

YAN WANG

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Work Experience

Waymo Research
Research Scientist

09/2021—present

Education

Cornell University
Ph.D. in Computer Sciences, Minor in Robotics
Advisor: Professor Killian Q. Weinberger

08/2017—08/2021

Huazhong University of Science and Technology
B.S. in Computer Science and Technology

09/2012—06/2016

Research Interests

His research interest lies in computer vision, especially *perception of autonomous driving* and *3D vision*. He is also interested in solving real-world problems related to *deep learning*, *few-shot learning*, *self-supervised learning*, *semi-supervised learning*, *unsupervised learning*, and *person re-identification*.

Google scholar citations: **1231**.

Publication

Superscript * for equal contribution.

Conference:

Varsha Kishore, Xiangyu Chen, **Yan Wang**, Boyi Li, Kilian Q Weinberger. Fixed Neural Network Steganography: Train the images, not the network. In International Conference on Learning Representations (**ICLR**), 2022.

Yurong You, Carlos Andres Diaz-Ruiz, **Yan Wang**, Wei-Lun Chao, Bharath Hariharan, Mark Campbell, Kilian Q Weinberger. Exploiting Playbacks in Unsupervised Domain Adaptation for 3D Object Detection. In International Conference on Robotics and Automation (**ICRA**), 2022.

Yan Wang, Bin Yang, Rui Hu, Ming Liang, Raquel Urtasun. PLUME: Efficient 3D Object Detection from Stereo Images. In IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2021.

Luyu Yang, **Yan Wang**, Mingfei Gao, Abhinav Shrivastava, Kilian Q Weinberger, Wei-Lun Chao, Ser-Nam Limr. Deep Co-Training with Task Decomposition for Semi-Supervised Domain Adaptation. In International Conference on Computer Vision (**ICCV**) (2021).

Junan Chen, **Yan Wang**, Ruihan Wu, Mark Campbell. Spatial-Temporal Graph Neural Network for Interaction-Aware Vehicle Trajectory Prediction. In IEEE 17th International Conference on Automation Science and Engineering (**CASE**), 2021.

Div Garg, **Yan Wang**, Barath Hariharan, Mark Campbell, Kilian Q. Weinberger, Wei-Lun Chao. Wasserstein Distances for Stereo Disparity Estimation. In The 34th Conference on Neural Information Processing Systems (**NeurIPS**), 2020. **Spotlight Oral**.

Yan Wang*, Xiangyu Chen*, Yurong You, Li Erran Li, Barath Hariharan, Mark Campbell, Kilian Q. Weinberger, Wei-Lun Chao. Train in Germany, Test in The USA: Making 3D Object Detectors Generalize. In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.

Rui Qian*, Div Garg*, **Yan Wang***, Yurong You*, Serge Belongie, Barath Hariharan, Mark Campbell, Kilian Q. Weinberger, Wei-Lun Chao. End-to-end Pseudo-LiDAR for Image-Based 3D Object Detection. In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.

Yurong You*, **Yan Wang***, Wei-Lun Chao*, Div Garg, Barath Hariharan, Mark Campbell, Kilian Q. Weinberger. Pseudo-LiDAR++: Accurate Depth for 3D Object Detection in Autonomous Driving. In The 8th International Conference on Learning Representations (**ICLR**), 2020.

Yan Wang, Wei-Lun Chao, Div Garg, Barath Hariharan, Mark Campbell, Kilian Q. Weinberger. Pseudo-LiDAR from Visual Depth Estimation: Bridging the Gap in 3D Object Detection for Autonomous Driving. In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2019.

Yan Wang*, Zihang Lai*, Gao Huang, Brian Wang, Laurens van der Maaten, Mark Campbell, Kilian Q. Weinberger. Anytime Stereo Image Depth Estimation on Mobile Devices. In International Conference on Robotics and Automation (**ICRA**), 2019.

Brian Wang, Wei-Lun Chao, **Yan Wang**, Barath Hariharan, Kilian Q. Weinberger, Mark Campbell. LDLs: 3D Object Segmentation through Label Diffusion from 2D Images. In IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2019.

Carlos Diaz-Ruiz, **Yan Wang**, Wei-Lun Chao, Kilian Q. Weinberger, Mark Campbell. Vision-only 3D Tracking for Self-Driving Cars. In The 15th IEEE International Conference on Automation Science and Engineering (**CASE**) 2019.

Yan Wang*, Lequn Wang*, Yurong You*, Xu Zou, Vincent Chen, Serena Li, Barath Hariharan, Gao Huang, Kilian Q. Weinberger. Resource Aware Person Re-identification across Multiple Resolutions. In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2018.

Kun He*, **Yan Wang***, John E. Hopcroft*. A Powerful Generative Model Using Random Weights for the Deep Image Representation. In The 30th Conference on Neural Information Processing Systems (**NeurIPS**) 2016.

Preprint:

Yan Wang, Wei-Lun Chao, Kilian Q. Weinberger, Laurens van der Maaten. SimpleShot: Revisiting Nearest-Neighbor Classification for Few-Shot Learning. In arXiv:1911.04623 (2019).

Industrial Experience

Research Intern, Uber ATG

06-11/2020

Mentors: Raquel Urtasun

- Proposed an efficient end-to-end stereo-based 3D object detection model. It achieves state-of-the-art performance with significantly reduced inference time compared with existing methods.
- Submitted to IEEE Robotics and Automation Society (IROS) 2021.

Research Intern, Facebook AI Research (FAIR)

05-08/2019

Mentors: Laurens van der Maaten

- Studied adaptive inference models that take multiple resolution images as input for the image classification task.
- Studied the accuracy of nearest-neighbor baselines for few-shot learning without meta-learning. Proposed a nearest-neighbor classifier with mean-subtraction and L1-normalization, which outperforms prior meta-learning based methods.
- Published this nearest-neighbor classifier as a technical report: “SimpleShot: Revisiting Nearest-Neighbor Classification for Few-Shot Learning”.

Teaching Experience

CS 1112: Introduction to Computing using Matlab*2018 Spring*

Teaching assistant for K.-Y. Daisy Fan

CS 4810: Introduction to Theory of Computing*2017 Fall*

Teaching assistant for John E. Hopcroft

Honors and Awards

Cornell Graduate Student Travel Grant (CVPR)	<i>2018</i>
NeurIPS Student Travel Grant	<i>2016</i>
Outstanding Bachelor Dissertation Award	<i>2016</i>
National Scholarship of China	<i>2015</i>
National Endeavor Scholarship of China	<i>2013</i>

Academic Service

Workshop:

- Workshop organizer: CVPR2021 workshop in Autonomous Driving. www.adp3.org

Reviewer:

- Conference Reviewer: ICML21, CVPR21, ICRA21, NeurIPS20, ECCV20, ICML20, CVPR20, NeurIPS19, ICCV19, ICML19, CVPR19, ICRA19, AAAI18, NeurIPS16
- Journal Reviewer: TPAMI, TKDE

Invited Talks:

- Pseudo-LiDAR for 3D object detection, at Peking University, NVIDIA, Amazon, Waymo, Uber ATG, TRI, Li Auto, Huazhong University of Science and Tech.
- Pseudo-LiDAR for 3D object detection in CS501 course, at Univeristy of Idaho.
- Camera-based 3D object detection, open class in ShenLanXueYuan.

Skills & Expertise

Programming Skills: Python, Pytorch, TensorFlow, Matlab, C, C++