

# YUE WANG

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## CURRENT POSITION

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University of Southern California  
*Assistant Professor*

Aug. 2023 -

Nvidia Research  
*Research Scientist*

Sep. 2022 - Now  
*Manager: Prof. [Marco Pavone](#)*

## EDUCATION

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Massachusetts Institute of Technology  
*Ph.D. Student in Computer Science*

Sep. 2017 - June 2022  
*Advisor: Prof. [Justin Solomon](#)*

- Dissertation: “Learning 3D Representations from Data”
- Nvidia Fellowship, David S. Y. Wong Fellowship
- GPA: 5.0/5.0

The University of California, San Diego  
*M.S. in Computer Science*

Sep. 2015 - Dec. 2016

- GPA: 3.97/4.0

Zhejiang University  
*B.E. in Computer Science*

Sep. 2011 - June 2015

- National Scholarship, Exchange Student Scholarship (Hong Kong University)
- GPA: 3.92/4.0

## HONORS AND AWARDS

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Google Research Gift, 2023

[Best Paper Award](#) (a.k.a Science of Frontiers Award, four awardee worldwide in Graphics & Geometric Computing), Inaugural International Congress on Basic Science, 2023

The first place recipient of the William A. Martin Master’s Thesis Award, 2021, MIT EECS

[Nvidia Fellowship](#) (five awardee worldwide), 2020, Nvidia

David S. Y. Wong Fellowship, 2017-2018, MIT

National Scholarship (2%), 2011-2012, 2012-2013, Ministry of Education of People’s Republic of China

First-Class Scholarship for Outstanding Merits (3%), 2011-2012, 2012-2013, 2013-2014, Zhejiang University

Excellent Student Awards, 2011-2012, 2012-2013, Zhejiang University

## PUBLICATIONS

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### PREPRINT

32. Jiawei Yang, Katie Luo, Jiefeng Li, Yonglong Tian, Kilian Weinberger, Yue Wang. “Free All Vision Transformers From Positional Embedding Artifacts .” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
31. Jiageng Mao, Junjie Ye, Yuxi Qian, Marco Pavone, Yue Wang. “Agent-Driver: A Language Agent for Autonomous Driving.” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
30. Haoxi Ran, Vitor Guizilini, Yue Wang. “Towards Realistic Scene Generation with LiDAR Diffusion Models.” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
29. Congyue Deng, Jiawei Yang, Leonidas Guibas, Yue Wang. “Rethinking Directional Integration in Neural Radiance Fields.” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
28. Boyi Li, Yue Wang, Jiageng Mao, Boris Ivanovic, Sushant Veer, Karen Leung, Marco Pavone. “Driving Everywhere with Language Policy.” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
27. Chensheng Peng, Chenfeng Xu, Yue Wang, Mingyu Ding, Heng Yang, Masayoshi Tomizuka, Marco Pavone, Wei Zhan. “Quadrical representations for differentiable vision-based SLAM.” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
26. Xinshuo Weng, Boris Ivanovic, Yan Wang, Yue Wang, Marco Pavone. “The Computational Graph for End-to-End Driving.” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
25. Xiangru Huang, Marianne Arriola, Yue Wang, Vitor Guizilini, Rares Ambrus, Justin Solomon. “Hybrid Geometric Primitive Representations for Large Scale Point Clouds.” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
24. Tao Jiang, Dapeng Jiang, Zhangchen Ye, Haoyang Weng, Yue Wang, Hang Zhao. “Unsupervised 3D Occupancy Perception for Autonomous Driving .” *In submission to Conference on Computer Vision and Pattern Recognition*, 2023.
23. Jiawei Yang, Boris Ivanovic, Or Litany, Xinshuo Weng, Seung Wook Kim, Boyi Li, Tong Che, Danfei Xu, Sanja Fidler, Marco Pavone, Yue Wang. “EmerNeRF: Emergent Spatial-Temporal Scene Decomposition via Self-Supervision.” *In submission to International Conference on Learning Representations*, 2023.[\[link\]](#)
22. Jiageng Mao, Yuxi Qian, Hang Zhao, Yue Wang. “GPT-Driver: Learning to Drive with GPT.” *In submission to International Conference on Learning Representations*, 2023.[\[link\]](#)

#### JOURNAL

21. [AJ’21] Jun E. Yin, Daniel J. Eisenstein, Douglas P. Finkbeiner, Christopher W. Stubbs, and Yue Wang. “Active Optical Control with Machine Learning: A Proof of Concept for the Vera C. Rubin Observatory.” *The Astronomical Journal*, 2021. [\[link\]](#)
20. [TOG’19] Yue Wang, Yongbin Sun, Ziwei Liu, Sanjay E. Sarma, Michael M. Bronstein and Justin M. Solomon. “Dynamic Graph CNN for Learning on Point Clouds.” *ACM Transactions on Graphics*, 2019. [\[link\]](#)

#### CONFERENCE

19. [CORL’ 23] Liangtao Zheng, Yicheng Liu, Yue Wang, and Hang Zhao . “Cross-Dataset Sensor Alignment: Making Visual 3D Object Detector Generalizable.” *Conference on Robot Learning*, 2023.[\[link\]](#)

18. [NeurIPS' 23] Xiaoyu Tian, Tao Jiang, Longfei Yun, Yucheng Mao, Huitong Yang, Yue Wang, Yilun Wang, Hang Zhao. "Occ3D: A Large-Scale 3D Occupancy Prediction Benchmark for Autonomous Driving." *Conference on Neural Information Processing Systems, Datasets and Benchmarks Track*, 2023.[\[link\]](#)
17. [CVPR' 23] Jiawei Yang, Marco Pavone, Yue Wang. "FreeNeRF: Improving Few-shot Neural Rendering with Free Frequency Regularization." *Conference on Computer Vision and Pattern Recognition*, 2023.[\[link\]](#)
16. [CORL' 22] Yiming Li, Juexiao Zhang, Dekun Ma, Yue Wang, and Chen Feng . "Self-Supervised Collaborative Scene Completion: Towards Task-Agnostic Multi-Robot Perception." *Conference on Robot Learning*, 2022.[\[link\]](#)
15. [CORL' 22] Xiangru Huang, Yue Wang, Vitor Campagnolo Guizilini, Rares Andrei Ambrus, Adrien Gaidon, and Justin Solomon . "Representation Learning for Object Detection from Unlabeled Point Cloud Sequences." *Conference on Robot Learning*, 2022.[\[link\]](#)
14. [ICRA' 22] Qi Li\*, Yue Wang\*, Yilun Wang, Hang Zhao . "Hdmapnet: An Online HD Map Construction and Evaluation Framework ." *International Conference on Robotics and Automation* , 2022.[\[link\]](#)
13. [NeurIPS' 21] Yue Wang and Justin Solomon. "Object DGCNN: 3D Object Detection using Dynamic Graphs." *Conference on Neural Information Processing Systems*, 2021.[\[link\]](#)
12. [CORL' 21] Yue Wang, Vitor Guizilini, Tianyuan Zhang, Yilun Wang, Hang Zhao, and Justin Solomon. "DETR3D: 3D Object Detection from Multi-view Images via 3D-to-2D Queries." *Conference on Robot Learning*, 2021.[\[link\]](#)
11. [ICCV' 21] Tianyu Hua, Wenxiao Wang, Zihui Xue, Sucheng Ren, Yue Wang, and Hang Zhao. "On Feature Decorrelation in Self-Supervised Learning." *International Conference on Computer Vision*, 2021.[\[link\]](#)
10. [IROS' 21] Jiahui Fu, Qiangqiang Huang, Kevin Doherty, Yue Wang, and John J. Leonard. "A Multi-Hypothesis Approach to Pose Ambiguity in Object-Based SLAM." *International Conference on Intelligent Robots and Systems*, 2021.[\[link\]](#)
9. [ECCV' 20] Yue Wang, Alireza Fathi, Abhijit Kundu, David A. Ross, Caroline Pantofaru, Thomas A. Funkhouser, Justin M. Solomon. "Pillar-based Object Detection for Autonomous Driving." *European Conference on Computer Vision*, 2020.[\[link\]](#)
8. [ECCV' 20] Yonglong Tian\*, Yue Wang\*, Dilip Krishnan, Joshua B. Tenenbaum, Phillip Isola. "Rethinking Few-Shot Image Classification: A Good Embedding Is All You Need?." *European Conference on Computer Vision*, 2020.[\[link\]](#)
7. [WACV'20]Yongbin Sun, Yue Wang, Ziwei Liu, Joshua E Siegel and Sanjay E Sarma. "PointGrow: Autoregressively Learned Point Cloud Generation with Self-attention ." *Winter Conference on Applications of Computer Vision*, 2020.[\[link\]](#)
6. [NeurIPS'19] Yue Wang and Justin M. Solomon. "PRNet: Self-Supervised Learning for Partial-to-Partial Registration." *Conference on Neural Information Processing Systems*, 2019. [\[link\]](#)
5. [ICCV'19] Yue Wang and Justin M. Solomon. "Deep Closest Point: Learning Representations for Point Cloud Registration." *International Conference on Computer Vision*, 2019. [\[link\]](#)

## WORKSHOP

4. Sihan Liu\* and Yue Wang\*. "Few-shot Learning with Online Self-Distillation." *2nd Visual Inductive Priors for Data-Efficient Deep Learning Workshop at the International Conference on*

*Computer Vision* , 2021.[\[link\]](#)

3. Qi Li\*, Yue Wang\*, Yilun Wang, Hang Zhao . “HDMaNet: An Online HD Map Construction and Evaluation Framework.” *Best Paper Nomination*, Workshop on Autonomous Driving: Perception, Prediction and Planning.2021[\[link\]](#)
2. Jun E. Yin, Daniel J. Eisenstein, Douglas P. Finkbeiner, Christopher W. Stubbs, and Yue Wang. “Active Optical Control with Machine Learning: A Proof of Concept for the Vera C. Rubin Observatory.” *Workshop on Machine Learning and the Physical Sciences at the Neural Information Processing Systems*, 2021. [\[link\]](#)
1. Yue Wang, Alireza Fathi, Jiajun Wu, Thomas A. Funkhouser, Justin M. Solomon. “Multi-Frame to Single-Frame: Knowledge Distillation for 3D Object Detection.” *Workshop on Perception for Autonomous Driving at the European Conference on Computer Vision*, 2020.[\[link\]](#)

## TEACHING EXPERIENCES

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- Teaching Instructor at USC: CSCI677 (Advanced Computer Vision), Fall 2023
- Teaching Assistant at MIT: 6.819/6.869 (Advances in Computer Vision), Fall 2018

## INDUSTRIAL EXPERIENCES

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Nvidia Research 2020 Summer  
*Research Intern* *Host: Dr. Benjamin Eckart & Dr. Chris Choy*

- Semi-supervised object detection from point clouds.

Google Research 2019 Summer & 2019 Fall & 2020 Spring  
*Student Researcher* *Host: Prof. Tom Funkhouser & Dr. Alireza Fathi*

- Self-supervised representation learning from point clouds and 3D object detection.

Google 2017 Spring & Summer  
*Software Engineer*

- Monitoring tools for search frontend.

## ACADEMIC SERVICES

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- Lead organizer for the ICCV23’ “Neural Fields for Autonomous Driving and Robotics” workshop.
- Lead organizer for the CVPR23’ “Vision Centric Autonomous Driving” workshop.
- SIGGRAPH Research Career Development Committee (Undegraduate Mentoring)
- Reviewer for the following conferences: NeurIPS 22’, CORL 22’, ECCV 22’, CVPR 22’, ICLR’21, NeurIPS’21, CVPR’21, SIGGRAPH Asia’20, SIGGRAPH’20, NeurIPS’20, ECCV’20, CVPR’20, CVPR’19, ICCV’19, NeurIPS’19, ICML’19 and UAI’19.
- PhD exam committee member for Jiahao Wen. PhD dissertation committee member for Mianlun Zheng and Yiqi Zhong.

## INVITED TALKS

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- “Towards Scalable Autonomous Driving”, online, IV2023
- “What Makes Good 3D Representations for Autonomous Driving and Robotics?”, ETH, May 2023
- “Learning 3D Representations with Minimal Supervision”, Toyota Research, June 2022

- “Learning 3D Representations with Minimal Supervision”, Nvidia Research, June 2022
- “Learning 3D Representations with Minimal Supervision”, NYU, April 2022
- “Learning 3D Representations with Minimal Supervision”, Yale, March 2022
- “Learning 3D Representations with Minimal Supervision”, USC, March 2022
- “Learning 3D Representations with Minimal Supervision”, Cornell, March 2022
- “Learning 3D Representations with Minimal Supervision”, NUS, January 2022
- “Learning 3D Representations with Minimal Supervision”, Tsinghua, January 2022
- “Learning 3D Representations with Minimal Supervision”, Brown, November 2021
- “Deep Learning Framework and Code Implementation for Point Cloud Models”, online, CVPR 2021

## MENTORING

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- PhD students: Jiawei Yang, Jiageng Mao, Emily Jia, Junjie Ye
- Master students: Jonathan Zamora
- Undergraduate students: Xander Hinrichsen, James Qian