

Jin Xie

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Research Interests

I mainly focus on 3D computer vision and its applications on autonomous driving and robotic manipulation, which lie at the intersection of machine learning, computer vision, computer graphics and robotics. My research goal aims to enable robotics to automatically perceive, understand, simulate 3D world and interact with 3D world from image, video and point cloud. I am also interested in vision foundation models and generative models.

Research Experience

Nanjing University

Dec. 2023- Professor

Nanjing University of Science and Technology

Sep. 2017- Oct. 2023 Professor

New York University Abu Dhabi

Jan. 2017-Aug. 2017 Research scientist

New York University Abu Dhabi

Jan. 2014-Dec.2016 Postdoctoral associate

Shenzhen Institutes of Advanced Technology , Chinese Academy of Sciences

Jan. 2013- Dec. 2013 Research associate

Education

Hong Kong Polytechnic University, Hong Kong, China

Mar. 2008 – Oct. 2012 Ph.D in Computing

Supervisor: Lei Zhang

Dissertation: Texton encoding based texture classification and its applications to skin texture analysis

Northwestern Polytechnic University, Xi'an, China

Sep. 2004 – July. 2007 M.S in Automatic control

Supervisor: Quan Pan

Shen yang Aerospace University, Shen yang, China

Sept. 2000 – July. 2004 B.S in Automatic control

Awards

Asian Conference on Pattern Recognition (ACPR) 2021 Best Paper

Jiangsu Distinguished Professor

Research Projects

- NSFC Deep learning based 3D point cloud registration 2023-2026
- X Company Large-scale indoor point cloud scene reconstruction 2023-2024
- X Company Autonomous driving scene generation and edit 2024-2025
- NSFC Structured cycle consistency based 3D object feature representation and matching 2019-2022
- Jiangsu Distinguished Professor Program Deep learning based 3D object feature representation 2017-2020
- SAIC Motor Lane and road marking detection from single image 2019-2021

Publications

Conference

1. Le Hui, Linghua Tang, Yaqi Shen, **Jin Xie** and Jian Yang, Learning Superpoint Graph Cut for Point Cloud Instance Segmentation, *Neural Information Processing Systems*, NeurIPS 2022.
2. Yikai Bian, Le Hui, Jianjun Qian and **Jin Xie**, Unsupervised Domain Adaptation for Point Cloud Semantic Segmentation via Graph Matching, *IEEE/RSJ International Conference on Intelligent Robots and Systems*, IROS 2022.
3. Le Hui, Lingpeng Wang, Linghua Tang, Kaihao Lan, **Jin Xie** and Jian Yang, 3D Siamese Transformer Network for Single Object Tracking on Point Clouds, *European Conference on Computer Vision*, ECCV 2022.
4. Mu He, Le Hui, Yikai Bian, Jian Ren, **Jin Xie** and Jian Yang, RA-Depth: Resolution Adaptive Self-Supervised Monocular Depth Estimation, *European Conference on Computer Vision*, ECCV 2022.
5. Yuehui Han, Le Hui, Haobo Jiang, Jianjun Qian and **Jin Xie**, Generative Subgraph Contrast for Self-Supervised Graph Representation Learning, *European Conference on Computer Vision*, ECCV 2022.
6. Rui Xu, Zongyan Han, Le Hui, Jianjun Qian and **Jin Xie**, Domain Disentangled Generative Adversarial Network for Zero-Shot Sketch-Based 3D Shape Retrieval, *AAAI Conference on Artificial Intelligence*, AAAI 2022.
7. Yaqi Shen, Le Hui, Haobo Jiang, **Jin Xie** and Jian Yang, Reliable Inlier Evaluation for Unsupervised Point Cloud Registration, *AAAI Conference on Artificial Intelligence*, AAAI 2022.
8. Le Hui, Lingpeng Wang, Mingmei Cheng, **Jin Xie** and Jian Yang, 3D Siamese Voxel-to-BEV Tracker for Sparse Point Clouds, *Neural Information Processing Systems*, NeurIPS 2021.
9. Le Hui, Jia Yuan, Mingmei Cheng, **Jin Xie**, Xiaoya Zhang and Jian Yang, Superpoint Network for Point Cloud Oversegmentation, *International Conference on Computer Vision*, ICCV 2021.
10. Le Hui, Hang Yang, Mingmei Cheng, **Jin Xie** and Jian Yang, Pyramid Point Cloud Transformer for Large-scale Place Recognition, *International Conference on Computer Vision*, ICCV 2021.

11. Haobo Jiang, Yaqi Shen, **Jin Xie**, Jun Li, Jianjun Qian and Jian Yang, Sampling Network Guided Cross-entropy Method for Unsupervised Point Cloud Registration, *International Conference on Computer Vision, ICCV 2021*.
12. Yifan Zhao, Le Hui and **Jin Xie**, SSPU-Net: Self-Supervised Point Cloud Upsampling via Differentiable Rendering, *ACM Conference on Multimedia, ACM MM 2021*.
13. Haobo Jiang, **Jin Xie**, Jianjun Qian and Jian Yang, Planning with Learned Dynamic Model for Unsupervised Point Cloud Registration, *International Joint Conference on Artificial Intelligence, IJCAI 2021*.
14. Haobo Jiang, **Jin Xie** and Jian Yang, Action Candidate Based Clipped Double Q-learning for Discrete and Continuous Action Tasks, *AAAI Conference on Artificial Intelligence, AAAI 2021*.
15. Mingmei Cheng, Le Hui, **Jin Xie** and Jian Yang, SSPC-Net: Semi-supervised Semantic 3D Point Cloud Segmentation Network, *AAAI Conference on Artificial Intelligence, AAAI 2021*.
16. Le Hui, Rui Xu, **Jin Xie**, Jianjun Qian and Jian Yang, Progressive Point Cloud Deconvolution Generation Network, *European Conference on Computer Vision, ECCV 2020*.
17. Mingmei Cheng, Le Hui, **Jin Xie**, Jian Yang and Hui Kong, Cascaded Non-local Neural Network for Point Cloud Semantic Segmentation, *IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2020*.
18. **Jin Xie**, Guoxian Dai, Fan Zhu and Yi Fang, Learning Barycentric representations of 3D shapes for sketch-based 3D shape retrieval, *IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2017*.
19. **Jin Xie**, Meng Wang and Yi Fang, Learned binary spectral shape descriptor for 3D shape correspondence, *IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2016*.
20. **Jin Xie**, Yi Fang, Fan Zhu and Edward K.Wong, Deepshape:deep learned shape descriptor for 3D shape matching and retrieval, *IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2015*.
21. **Jin Xie**, Fan Zhu, Guoxian Dai and Yi Fang, Progressive shape-distribution-encoder for 3D shape retrieval, *ACM Conference on Multimedia, ACM MM 2015*.
22. **Jin Xie**, Lei Zhang, Jane You and David Zhang, Texture Classification via Patch-based Sparse Texton Learning, *International Conference on Image Processing, ICIP 2010*.
23. Kangkan Wang, **Jin Xie**, Guofeng Zhang, Lei Liu and Jian Yang, Sequential 3D Human Pose and Shape Estimation From Point Clouds, *IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2020*.
24. Guoxian Dai, **Jin Xie** and Yi Fang, Siamese CNN-BiLSTM architecture for 3D shape representation learning, *International Joint Conference on Artificial Intelligence, IJCAI 2018*.
25. Jing Zhu, **Jin Xie** and Yi Fang, Learning adversarial 3D model generation with 2D image enhancer, *AAAI Conference on Artificial Intelligence 2018, AAAI 2018*.
26. Guoxian Dai, **Jin Xie** and Yi Fang, Metric-based generative adversarial network, *ACM Conference on Multimedia, ACM MM 2017*.
27. Yi Fang, **Jin Xie**, Guoxian Dai, Meng Wang, Fan Zhu, Tiantian Xu and Edward Wong, 3D deep shape descriptor, *IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2015*.

28. Guoxian Dai, **Jin Xie**, Fan Zhu and Yi Fang, Deep correlation learning for sketch based 3D shape retrieval, *AAAI Conference on Artificial Intelligence*, AAAI 2017.
29. Fan Zhu, **Jin Xie** and Yi Fang, Heat diffusion long-short term memory learning for 3D shape analysis, *European Conference on Computer Vision*, ECCV 2016.
30. Fan Zhu, **Jin Xie** and Yi Fang, Learning cross-domain neural networks for sketch-based 3D shape retrieval, *AAAI Conference on Artificial Intelligence*, AAAI 2016.

Journal

1. Le Hui, Mingmei Cheng, **Jin Xie**, Jian Yang and Ming-Ming Cheng, Efficient 3D Point Cloud Feature Learning for Large-scale Place Recognition, *IEEE Trans. on Image Processing*, 2022.
2. Haobo Jiang, Guangyu Li, **Jin Xie** and Jian Yang, Action Candidate Driven Clipped Double Q-Learning for Discrete and Continuous Action Tasks, *IEEE Trans. on Neural Networks and Learning Systems*, 2022.
3. **Jin Xie**, Guoxian Dai, Fan Zhu, Edward K.Wong and Yi Fang, Deepshape:deep-learned shape descriptor for 3D shape retrieval, *IEEE Trans. Pattern Analysis and Machine Intelligence*, 2017.
4. **Jin Xie**, Guoxian Dai and Yi Fang, Deep multi-metric learning for shape-based 3D model retrieval, *IEEE Trans. Multimedia*, 2017.
5. **Jin Xie**, Guoxian Dai, Fan Zhu, Ling Shao and Yi Fang, Deep non-linear metric learning for 3D shape retrieval, *IEEE Trans. Cybernetics*, 2018.
6. **Jin Xie**, Fan Zhu, Guoxian Dai, Ling Shao and Yi Fang, Progressive shape-distribution-encoder, *IEEE Trans. Image Processing*, 2017.
7. **Jin Xie** and Yi Fang, Dynamic texture recognition with video set based collaborative representation, *Image and Vision Computing*, 2016.
8. **Jin Xie**, Lei Zhang, Jane You and Simon Shiu, Effective texture classification by texton encoding induced statistical features, *Pattern Recognition*, 2015.
9. Jianquan Yang#, **Jin Xie**#, Guopu Zhu, and Yunqing Shi, An effective method for detecting double JPEG compression with the same quantization matrix, *IEEE Trans. Information Forensics and Security*, 2014 (#: Equal contribution).
10. Guoxian Dai, **Jin Xie** and Yi Fang, Deep correlated holistic metric learning for sketch-based 3D shape retrieval, *IEEE Trans. Image Processing*, 2018.
11. Fan Zhu, Ling Shao, **Jin Xie** and Yi Fang, From handcrafted to learned representations for human action recognition: a survey, *Image and Vision Computing*, 2016.

Academic Services

Senior Program Committee (SPC)/Area Chair: AAAI Conference on Artificial Intelligence (AAAI), International Joint Conference on Artificial Intelligence (IJCAI), Conference on Computer Vision and Pattern Recognition (CVPR).

Special Issue Chair: Asian Conference on Pattern Recognition 2017.

Reviewer: IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Image Processing, IEEE Transactions on Multimedia, IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Cybernetics, Pattern Recognition, Pattern Recognition Letters, Image and Vision Computing.

Program Committee: IEEE Conference on Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV), European Conference on Computer Vision (ECCV).

Guest Editor: Pattern Recognition

Teaching

Perception Sensors, 2020, Nanjing University of Science and Technology

Deep Learning, 2020, 2021, Nanjing University of Science and Technology

Machine Learning, 2022, Nanjing University of Science and Technology

Machine Learning, 2023, Nankai University