

# WENHAI WANG

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**Homepage:** <https://whai362.github.io>

## EDUCATION

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- Nanjing University**, Nanjing, China Sep. 2018 - Sep. 2021  
*Ph.D.* in Computer Science and Technology, *Supervised by Prof. Tong Lu.*
- Nanjing University**, Nanjing, China Sep. 2016 - Jun. 2018  
*M.S.* in Computer Science and Technology, *Supervised by Prof. Tong Lu.*
- Nanjing University of Science and Technology**, Nanjing, China Sep. 2012 - Jun. 2016  
*B.E.* in Software Engineering.

## RESEARCH INTERESTS

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CNN / Transformer Backbone  
Object Detection & Semantic/Instance/Panoptic Segmentation  
Vision-Language Model  
Autonomous Driving Perception  
Optical Character Recognition

## EXPERIENCE

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Github: <https://github.com/whai362>

- Shanghai AI Laboratory**, Shanghai, China Sep. 2021 - Present  
Research Scientist, *Supervised by Dr. Jifeng Dai and Prof. Yu Qiao*  
*Leading 7 interns and working on (1) large-scale model, (2) vision Transformer, (3) vision-language model, and (4) autonomous driving perception.*
- The University of Hong Kong**, Hongkong, China Oct. 2019 - Mar. 2020  
Research Assistant, *Supervised by Prof. Ping Luo*  
*Worked on instance segmentation, and optical character recognition.*
- SenseTime**, Beijing, China Aug. 2019 - Mar. 2020  
Research Intern, *Supervised by Xuebo Liu and Ding Liang*  
*Worked on optical character recognition.*
- Momenta**, Beijing, China Jun. 2018 - Dec. 2018  
Research Intern, *Supervised by Dr. Xiang Li*  
*Worked on CNN backbone, and object detection.*

## CONTESTS

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- National Artificial Intelligence Challenge (NAIC) 2020 , Remote Sensing Semantic Segmentation Task, **1<sup>st</sup> Place, 1,000,000 RMB Bonus** Dec. 2020
- ICDAR2019 Robust Reading Challenge on Arbitrary-Shaped Text, Task1, **1<sup>st</sup> Place** Sept. 2019
- ICDAR2019 Robust Reading Challenge on Large-scale Street View Text with Partial Labeling, Task1, **2<sup>nd</sup> Place** Sept. 2019
- AI Challenger 2018 Autonomous Driving Perception Task, **2<sup>nd</sup> Place, 40,000 RMB Bonus** Dec. 2018
- ACM-ICPC Asia Regional Contest, **Silver Medal** Nov. 2015

## HONORS AND AWARDS

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China National Scholarship (the highest scholarship for students studying in China)

Dec. 2019

## PUBLICATIONS

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Google Scholar: <https://scholar.google.com/citations?user=WM00glcAAAAJ>

(\* Equal contribution, † Interns, # Corresponding authors)

- [J1] **W. Wang\***, E. Xie\*, X. Li, et al. PAN++: Towards Efficient and Accurate End-to-End Spotting of Arbitrarily-Shaped Text[J]. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI). 2021.
- [J2] **W. Wang#**, E. Xie, X. Li, et al. PVT v2: Improved Baselines with Pyramid Vision Transformer[J]. Computational Visual Media Journal (CVMJ). 2022.
- [J3] **W. Wang**, Z. Li, T. Lu#. Grid Dividing for Single-Stage Instance Segmentation[J]. Journal of Software (JoS), 2021 (in Chinese).
- [J4] E. Xie\*, **W. Wang\***, M. Ding, et al. PolarMask++: Enhanced Polar Representation for Single-Shot Instance Segmentation and Beyond[J]. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI). 2021.
- [J5] X. Li, C. Lv, **W. Wang**, et al. Generalized Focal Loss: Towards Efficient Representation Learning for Dense Object Detection[J]. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI). 2022.
- [C6] **W. Wang**, E. Xie, X. Li, et al. Pyramid Vision Transformer: A Versatile Backbone for Dense Prediction without Convolutions[C] // Proceedings of IEEE International Conference on Computer Vision (ICCV). 2021. ([Oral](#)) ([ICCV21' Top-10 Influential Papers \(Rank 2\)](#))
- [C7] **W. Wang**, X. Liu, X. Ji, et al. AE TextSpotter: Learning Visual and Linguistic Representation for Ambiguous Text Spotting[C] // Proceedings of the European Conference on Computer Vision (ECCV). 2020.
- [C8] **W. Wang\***, E. Xie\*, X. Song, et al. Efficient and Accurate Arbitrary-Shaped Text Detection with Pixel Aggregation Network[C] // Proceedings of IEEE International Conference on Computer Vision (ICCV). 2019.
- [C9] **W. Wang\***, E. Xie\*, X. Li, et al. Shape Robust Text Detection with Progressive Scale Expansion Network[C] // Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR). 2019.
- [C10] **W. Wang\***, X. Li\*, T. Lu#, et al. Mixed Link Networks[C] // Proceedings of International Joint Conference on Artificial Intelligence (IJCAI). 2018. ([Oral](#))
- [C11] Z. Li\*†, **W. Wang\***, H. Li\*, et al. BEVFormer: Learning Bird's-Eye-View Representation from Multi-Camera Images via Spatiotemporal Transformers[C] // Proceedings of the European Conference on Computer Vision (ECCV). 2022.
- [C12] C. Tian\*†, **W. Wang\***, X. Zhu, et al. VL-LTR: Learning Class-wise Visual-Linguistic Representation for Long-Tailed Visual Recognition[C] // Proceedings of the European Conference on Computer Vision (ECCV). 2022.
- [C13] Z. Li†, **W. Wang#**, E. Xie, et al. Panoptic SegFormer: Delving Deeper into Panoptic Segmentation with Transformers[C] // Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR). 2022.
- [C14] Z. Chen†, **W. Wang#**, E. Xie, et al. Towards Ultra-Resolution Neural Style Transfer via Thumbnail Instance Normalization[C] // Proceedings of the Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI). 2022.
- [C15] E. Xie, **W. Wang**, Z. Yu, et al. SegFormer: Simple and Efficient Design for Semantic Segmentation with Transformers[C] // Advances in Neural Information Processing Systems (NeurIPS). 2021. ([NeurIPS21' Top-10 Influential Papers \(Rank 3\)](#))
- [C16] X. Li, **W. Wang**, X. Hu, et al. Generalized Focal Loss V2: Learning Reliable Localization Quality Estimation for Dense Object Detection[C] // Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR). 2021.
- [C17] X. Li, **W. Wang**, L. Wu, et al. Generalized Focal Loss: Learning Qualified and Distributed Bounding Boxes for Dense Object Detection[C] // Advances in Neural Information Processing Systems (NeurIPS). 2020.
- [C18] X. Li, **W. Wang**, X. Hu, et al. Selective Kernel Networks[C] // IEEE Conference on Computer Vision and Pattern Recognition (CVPR). 2019.
- [C19] E. Xie, J. Ding, **W. Wang**, et al. Detco: Unsupervised contrastive learning for object detection[C] // Proceedings of IEEE International Conference on Computer Vision (ICCV). 2021.

- [C20] E. Xie, W. Wang, **W. Wang**, et al. Segmenting Transparent Objects in the Wild[C] // Proceedings of the European Conference on Computer Vision (ECCV). 2020.
- [C21] E. Xie, W. Wang, **W. Wang**, et al. Segmenting Transparent Object in the Wild with Transformer[C] // Proceedings of International Joint Conference on Artificial Intelligence (IJCAI). 2021.
- [C22] E. Xie, P. Sun, X. Song, **W. Wang**, et al. PolarMask: Single Shot Instance Segmentation with Polar Representation[C] // Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR). 2020. ([Oral](#)) ([CVPR20' Top-10 Influential Papers](#))
- [C23] S. Jin, W. Liu, E Xie, **W. Wang**, et al. Differentiable Hierarchical Graph Grouping for Multi-Person Pose Estimation[C] // Proceedings of the European Conference on Computer Vision (ECCV). 2020.
- [C24] W. Wang, E. Xie, X. Liu, **W. Wang**, et al. Scene Text Image Super-Resolution in the Wild[C] // Proceedings of the European Conference on Computer Vision (ECCV). 2020.
- [C25] G. Shi, Y. Wu#, J. Liu, S. Wan, **W. Wang**, et al. Incremental Few-Shot Semantic Segmentation via Embedding Adaptive-Update and Hyper-class Representation[C] // Proceedings of the 30th ACM International Conference on Multimedia (ACMMM). 2022.

## ACADEMIC SERVICE

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### Senior Program Committee Member

- International Joint Conference on Artificial Intelligence (IJCAI), 2021

### Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Multimedia (TMM)
- Computational Visual Media Journal (CVMJ)
- Pattern Recognition (PR)

### Program Committee Member/Conference Reviewer

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020, 2021, 2022
- Neural Information Processing Systems (NeurIPS), 2020, 2021
- International Conference on Machine Learning (ICML), 2021, 2022
- International Conference on Learning Representations (ICLR), 2021
- IEEE International Conference on Computer Vision (ICCV), 2021
- European Conference on Computer Vision (ECCV), 2022
- AAAI Conference on Artificial Intelligence (AAAI), 2022
- International Joint Conference on Artificial Intelligence (IJCAI), 2022
- Asian Conference on Computer Vision 2020 (ACCV), 2020
- IEEE Winter Conference on Applications of Computer Vision (WACV), 2021