Wan, Jia

University of California, San Diego
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Education

City University of Hong Kong (CityU) Sep. 2018 – Oct. 2021
Ph.D. in Computer Science
Advisor: Prof. Antoni Chan

Northwestern Polytechnical University (NWPU) Sep. 2015 – Mar. 2018
M. Phil. in Computer Science
Advisors: Prof. Qi Wang

Northwestern Polytechnical University (NWPU) Sep. 2011 – Jul. 2015
B. Eng. in Software Engineering

Experiences

University of California, San Diego May 2022 – Now
Postdoctoral Researcher
Advisors: Prof. Nuno Vasconcelos

City University of Hong Kong Oct. 2021 – Apr. 2022
Postdoctoral Researcher
Advisors: Prof. Antoni Chan

Tencent AI Lab Apr. 2018 – Aug. 2018
Research Intern
Advisors: Dr. Wenhan Luo

Research Interests

My research interests focus on crowd analysis, such as crowd counting and localization. I'm also interested in monocular 3d and Bird-eye-view (BEV) perception including monocular depth estimation and BEV object detection.

Awards

Postgraduate Studentship	2018 – 2021
Research Tuition Scholarship	2019 – 2020
China National Scholarship	2016 – 2017

Publications

1. W. Shu, **J. Wan**, K. Tan, S. Kwong, and A. Chan. "Crowd Counting in the Frequency Domain." *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*. 2022. (acceptance rate = 25.3%)

2. Q. Wu, **J. Wan**, and A. Chan. "Dynamic Momentum Adaptation for Zero-Shot Cross-Domain Crowd Counting." *ACM Multimedia (**MM**)*. 2021. (acceptance rate = 27.9%)

3. **J. Wan**, Z. Liu, and A. Chan. "A Generalized Loss Function for Crowd Counting and Localization." *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*. 2021. (acceptance rate = 23.7%)

4. Q. Wu, **J. Wan**, and A. Chan. "Progressive Unsupervised Learning for Visual Object Tracking." *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*. 2021. (Oral acceptance rate $\approx$ 6%)

5. **J. Wan**, N. Senthil Kumar, and A. Chan. "Fine-Grained Crowd Counting." *IEEE Transactions on Image Processing (**TIP**)*. 2021.

6. **J. Wan**, K. Zhang, H. Li, and A. Chan. "Angular-Driven Feedback Restoration Networks for Imperfect Sketch Recognition." *IEEE Transactions on Image Processing (**TIP**)*. 2021.

7. **J. Wan**, Q. Wang, and A. Chan. "Kernel-based Density Map Generation for Dense Object Counting." *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*. 2020.

8. **J. Wan** and A. Chan. "Modeling Noisy Annotations for Crowd Counting." *Advances in Neural Information Processing Systems (**NeurIPS**)*. 2020. (acceptance rate = 20.1%)

9. Q. Wang, **J. Wan**, and A. Chan. "On Diversity in Image Captioning: Metrics and Methods." *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*. 2020.

10. **J. Wan** and A. Chan. "Adaptive Density Map Generation for Crowd Counting." *IEEE International Conference on Computer Vision (**ICCV**)*. 2019. (acceptance rate = 25.0%)

11. **J. Wan**, W. Luo, B. Wu, A. Chan, W. Liu. "Residual Regression with Semantic Prior for Crowd Counting." *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*. 2019. (acceptance rate = 25.0%)

12. Q. Wang, **J. Wan**, and X. Li. "Robust Hierarchical Deep Learning for Vehicular Management." *IEEE Transactions on Vehicular Technology (**T-VT**)*. 2018.

13. Q. Wang, **J. Wan**, F. Nie, B. Liu, C. Yan, and Y. Yuan. "Hierarchical Feature Selection for Random Projection." *IEEE Transactions on Neural Networks and Learning Systems (**T-NNLS**)*. 2018.

14. Q. Wang, **J. Wan**, and Y. Yuan. "Deep Metric Learning for Crowdedness Regression." *IEEE Transactions on Circuits and Systems for Video Technology (**T-CSVT**)*. 2017.

15. Q. Wang, **J. Wan**, and Y. Yuan. "Locality Constraint Distance Metric Learning for Traffic Congestion Detection." *Pattern Recognition (**PR**)*. 2017.

16. **J. Wan**, Y. Yuan, and Q. Wang. "Traffic Congestion Analysis: A New Perspective." *International Conference on Acoustic, Speech and Signal Processing (**ICASSP**)*. 2017. (Oral)

17. Y. Yuan, **J. Wan**, and Q. Wang. "Congested Scene Classification via Efficient Unsupervised Feature Learning and Density Estimation." *Pattern Recognition (**PR**)*. 2016.

Services

Editor Board

Guest Editor, Special Issue on "Remote Sensing Image Processing with Transformers," Remote Sensing, 2022.

Guest Editor, Special Issue on "Hyperspectral Imagery Intelligent Processing for Coastal Environmental Studie," Remote Sensing, 2019.

Guest Associate Editor, Special Issue on "Transfer Learning for Remote Sensing," IEEE Geoscience and Remote Sensing Letters, 2018.

Reviewer of

T-PAMI, IJCV, T-IP, T-MM, T-CYB, T-ITS, T-GRS.

ICLR 2022, NeurIPS 2020-2022, CVPR 2019-2023, ICCV 2019,2021, ECCV 2020, 2022, ACMMM 2020, AAAI 2019-2022.

Projects

Crowd Counting and Localization

Novel frameworks and loss functions are proposed to improve crowd counting and localization performance, and improve the generalization and robustness of crowd counting algorithms. A new scientific problem is proposed and a new dataset is collected for research and practical applications.

Monocular 3D Perception

Novel feature matching networks are proposed to improve monocular depth estimation. Novel image-to-BEV feature transformations are proposed to improve BEV object detection performance.

Traffic Congestion Analysis

A novel definition of traffic congestion is proposed. Multiple datasets are collected for scientific research. Algorithms are designed to better improve the performance and monitor the traffic congestion status.