong, Md Tahmid Rashid, Lanyu Shang, **Jun Han**, Daniel Zhang, and Dong Wang. PQA-CNN: Towards Perceptual Quality Assured Single-Image Super-Resolution in Remote Sensing. *Proceedings of IEEE/ACM International Symposium on Quality of Service*, 2020.
19. Yang Zhang, Ruohan Zong, **Jun Han**, Daniel Zhang, Md Tahmid Rashid, and Dong Wang. TransRes: A Deep Transfer Learning Approach to Migratable Image Super-Resolution in Remote Urban Sensing. *Proceedings of IEEE International Conference on Sensing, Communication and Networking*, 2020.
20. Chao Qin, Haoyang Ye, Christian Edwin Pranata, **Jun Han**, Shuyang Zhang, Ming Liu. LINS: Lidar-Inertial State Estimator for Robust and Efficient Navigation. *Proceedings of International Conference on Robotics and Automation*, Pairs, France, May 2020.
21. Li Guo, Shaojie Ye, **Jun Han**, Hao Zheng, Hao Gao, Danny Z. Chen, Jian-Xun Wang, and Chaoli Wang. SSR-VFD: Spatial Super-Resolution for Vector Field Data Analysis and Visualization. *IEEE Pacific Visualization Symposium*, Tianjin, China, Apr 2020.
22. Yang Zhang, Ruohan Zong, **Jun Han**, Hao Zheng, Qiuwen Lou, Daniel Zhang, and Dong Wang. TransLand: An Adversarial Transfer Learning Approach for Migratable Urban Land Usage Classification using Remote Sensing In *Proceedings of IEEE International Conference on Big Data* , Los Angeles, CA, Dec 2019.
23. William P. Porter, Yunhao Xing, Blaise R. von Ohlen, **Jun Han**, and Chaoli Wang. A Deep Learning Approach to Selecting Representative Time Steps for Time-Varying Multivariate Data. In *Proceedings of IEEE VIS Conference (Short Papers)*, Vancouver, Canada, Oct 2019.
24. Hao Zheng, Lin Yang, Jianxu Chen, **Jun Han**, Peixian Liang, Zhuo Zhao, Chaoli Wang, and Danny Z. Chen. HFA-Net: 3D Cardiovascular Image Segmentation with Asymmetrical Pooling and Content-Aware Fusion. In *Proceedings of International Conference on Medical Image Computing and Computer Assisted Interventions*, Shenzhen, China, Oct 2019.

25. Martin Imre, **Jun Han**, Julien Dominski, Michael Churchill, Ralph Kube, Choong-Seock Chang, Tom Peterka, Hanqi Guo, and Chaoli Wang. ContourNet: Salient Local Contour Identification for Blob Detection in Plasma Fusion Simulation Data. In *Proceedings of International Symposium on Visual Computing*, Lake Tahoe, NV, Oct 2019.
26. Hao Zheng, Lin Yang, Jianxu Chen, **Jun Han**, Yizhe Zhang, PeixianLiang, Zhuo Zhao, Chaoli Wang, and Danny Z. Chen. Biomedical Image Segmentation via Representative Annotation (**Oral Presentation**). In *Proceedings of AAAI Conference on Artificial Intelligence*, Honolulu, HI, pages 5909-5916, Jan 2019.

Professional Service

- o Program Committee
 - IEEE VIS Short Papers 2021, 2022
- o Student Volunteer
 - IEEE VIS 2019, Vancouver, Canada
- o Journal Reviewer
 - IEEE Robotics and Automation Letters
 - IEEE Transactions on Visualization and Computer Graphics
 - ACM Transactions on Interactive Intelligent Systems
 - IEEE Access
 - Visual Informatics
 - IEEE Computer Graphics and Application
 - Information Visualization
 - Journal of Visualization
- o Conference Reviewer
 - IEEE VIS, 2021, 2022
 - IEEE SciVis, 2020
 - EG/VGTC Conference on Visualization (EuroVis), 2020
 - IEEE Pacific Visualization Symposium (PacificVis), 2020, 2021
 - International Symposium on Visual Computing (ISVC), 2019
 - China Visualization and Visual Analytics Conference (ChinaVis), 2019, 2020, 2021

Awards & Honors

- o IEEE VIS Travel Grant, 2019

- o CSE Outstanding Research Assistant Award, 2019-2020

Collaborators

- o Prof. Jun Tao (Associate Professor at the School of Computer Science and Engineering, Sun Yat-sen University)
- o Dr. Hanqi Guo (Computer Scientist at Mathematics and Computer Science Division, Argonne National Laboratory)

Student Supervision at CUHK-SZ

Student Supervision at ND

- o William P. Porter, University of Notre Dame, 2018.10-2020.12 [**Honorable Mention for CRA Outstanding Undergraduate Researcher Award 2020**] (Published a short paper as a first author at IEEE VIS 2019)
- o Zijian Zhou, Zhejiang University (ND iSURE Student), 2020.07-2020.08 (Next Position: Master Student at Rice University)
- o Li Guo, Nankai University (ND iSURE Student), 2019.07-2019.08 (Next Position: Master Student at Carnegie Mellon University) (Published a paper as a co-first author at PacificVis 2020)
- o Shaojie Ye, Zhejiang University (ND iSURE Student), 2019.07-2019.08 (Next Position: Ph.D. Student at University of Wisconsin-Madison) (Published a paper as a co-first author at PacificVis 2020)
- o Yihong Ma, Shanghai University of Finance and Economics (ND Exchange Student), 2019.06-2019.08 (Next Position: Ph.D. Student at University of Notre Dame)
- o Yunhao Xing, Sichuan University (ND Exchange Student), 2018.10-2019.08 (Next Position: Master Student at Columbia University) (Published a short paper as a second author at IEEE VIS 2019 and a paper as a third author at IEEE VIS 2020)
- o Blaise R. von Ohlen, University of Notre Dame, 2018.10-2019.05 (Published a short paper as a third author at IEEE VIS 2019)