

# Xinshuo Weng

[Personal Website](#) / [Google Scholar](#) / [Semantic Scholar](#) / [DBLP](#) / [GitHub](#) / [Linkedin](#) / [Twitter](#)

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## RESEARCH INTERESTS

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**Fields:** Computer Vision, Robotics, Machine Learning

**Topics:** Autonomous Driving, 3D Computer Vision, Point Cloud Processing, Generative Modeling

## RESEARCH STATEMENT SUMMARY

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My research spans the tasks of object detection, multi-object tracking, re-identification, multi-agent trajectory prediction, collision avoidance and motion planning, with an ultimate goal of building an autonomous robot system such as self-driving cars that can safely interact with others and achieve navigation in multi-agent dynamic environments. Towards this goal, I develop computational models to solve each individual task using machine learning techniques such as graph neural networks, transformers, generative adversarial networks and variational auto-encoders. Also, to make the entire robot system robust and safe, my research aims to seamlessly integrate models for different tasks by building differentiable pipelines, propagating uncertainties across different models, and exploring the most effective structure of these models and tasks.

## EDUCATION

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**Carnegie Mellon University**, Ph.D. in Robotics 2018 - 2022

Advisor: [Kris Kitani](#), Associate Professor at CMU

**Carnegie Mellon University**, M.S. in Computer Vision 2016 - 2018

Advisor: [Yaser Sheikh](#), Associate Professor at CMU

**Wuhan University**, B.S. in Electrical Engineering 2012 - 2016

Advisor: [Lei Yu](#), Associate Professor at Wuhan University

## INDUSTRY EXPERIENCE

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**Research Scientist** 2022

NVIDIA Autonomous Vehicle Research

Manager: [Marco Pavone](#), Director of Autonomous Vehicle Research at NVIDIA

**Research Scientist Intern** 2021 - 2022

NVIDIA Autonomous Vehicle Research

Manager: [Marco Pavone](#), Director of Autonomous Vehicle Research at NVIDIA

**Research Engineer** 2018

Oculus Research Pittsburgh (now Meta Reality Lab)

Manager: [Yaser Sheikh](#), Director of Meta Reality Lab Pittsburgh

**Research Intern** 2017  
Facebook (now Meta)  
Manager: [Shouo-I Yu](#), Research Scientist at Meta Reality Lab Pittsburgh

## AWARDS

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### FELLOWSHIP AWARDS AND NOMINATIONS

NVIDIA Graduate Fellowship, 10 world-wide, \$50k award (forfeited) 2022  
[Facebook Fellowship Finalist](#), 1 out of 6 worldwide in the Computer Vision track 2021  
[Qualcomm Innovation Fellowship](#), \$100k award, 1 out of 13 in North America 2020  
IBM PhD Fellowship nomination, the only nominee at CMU Robotics Institute 2020  
Microsoft Research PhD Fellowship nomination, 1 out of 3 at CMU Robotics Institute 2020  
Microsoft Research Ada Lovelace PhD Fellowship nomination, 1 out of 3 at CMU Robotics Institute 2019  
Google PhD Fellowship nomination, 1 out of 3 at CMU Robotics Institute 2019  
Undergraduate Innovation and Entrepreneurship Fellowship 2014, 2015

### CONTRIBUTED FACULTY AWARDS

[Toyota Research Institute Research Grant](#), \$1.13 million award 2021 - 2024  
NSF, National Robotics Initiative Research Grant, \$860k award 2020 - 2023

### SCHOLARSHIP AWARDS

Google Conference Scholarship 2020  
University Scholarship, RMB 3k award per year 2013, 2015, 2016  
Yang Gui Scholarship, Wuhan University, RMB 3k award 2015  
National Scholarship, RMB 10k award 2014

### ACADEMIC AWARDS

[Outstanding Reviewer Award](#), CVPR 2021 2021  
[Best Reviewer Award](#) (Top 10%), ICML 2021 2021  
[Outstanding Reviewer Award](#), ACCV 2020 2020  
Outstanding Graduate Award, Wuhan University 2016

## TALKS ([WEBPAGE](#) OR [YOUTUBE](#))

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### INVITED TALKS (WORKSHOP KEYNOTE OR SEMINAR SERIES)

(Scheduled) ICRA 2022, Workshop on [Fresh Perspectives on the Future of Autonomous Driving](#) 2022  
Industry Seminar Series, A Modular Yet Highly-Integrated Pipeline for Perception and Prediction 2022  
- [Toyota Research Institute](#)  
- [NVIDIA Research](#)  
- [Borealis AI](#)  
- [Waabi](#)  
- [Samsung AI Center - Toronto](#)  
[AiBee R&D Seminar Series: Prediction for Autonomous Driving in the Wild](#) [\[Slides\]](#) 2021  
ICCV 2021, Workshop on [Share Stories and Lessons Learned](#) [\[Slides\]](#) [\[Video\]](#) 2021

IV 2021, Workshop on <a href="#">3D Deep learning for Automated Driving</a> [Slides] [Video]	2021
CVPR 2021, Workshop on <a href="#">Robust Video Scene Understanding</a> [Slides]	2021
CVPR 2021, Workshop on <a href="#">Autonomous Navigation in Unconstrained Environments</a> [Slides]	2021
CVPR 2021, AIODrive challenge on the <a href="#">Precognition Workshop</a> [Slides]	2021
MIT, <a href="#">Vision and Graphics Seminar</a> [Slides] [Video]	2021
<a href="#">Computer Vision Talks: Improving Driving Pipeline with Graph Neural Networks</a> [Slides] [Video]	2020
Wayve: New Perspective on Perception and Prediction Pipeline [Slides]	2020
ECCV 2020, Workshop on <a href="#">Benchmarking Trajectory Forecasting Models</a> [Slides]	2020
CVPR 2020, Workshop on <a href="#">Scalability in Autonomous Driving</a> [Slides] [Video]	2020

## INTERNAL TALKS AT CMU

PhD Thesis Proposal: A Modular Yet Integrated Pipeline for Perception and Prediction [Slides]	2021
Seminar at <a href="#">Klab</a> : Trajectory Prediction in the Wild [Slides]	2021
PhD Speaking Qualifier: 3D Multi-Object Tracking for Autonomous Driving [Slides] [Video]	2020
Seminar at <a href="#">Klab</a> : Games with Sequential Actions – Extensive Games [Slides]	2019
Seminar at <a href="#">Klab</a> : Object Detection and Tracking in the 3D World [Slides]	2019
Seminar at <a href="#">Klab</a> : Interpretability of Machine Learning for Computer Vision [Slides]	2018

## TEACHING

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### EBERLY FUTURE FACULTY PROGRAM, CMU

Micro-teaching Workshop and Teaching Feedback Consultation	Spring 2022
Helping Students Develop Mastery and Critical Thinking	Spring 2022
Planning and Delivering Effective Lectures	Spring 2022
Creating a Welcoming and Supportive Climate from Day One	Spring 2022
Working Well One on One with Students	Spring 2022
Grading and Delivering Feedback on Writing Assignments	Spring 2022
Crafting a Teaching Philosophy Statement	Fall 2021
Teaching Inclusively: Fostering a Positive Climate for Learning	Spring 2021
Course and Syllabus Design	Spring 2021

### INSTRUCTOR

Guest Lecture, Statistical Techniques in Robotics (16-831), CMU [Slides] [Video]	Spring 2022
Guest Lecture, Computer Vision (16-720B), CMU [Slides] [Video]	Fall 2021
Guest Lecture, Computer Vision (16-720B), CMU [Slides]	Fall 2020

### TEACHING ASSISTANT

Computer Vision (16-385), CMU	Fall 2019
Geometry-Based Methods in Computer Vision (16-822), CMU	Fall 2018

## SERVICES

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### ORGANIZING COMMITTEE

Co-Organizer, ICML 2022 Workshop on <a href="#">Safe Learning for Autonomous Driving</a>	2022
Co-Organizer, IJCAI 2022 Workshop on <a href="#">Artificial Intelligence for Autonomous Driving</a>	2022
Lead-Organizer, NeurIPS 2021 Workshop on <a href="#">Machine Learning for Autonomous Driving</a>	2021

Lead-Organizer, IROS 2021 workshop on <a href="#">Multi-Agent Interaction and Relational Reasoning</a>	2021
Co-Organizer, ICCV 2021 workshop on <a href="#">Multi-Agent Interaction and Relational Reasoning</a>	2021
Lead-Organizer, IJCAI 2021 workshop on <a href="#">Artificial Intelligence for Autonomous Driving</a>	2021
Lead-Organizer, <a href="#">AIODrive Forecasting Challenge</a> on CVPR 2021 <a href="#">Precognition Workshop</a>	2021
Co-Organizer, NeurIPS 2020 Workshop on <a href="#">Machine Learning for Autonomous Driving</a>	2020
Co-Organizer, <a href="#">nuScenes 3D Tracking Challenge</a>	2019

## EDITORIAL BOARD

Associate Editor, <a href="#">AI and Autonomous Systems</a>	2022 - Present
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## SPECIAL COMMITTEE

AAAI-22, Student Abstract and Poster Program	2022
Co-Chair, ICRA 2021 session "Machine Learning II"	2021

## JOURNAL PAPER REVIEW (19 PAPERS IN TOTAL)

IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), 3 papers	2020, 2021
IEEE Robotics and Automatic Letters (RA-L), 3 papers	2021
Neurocomputing, 2 papers	2021, 2022
Pattern Recognition Letters, 1 paper	2021
IEEE Transactions on Multimedia, 1 paper	2021
IEEE Transactions on Instrumentation & Measurement (TIM), 1 paper	2021
IEEE Access, 1 paper	2021
Computer Vision and Image Understanding (CVIU), 1 paper	2021
IEEE Transactions on Intelligent Transportation Systems (T-ITS), 2 papers	2020, 2022
Multimedia Tools and Applications (MTA), 2 papers	2019
IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT), 1 paper	2018
Multimedia Systems, 1 paper	2022

## CONFERENCE PAPER REVIEW (111 PAPERS IN TOTAL)

CVPR (Conf. on Computer Vision and Pattern Recognition), 18 papers	2018, 2020, 2021, 2022
ECCV (European Conf. on Computer Vision), 7 papers	2020, 2022
ICCV (International Conf. on Computer Vision), 9 papers	2019, 2021
ICLR (International Conf. on Learning Representations), 4 papers	2021, 2022
NeurIPS (Conf. on Neural Information Processing Systems), 13 papers	2020, 2021, 2022
ICML (International Conf. on Machine Learning), 6 papers	2021, 2022
AAAI (Association for the Advancement of Artificial Intelligence), 20 papers	2020, 2021, 2022
ICRA (International Conf. on Robotics and Automation), 6 papers	2020, 2021, 2022
IROS (International Conf. on Intelligent Robots and Systems), 4 papers	2020, 2021, 2022
BMVC (British Machine Vision Conf.), 9 papers	2020, 2021
WACV (Winter Conf. on Applications of Computer Vision), 7 papers	2020, 2021, 2022
ACCV (Asia Conf. on Computer Vision), 7 papers	2018, 2020
IV (Intelligent Vehicles Symposium), 1 paper	2020

## WORKSHOP PAPER REVIEW (9 PAPERS IN TOTAL)

CVPR, <a href="#">Precognition Workshop</a> , 2 papers	2022
NeurIPS, <a href="#">New In ML workshop</a> , 2 papers	2021
ICCV, <a href="#">Workshop on Multi-Task Learning in Computer Vision</a> , 1 paper	2021
CVPR, <a href="#">Workshop on Safe Artificial Intelligence for Automated Driving</a> , 2 papers	2021
CVPR, <a href="#">AI City Challenge</a> , 2 papers	2020

## CONFERENCE WORKSHOP REVIEW

NeurIPS (Conference on Neural Information Processing Systems)	2021
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## UNIVERSITY ACTIVITY

Research Qualifier Committee, Ph.D. in Robotics, Wen-Hsuan Chu	2022
Research Qualifier Committee, Ph.D. in Robotics, Jinkun Cao	2022
Research Qualifier Committee, Ph.D. in Robotics, Rawal Khirodkar	2022
Thesis Committee, M.S. in Robotics, Yunze Man	2021
Admission Committee, M.S. in Computer Vision, CMU	2019, 2020, 2021

## MENTORSHIP & OUTREACH

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### PHD STUDENTS

<a href="#">Junyu (Jenny) Nan</a> (CMU Robotics PhD student)	2021 - Present
<a href="#">Jinkun Cao</a> (CMU Robotics PhD student)	2020 - Present
<a href="#">Yu-Jhe Li</a> (CMU ECE PhD student)	2020 - 2021
<a href="#">Yan Xu</a> (CMU ECE PhD student)	2020

### INTERNS

<a href="#">Yulong Cao</a> (NVIDIA Intern, now PhD student at University of Michigan)	2022
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### MASTER STUDENTS

<a href="#">Yongxin Wang</a> (CMU MSCV student, now Applied Scientist at Amazon)	2019 - 2021
<a href="#">Yunze Man</a> (CMU MSR student, now CS PhD student at UIUC)	2018 - 2021
<a href="#">Jingjing Pan</a> (CMU MSCV student, now AI/ML Engineer at Apple)	2020
<a href="#">Dazhi Cheng</a> (CMU MSCS student, now Perception Engineer at Pony AI)	2020
<a href="#">Xi Sun</a> (CMU MSR student, now Engineer at Amazon Robotics)	2019 - 2020
<a href="#">Jianren Wang</a> (CMU Intern, now MSR student at CMU)	2019 - 2020
<a href="#">Aashi Manglik</a> (CMU MSR student, now AI/ML Engineer at Apple)	2019
<a href="#">Chunhui Liu</a> (CMU MSCV student, now Machine Learning Engineer at Kuaishou)	2019
<a href="#">Kai Yu</a> (CMU MSCV student, now Software Engineer at Pony AI)	2018

### UNDERGRADUATE STUDENTS

<a href="#">Shalin Shah</a> (CMU Undergraduate)	2021
<a href="#">Jinhyung (David) Park</a> (CMU Undergraduate, now Robotics PhD student at CMU)	2020 - 2021

### MENTOR, AI MENTORING PROGRAM, CMU

<a href="#">Prakruthi Pradeep</a> (CMU Undergraduate)	2021
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## PUBLICATIONS

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### MANUSCRIPTS AND PRE-PRINTS

1. S2Net: Stochastic Sequential Pointcloud Forecasting  
**Xinshuo Weng**, Junyu Nan, Kuan-Hui Lee, Rowan McAllister, Adrien Gaidon, Nicholas Rhinehart and Kris Kitani  
*In Submission 2022*  
[BibTex](#)
2. Observation-Centric SORT: Rethinking SORT for Robust Multi-Object Tracking  
Jinkun Cao, **Xinshuo Weng**, Rawal Khirodkar, Jiangmiao Pang and Kris Kitani  
*In Submission 2022*  
[PDF](#) | [Code](#) | [BibTex](#)
3. All-In-One Drive: A Large-Scale Comprehensive Perception Dataset with High-Density Long-Range Point Clouds  
**Xinshuo Weng**, Yunze Man, Ye Yuan, Jinhyung Park, Dazhi Cheng, Matthew O'Toole, Kris Kitani  
*In Submission 2022*  
[PDF](#) | [Code](#) | [Website](#) | [Supp](#) | [BibTex](#)
4. AutoSelect: Automatic and Dynamic Detection Selection for 3D Multi-Object Tracking  
**Xinshuo Weng**, Kris Kitani  
*In Submission 2022*  
[PDF](#) | [Website](#) | [BibTex](#)

### JOURNAL PUBLICATIONS

5. PTP: Parallelized Tracking and Prediction with Graph Neural Networks and Diversity Sampling  
**Xinshuo Weng\***, Ye Yuan\*, Kris Kitani  
*IEEE Robotics and Automation Letters (RA-L)*, 2021  
*with presentation at IEEE International Conference on Robotics and Automation (ICRA), 2021*  
**(Best Student Paper Award Candidate, Top 2%)**  
[PDF](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)
6. Supervision by Registration and Triangulation for Landmark Detection  
Xuanyi Dong, Yi Yang, Shi-En Wei, **Xinshuo Weng**, Yaser Sheikh, Shoou-I Yu  
*IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2021  
**(Code on GitHub has received >800 stars)**  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [BibTex](#)

### CONFERENCE PUBLICATIONS

7. Whose Track Is It Anyway? Improving Robustness to Tracking Errors with Affinity-Based Prediction  
**Xinshuo Weng**, Boris Ivanovic, Kris Kitani and Marco Pavone  
*IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022  
[PDF](#) | [BibTex](#)
8. MTP: Multi-Hypothesis Tracking and Prediction for Reduced Error Propagation  
**Xinshuo Weng**, Boris Ivanovic and Marco Pavone  
*IEEE Intelligent Vehicles Symposium (IV)*, 2022  
[PDF](#) | [BibTex](#)

9. Multi-Modality Task Cascade for 3D Object Detection  
Jinhyung Park, **Xinshuo Weng**, Yunze Man, Kris Kitani  
*British Machine Vision Conference (BMVC), 2021*  
[PDF](#) | [Code](#) | [BibTex](#)
10. AgentFormer: Agent-Aware Transformers for Socio-Temporal Multi-Agent Forecasting  
Ye Yuan, **Xinshuo Weng**, Yanglan Ou, Kris Kitani  
*IEEE/CVF International Conference on Computer Vision (ICCV), 2021*  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [Poster](#) | [Slides](#) | [Supp](#) | [BibTex](#)
11. Multi-Echo LiDAR for 3D Object Detection  
Yunze Man, **Xinshuo Weng**, Prasanna Kumar Sivakumar, Matthew O'Toole, Kris Kitani  
*IEEE/CVF International Conference on Computer Vision (ICCV), 2021*  
[PDF](#) | [Demo](#) | [Poster](#) | [Supp](#) | [BibTex](#)
12. Visio-Temporal Attention for Multi-Camera Multi-Target Association  
Yu-Jhe Li, **Xinshuo Weng**, Yan Xu, Kris Kitani  
*IEEE/CVF International Conference on Computer Vision (ICCV), 2021*  
[PDF](#) | [Demo](#) | [Poster](#) | [BibTex](#)
13. Wide-Baseline Multi-Camera Calibration using Person Re-Identification  
Yan Xu, Yu-Jhe Li, **Xinshuo Weng**, Kris Kitani  
*IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021*  
[PDF](#) | [Demo](#) | [Poster](#) | [BibTex](#)
14. Joint Object Detection and Multi-Object Tracking with Graph Neural Networks  
Yongxin Wang, Kris Kitani, **Xinshuo Weng**  
*IEEE International Conference on Robotics and Automation (ICRA), 2021*  
[\(Code on GitHub has received >400 stars\)](#)  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)
15. Learning Shape Representations for Person Re-Identification under Clothing Change  
Yu-Jhe Li, **Xinshuo Weng**, Kris Kitani  
*IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2021*  
[PDF](#) | [Demo](#) | [BibTex](#)
16. Inverting the Forecasting Pipeline with SPF<sup>2</sup>: Sequential Pointcloud Forecasting for Sequential Pose Forecasting  
**Xinshuo Weng**, Jianren Wang, Sergey Levine, Kris Kitani, Nick Rhinehart  
*Conference on Robot Learning (CoRL), 2020*  
[PDF](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#) | [Supp](#)
17. 3D Multi-Object Tracking: A Baseline and New Evaluation Metrics  
**Xinshuo Weng**, Jianren Wang, David Held, Kris Kitani  
*IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020*  
[\(Code on GitHub has received >1300 stars\)](#)  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)
18. When We First Met: Visual-Inertial Source Localization for Co-Robot Rendezvous  
Xi Sun, **Xinshuo Weng**, Kris Kitani



*IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020*

[PDF](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)

19. Single Camera Worker Detection, Tracking and Action Recognition in Construction Site  
Hiroaki Ishioka, **Xinshuo Weng**, Yunze Man, Kris Kitani  
*International Symposium on Automation and Robotics in Construction (ISARC), 2020*  
[PDF](#) | [BibTex](#)
20. GNN3DMOT: Graph Neural Network for 3D Multi-Object Tracking with 2D-3D Multi-Feature Learning  
**Xinshuo Weng**, Yongxin Wang, Yunze Man, Kris Kitani  
*IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020*  
[PDF](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)
21. Forecasting Time-to-Collision from Monocular Video: Feasibility, Dataset, and Challenges  
Aashi Manglik, **Xinshuo Weng**, Eshed Ohn-Bar, Kris Kitani  
*IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2019*  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [BibTex](#)
22. Monocular 3D Object Detection with Pseudo-LiDAR Point Cloud  
**Xinshuo Weng**, Kris Kitani  
*IEEE/CVF International Conference on Computer Vision (ICCV) Workshops, 2019*  
[PDF](#) | [Poster](#) | [BibTex](#) | [Supp](#)
23. Learning Spatio-Temporal Features with Two-Stream Deep 3D CNNs for Lipreading  
**Xinshuo Weng**, Kris Kitani  
*British Machine Vision Conference (BMVC), 2019*  
[PDF](#) | [Poster](#) | [BibTex](#)
24. GroundNet: Monocular Ground Plane Normal Estimation with Geometric Consistency  
Yunze Man, **Xinshuo Weng**, Xi Li, Kris Kitani  
*ACM International Conference on Multimedia (ACMMM), 2019*  
[PDF](#) | [Poster](#) | [BibTex](#)
25. Supervision-by-Registration: An Unsupervised Approach to Improve the Precision of Facial Landmark Detectors  
Xuanyi Dong, Shoou-I Yu, **Xinshuo Weng**, Shi-En Wei, Yi Yang, Yaser Sheikh  
*IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2018*  
[\(Code on GitHub has received >700 stars\)](#)  
[PDF](#) | [Code](#) | [Demo](#) | [Slides](#) | [BibTex](#)
26. Rotational Rectification Network: Enabling Pedestrian Detection for Mobile Vision  
**Xinshuo Weng**, Shangxuan Wu, Fares Beainy, Kris Kitani  
*IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2018*  
[PDF](#) | [Poster](#) | [Slides](#) | [BibTex](#)

#### NON-ARCHIVAL PUBLICATIONS

27. AB3DMOT: A Baseline for 3D Multi-Object Tracking and New Evaluation Metrics  
**Xinshuo Weng**, Jianren Wang, David Held, Kris Kitani  
*European Conference on Computer Vision (ECCV) Workshops, 2020*  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)



28. End-to-End 3D Multi-Object Tracking and Trajectory Forecasting  
**Xinshuo Weng\***, Ye Yuan\*, Kris Kitani  
*European Conference on Computer Vision (ECCV) Workshops, 2020*  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)
29. Graph Neural Network for 3D Multi-Object Tracking  
**Xinshuo Weng**, Yongxin Wang, Yunze Man, Kris Kitani  
*European Conference on Computer Vision (ECCV) Workshops, 2020*  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)
30. 4D Forecasting: Sequential Forecasting of 100,000 Points  
**Xinshuo Weng**, Jianren Wang, Sergey Levine, Kris Kitani, Nick Rhinehart  
*European Conference on Computer Vision (ECCV) Workshops, 2020*  
[PDF](#) | [Code](#) | [Demo](#) | [Website](#) | [Slides](#) | [BibTex](#)