Xianfeng Wu

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EDUCATION

B.E. Artificial Intelligence, Jianghan University, Wuhan, China, 2020-present
advisor: Associate Professor Zhongyuan Lai

RESEARCH EXPERIENCE

Institute for Interdisciplinary Research, Jianghan University Wuhan, China
Undergraduate Researcher Oct 2020 – May 2022
Advisor: Associate Professor Zhongyuan Lai

School of Cyber Science and Engineering, Wuhan University Wuhan, China
Intern June 2022 – Dec 2022
Advisor: Professor Libing Wu

Institute of Data Science, The University of Hong Kong Pokfulam, Hong Kong
Remote Intern Nov 2022 – May 2023
Advisor: Assistant Professor Liangqiong Qu

School of Information Sciences, University of Illinois Urbana-Champaign IL, USA
Remote Intern Dec 2022 – May 2023
Advisor: Assistant Professor Haohan Wang

School of Engineering, Westlake University Hangzhou, China
Summer Research Intern June 2023 – Oct 2023
Advisor: Assistant Professor Tailin Wu

Department of Computer Science and Engineering, University at Buffalo, State University of New York NY, USA
Intern Jan 2023 – present
Advisor: Prof. Junsong Yuan & Tianyu Luan

RESEARCH AREAS

Computer Vision: 3D reconstruction, generation

AI4Science

SELECTED PUBLICATIONS

Journal Articles

2023 Zhuangzhuang Zhang, Libing WL, Debiao He, Jianxin Li, Shuqin Cao, and Xianfeng Wu. "Communication-Efficient and Byzantine-Robust Federated Learning for Mobile Edge Computing Networks." In: *IEEE Network* 37.4 (2023), pp. 112–119. DOI: 10.1109/MNET.006.2200651

2023 Fudong Ding, Libing Wu, Zhuangzhuang Zhang, Xianfeng Wu, Chao Ma, and Qin Liu. "A Low-Overhead Auditing Protocol for Dynamic Cloud Storage Based on Algebra." In: *Security and Communication Networks* 2023 (2023). DOI: https://doi.org/10.1155/2023/5477738. URL: https://www.hindawi.com/journals/scn/2023/5477738/

2022 Xianfeng Wu, Xinyi Liu, Junfei Wang, Zhongyuan Lai, Jing Zhou, and Xia Liu. "Point cloud classification based on transformer." In: *Computers and Electrical Engineering* 104 (2022), p. 108413. ISSN: 0045-7906. DOI: https://doi.org/10.1016/j.compeleceng.2022.108413. URL: https://www.sciencedirect.com/science/article/pii/S0045790622006309

Conference Proceedings

2024 $XianzuWu^{+}$, **Xianfeng Wu**$^{+}$, Tianyu Luan, Yajing Bai, Zhongyuan Lai*, Junsong Yuan*, FSC: Few-point Shape Completion, Conference on Computer Vision and Pattern Recognition (CVPR24') (CCF A co-first author)

PATENT

2024 **Xianfeng Wu**, et al., 2024, Object classification method based on point cloud and related equipment , CNPatent, CN115456064B, filed Sep. 05 2022 and issued Feb. 02 2024.

2024 Zhongyuan Lai, Hui Xiong, Fengchun Zhou, **Xianfeng Wu**, Yajing Bai, et al., 2024, RGB image-based 3D hand pose estimation method, device and processing equipment, 202410336669, filed Mar. 27 2024

SOFTWARE COPYRIGHT

2024 Rate-distortion optimal shape coding and decoding software based on polygon approximation V5.0, 2024SR0163092, January 25th, 2024.

2024 Rate-distortion optimal shape coding and decoding software based on polygon approximation V2.4, 2024SR0220675, February 2nd, 2024

2024 Rate-distortion optimal shape coding and decoding software based on polygon approximation V4.1, 2024SR0296480, February 22th, 2024.

2023 Rate-distortion optimal shape coding and decoding software based on polygon approximation V4.0, 2023SR1263030, October 19th, 2023.

2023 Rate-distortion optimal shape coding and decoding software based on polygon approximation V3.1, 2023SR1286413, October 24th, 2023.

2023 Rate-distortion optimal shape coding and decoding software based on polygon approximation V2.3. 2023SR1184145, October 10th, 2023.

2022 Rate-distortion optimal shape coding and decoding software based on polygon approximation V3.0. 2022SR0373977. March 22, 2022.

2022 2D shape skeleton extraction software V1.1. 2022SR0347060. March 15, 2022.

2022 Rate-distortion optimal shape coding and decoding software based on polygon approximation V2.1. 2022SR0102715. January 17, 2022.

2021 Polygon Evolution Software for Planar Digital Contours V1.0. 2021SR1647057. November 5th, 2021.

2021 Rate-distortion optimal shape coding and decoding software based on curve approximation V1.0. 2021SR1536129. October 20th, 2021.

2021 Rate-distortion optimal shape coding and decoding software based on polygon approximation V2.0. 2021SR1536127. October 20th, 2021.

2021 Rate-distortion optimal shape coding and decoding software based on polygon approximation V1.0. 2021SR0785371. May 28th, 2021.

AWARDS

Awards and Honors

2024 ASC World Student Supercomputer Competition Second Prize

2023 President Scholarship (top scholarship in Jianghan University; **<0.1%** student), Jianghan University

2023 Wuhan Government Scholarship (top scholarship in Wuhan)

2023 Second Prize in Hubei Contest District in China Undergraduate Mathematical Contest in Modeling

2022 Second Prize in Hubei Contest District in China Undergraduate Mathematical Contest in Modeling

2022 ASC World Student Supercomputer Competition Second Prize

EXTERNAL AND INTERNAL FUNDING

A. MODERATOR

1 Sparse Point Cloud 3D Reconstruction Based on Point-Nerf and Diffusion Model
National College Students' innovation and entrepreneurship training program (No.202311072004)
2023/05-2024/05 RMB 10000

2 An Encoder-Decoder network-based point cloud completion method
The second batch of student research sub-focus projects of Jianghan University 2021 (No. 2021Bczd006)
2021/10-2022/10 RMB 5000

B. Participation

1 Privacy and security research of point cloud information processing for autonomous vehicles based on federated learning

National College Students' innovation and entrepreneurship training program (No.202311072010)
2023/05-2024/10 RMB 10000

2 Machine vision-based assessment of infant motor development
Jianghan University School-level Research Project (No. 2022SXZX16)
2022/11-2024/11: RMB 70,000

3 Machine vision-based blast rock detection and trajectory prediction
State Key Laboratory of Precision Blasting 2022 Exploratory Project of Independent Subjects (No. PBSKL2022201)
2022/05-2024/05: RMB 200,000

4 Research on the Detection Method of Weakly Perceived Point Cloud Targets in Complex Scenes
National Natural Science Foundation of China (No. 62106086)
RMB 300,000

5 Research on weak perceptual target detection method based on deep attention-guided completion
Nature Science Foundation of Hubei Province (No. 2021CFB564)
RMB 80,000

6 Machine vision-based recognition of abnormal human postures and rehabilitation movements
Key Research and Development program projects of Hubei Province (No. 2020BCB054)
2020/09-2022/12: RMB 300,000

TEACHING

2023 Teaching Assistant: Digital Image Processing

2021 Teaching Assistant: Object Oriented Programming (C++)

SERVICE

Academic Journal and Conference Reviewer

Computers and Electrical Engineering (CAEE)

International Symposium on Artificial Intelligence and Robotics (ISAIR)

Membership in Professional Societies

China Society of Image and Graphics (CSIG) Student Member

SKILLS

Programming	Python, Matlab, C/C++, Java, LaTex, R
Deep Learning	PyTorch, TensorFlow