Yuexin Ma

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Homepage
Google scholar **(2000+ citation）**

·Work Experience·

- 09. 2020 – present **ShanghaiTech University**
  Assistant Professor/Ph.D. Advisor in School of Information Science and Technology
  Founder of 4DV Lab, including 2 PhD students, 9 master students, and 2 research assistants.
- 10. 2019 – 09.2020 **Hong Kong Baptist University**
  Research Assistant Professor in the Department of Computer Science

·Education·

- 08. 2015 – 08. 2019 **The University of Hong Kong (HKU)**
  PhD in Computer Science
  Supervisor: Prof. Wenping Wang (IEEE/ACM Fellow)
- 09. 2011 – 06. 2015 **Shandong University (SDU)**
  Bachelor's degree in Software Engineering

·Research Interest·

3D Vision, Scene Understanding, Multimodal Learning, Robotics, Autonomous Driving

·Research Experience·

- Robotic and Autonomous Driving Lab (RAL) of Baidu
  Advisor: Ruigang Yang (Chief Scientist and Head of Baidu RAL)
  Internship 04.2018 - 12.2018
- The University of North Carolina at Chapel Hill (UNC)
  Advisor: Dinesh Manocha (ACM Fellow, IEEE Fellow, AAAS Fellow, AAAI Fellow)
  Visiting Scholar 09.2017 - 02.2018
- French Institute for Research in Computer Science and Automation (INRIA)
  Advisor: Sylvain Lefebvre (Researcher of INRIA)
  Visiting Scholar 06.2016 - 08.2016

·Teaching·

- Computer Graphics II
- Introduction to Programming (C&C++)
- Smart Vehicles
- Advanced Computer Vision

·Publication·

(*** indicates co-first author or corresponding author**)

1. Youquan Liu, Lingdong Kong, Xiaoyang Wu, Runnan Chen, Xin Li, Liang Pan, Ziwei Liu, **Yuexin Ma***. Multi-Space Alignments Towards Universal LiDAR Segmentation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024

2. Yiteng Xu, Kecheng Ye, Xiao Han, Yiming Ren, Xinge Zhu, **Yuexin Ma***. A Unified Framework for Human-centric Point Cloud Video Understanding. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024

3. Yichen Yao, Zimo Jiang, Yujing Sun, Zhencai Zhu, Xinge Zhu, Runnan Chen, **Yuexin Ma***. HUNTER: Unsupervised Human-centric 3D Detection via Transferring Knowledge from Synthetic Instances to Real Scenes. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024

4. Yiming Ren, Xiao Han, Chengfeng Zhao, Jingya Wang, Lan Xu, Jingyi Yu, **Yuexin Ma***. LiveHPS: LiDAR-based Scene-level Human Pose and Shape Estimation in Free Environment. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024

5. YingWenQi Jiang, Jiadong Tu, Yuan Liu, Xifeng Gao, Xiaoxiao Long, Wenping Wang, **Yuexin Ma***. GaussianShader: 3D Gaussian Splatting with Shading Functions for Reflective Surfaces. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024

6. Xiaoxiao Long, Yuan-Chen Guo, Cheng Lin, Yuan Liu, Zhiyang Dou, Lingjie Liu, **Yuexin Ma**, Song-Hai Zhang, Marc Habermann, Christian Theobalt, Wenping Wang. Wonder3D: Single Image to 3D using Cross-Domain Diffusion. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024

7. Xiaopei Wu, Yuenan Hou, Xiaoshui Huang, Binbin Lin, Tong He, Xinge ZHU, **Yuexin Ma**, Boxi Wu, Haifeng Liu, Deng Cai, Wanli Ouyang. TASeg: Temporal Aggregation Network for LiDAR Semantic Segmentation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024

8. Ming Yan, Yan Zhang, Shuqiang Cai, Shuqi Fan, Xincheng Lin, Yudi Dai, Siqi Shen, Chenglu Wen, Lan Xu, **Yuexin Ma**, Cheng Wang. RELI11D: A Comprehensive Multimodal Human Motion Dataset and Method. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024

9. Weixiang Yang, Qi Li, Wenxi Liu, Yuanlong Yu, **Yuexin Ma**, Shengfeng He, Jia Pan. Monocular BEV Perception of Road Scenes via Front-to-Top View Projection. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2024

10. Jiaping Ren, Jiahao Xiang, Hongfei Gao, Jinchuan Zhang, Yiming Ren, **Yuexin Ma**, Yi Wu, Ruigang Yang, Wei Li. NPC: Neural Predictive Control for Fuel-Efficient Autonomous Trucks. ICRA, 2024

11. Dingrui Wang, Lai Zheyuan, Yuda Li, Yi Wu, **Yuexin Ma**, Johannes Betz, Ruigang Yang, Wei Li. ESP: Extro-Spective Prediction for Long-term Behavior Reasoning in Emergency Scenarios. ICRA, 2024.

12. Yilan Dong, Chunlin Yu, Ruiyang Ha, Ye Shi, **Yuexin Ma**, Lan Xu, Yanwei Fu, Jingya Wang. HybridGait: A Benchmark for Spatial-Temporal Cloth-Changing Gait Recognition with Hybrid Explorations. Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI), 2024

13. Kai Cheng, Xiaoxiao Long, Wei Yin, Jin Wang, Zhiqiang Wu, Yuexin Ma, Kaixuan Wang, Xiaozhi Chen, Xuejin Chen. UC-NERF: Neural Radiance Field for Under-Calibrated Multi-View Cameras in Autonomous Driving. The International Conference on Learning Representations (ICLR), 2024

14. Runnan Chen, Youquan Liu, Lingdong Kong, Nenglun Chen, Xinge Zhu, **Yuexin Ma***, Tongliang Liu, Wenping Wang. Towards Label-free Scene Understanding by Vision Foundation Models. Conference on Neural Information Processing Systems (NeurIPS), 2023

15. Yuhang Lu, Qi Jiang, Runnan Chen, Yuenan Hou, Xinge Zhu, **Yuexin Ma***. See More and Know More: Zero-shot Point Cloud Segmentation via Multi-modal Visual Data. International Conference on Computer Vision (ICCV), 2023

16. Yiteng Xu, Peishan Cong, Yichen Yao, Runnan Chen, Yuenan Hou, Xinge Zhu, Xuming He, Jingyi Yu, **Yuexin Ma***. Human-centric Scene Understanding in 3D Large-scale Scenarios. International Conference on Computer Vision (ICCV), 2023

17. Lingdong Kong, Youquan Liu, Runnan Chen, **Yuexin Ma**, Xinge Zhu, Yuenan Hou, Yikang Li, Yu Qiao, Ziwei Liu. Rethinking Range View Representation for LiDAR Segmentation. International Conference on Computer Vision (ICCV), 2023

18. Youquan Liu, Runnan Chen, Xin Li, Lingdong Kong, Yuchen Yang, Zhaoyang Xia, Yeqi Bai, Xinge Zhu, **Yuexin Ma**, Yikang Li, Yuenan Hou, Yu Qiao. UniSeg: A Unified Multi-Modal LiDAR Segmentation Network and the OpenPCSeg Codebase. International Conference on Computer Vision (ICCV), 2023

19. Xiangze Jia, Hui Zhou, Xinge Zhu, Yandong Guo, Ji Zhang, **Yuexin Ma***. ContrastMotion: Self-supervised Scene Motion Learning for Large-Scale LiDAR Point Clouds. International Joint Conference on Artificial Intelligence (IJCAI), 2023

20. Chaofan Huo, Ye Shi, **Yuexin Ma**, Lan Xu, Jingyi Yu, Jingya Wang. StackFLOW: Monocular Human-Object Reconstruction by Stacked Normalizing Flow with Offset. International Joint Conference on Artificial Intelligence (IJCAI), 2023

21. Jingyu Zhang, Huitong Yang, Dai-Jie Wu, Jacky Keung, Xuesong li, Xinge Zhu, Yuexin Ma*, Cross-modal and Cross-domain Knowledge Transfer for Label-free 3D Segmentation, Chinese Conference on Pattern Recognition and Computer Vision (PRCV), 2023

22. Xidong Peng, Xinge Zhu, **Yuexin Ma***. CL3D: Unsupervised Domain Adaptation for Cross-LiDAR 3D Detection. Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI), 2023.

23. Peishan Cong, Yiteng Xu, Yiming Ren, Juze Zhang, Lan Xu, Jingya Wang, Jingyi Yu, **Yuexin Ma***. Weakly Supervised 3D Multi-person Pose Estimation for Large-scale Scenes based on Monocular Camera and Single LiDAR. Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI), Oral, 2023.

24. Juze Zhang, Ye Shi, **Yuexin Ma**, Lan Xu, Jingyi Yu, Jingya Wang. IKOL: Inverse kinematics optimization layer for 3D human pose and shape estimation via Gauss-Newton differentiation. Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI), 2023.

25. Yiming Ren, Chengfeng Zhao, Yannan He, Peishan Cong, Han Liang, Jingyi Yu, Lan Xu*, and **Yuexin Ma***. LiDAR-aid Inertial Poser: Large-scale Human Motion Capture by Sparse Inertial and LiDAR Sensors. IEEE Transactions on Visualization and Computer Graphics (TVCG), 2023

26. Huitong Yang, Xuyang Bai, Xinge Zhu, and **Yuexin Ma***. One Training for Multiple Deployments: Polar-based Adaptive BEV Perception for Autonomous Driving. International Conference on Robotics and Automation (ICRA), 2023

27. Mingkun Wang, Xinge Zhu, Changqian Yu, Wei Li, **Yuexin Ma**, Ruochun Jin, Xiaoguang Ren, Dongchun Ren, Mingxu Wang, Wenjing Yang. GANet: Goal Area Network for Motion Forecasting. International Conference on Robotics and Automation (ICRA), 2023

28. Runnan Chen, Xinge Zhu, Nenglun Chen, Wei Li, **Yuexin Ma**, Ruigang Yang, Wenping Wang. Bridging Language and Geometric Primitives for Zero-shot Point Cloud Segmentation. ACM Multimedia (MM), 2023

29. Ming Yan, Xin Wang, Yudi Dai, Siqi Shen, Chenglu Wen, Lan Xu, **Yuexin Ma**, Cheng Wang. CIMI4D: A Large Multimodal Climbing Motion Dataset under Human-scene Interactions. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023

30. Yudi Dai, YiTai Lin, XiPing Lin, Chenglu Wen, Lan Xu, Hongwei Yi, Siqi Shen, **Yuexin Ma**, Cheng Wang. SLOPER4D: A Scene-Aware Dataset For Global 4D Human Pose Estimation In Urban Environments. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023

31. Zhaoyang Xia, Youquan Liu, Xin Li, Xinge Zhu, **Yuexin Ma**, Yikang LI, Yuenan Hou, Yu Qiao. SCPNet: Semantic Scene Completion on Point Cloud. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023

32. Runnan Chen, Youquan Liu, Lingdong Kong, Xinge Zhu, **Yuexin Ma**, Yikang LI, Yuenan Hou, Yu Qiao, Wenping Wang. CLIP2Scene: Towards Label-efficient 3D Scene Understanding by CLIP. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023

33. Zhaoxu Luo, Chenzhe Li, Dantong Liu, Baosheng Wang, Lejia Zhang, **Yuexin Ma**, Kuiwen Xu, Xiong Wang. Quantitative reconstruction of dielectric properties based on deep-learning-enabled microwave-induced thermoacoustic tomography. IEEE Transactions on Microwave Theory and Techniques, 2023

34. Peishan Cong, Xinge Zhu, Feng Qiao, Yiming Ren, Xidong Peng, Yuenan Hou, Lan Xu, Ruigang Yang, Dinesh Manocha, **Yuexin Ma***. STCrowd: A Multimodal Dataset for Pedestrian Perception in Crowded Scenes. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022

35. Yudi Dai, Yitai Lin, Chenglu Wen, Siqi Shen, Lan Xu, Jingyi Yu, **Yuexin Ma**, Cheng Wang. HSC4D: Human-centered 4D Scene Capture in Large-scale Indoor-outdoor Space Using Wearable IMUs and LiDAR. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022

36. Jialian Li, Jingyi Zhang, Zhiyong Wang, Siqi Shen, Chenglu Wen, **Yuexin Ma**, Lan Xu, Jingyi Yu, Cheng Wang. LiDARCap: Long-range Marker-less 3D Human Motion Capture with LiDAR Point Clouds. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022

37. Yuenan Hou, Xinge Zhu, **Yuexin Ma**, Chen Change Loy, Yikang Li. Point-to-Voxel Knowledge Distillation for LiDAR Semantic Segmentation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022

38. Runnan Chen, **Yuexin Ma**, Nenglun Chen, Lingjie Liu, Zhiming Cui, Yanhong Lin, Wenping Wang. Structure-Aware Long Short-Term Memory Network for 3D Cephalometric Landmark Detection. IEEE Transactions on Medical Imaging (TMI), 2022

39. Yuwei Li, Longwen Zhang, Zesong Qiu, Yingwenqi Jiang, Nianyi Li, **Yuexin Ma**, Yuyao Zhang, Lan Xu, Jingyi Yu. NIMBLE: a non-rigid hand model with bones and muscles. ACM Transactions on Graphics (TOG), 2022

40. Keke Tang, **Yuexin Ma**, Dingruibo Miao, Peng Song, Zhaoquan Gu, Zhihong Tian, Wenping Wang. Decision fusion networks for image classification. IEEE Transactions on Neural Networks and Learning Systems (TNNLS), 2022
41. Xiao Song, Guorun Yang, Xinge Zhu, Hui Zhou, **Yuexin Ma**, Zhe Wang, Jianping Shi. AdaStereo: An Efficient Domain-Adaptive Stereo Matching Approach. International Journal of Computer Vision (IJCV), 2022.

42. Yiming Ren, Peishan Cong, Xinge Zhu, **Yuexin Ma***. Self-supervised Point Cloud Completion on Real Traffic Scenes via Scene-concerned Bottom-up Mechanism. IEEE International Conference on Multimedia and Expo (ICME), 2022

43. Xidong Peng, Xinge Zhu, **Yuexin Ma***. SIDE: Center-based Stereo 3D Detector with Structure-awareInstance Depth Estimation. Winter Conference on Applications of Computer Vision (WACV), 2022

44. Xinge Zhu, Hui Zhou, Tai Wang, Fangzhou Hong, Wei Li, **Yuexin Ma***, Hongsheng Li, Ruigang Yang, Dahua Lin. Cylindrical and Asymmetrical 3D Convolution Networks for LiDAR-based Perception. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2021

45. Peishan Cong, Xinge Zhu, **Yuexin Ma***. Input-Output Balanced Framework for Long-tailed LiDAR Semantic Segmentation. IEEE International Conference on Multimedia and Expo (ICME), 2021

46. Xin Chen, Anqi Pang, Wei Yang, **Yuexin Ma**, Lan Xu and Jingyi Yu. SportsCap: Monocular 3D Human Motion Capture and Fine-grained Understanding in Challenging Sports Videos. International Journal of Computer Vision (IJCV), 2021.

47. Xin Chen, Anqi Pang, Wei Yang, **Yuexin Ma**, Lan Xu and Jingyi Yu. TightCap: 3D Human Shape Capture with Clothing Tightness. ACM Transactions of Graphics (TOG), 2021.

48. Yannan He, Anqi Pang, Xin Chen, Han Liang, Minye Wu, **Yuexin Ma**, Lan Xu. ChallenCap: Monocular 3D Capture of Challenging Human Performances using Multi-Modal References. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Oral, 2021

49. Xinge Zhu, Hui Zhou, Tai Wang, Fangzhou Hong, **Yuexin Ma**, Wei Li, Hongsheng Li, Dahua Lin. Cylindrical and Asymmetrical 3D Convolution Networks for LiDAR Segmentation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Oral, 2021

50. Weixiang Yang, Qi Li, Wenxi Liu, Yuanlong Yu, **Yuexin Ma**, Shengfeng He, Jia Pan. Projecting Your View Attentively: Monocular Road Scene Layout Estimation via Cross-view Transformation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021

51. Runnan Chen, **Yuexin Ma**, Lingjie Liu, Nenglun Chen, Zhiming Cui, Guodong Wei, Wenping Wang. Semi-supervised Anatomical Landmark Detection via Shape-regulated Self-training. Neurocomputing, 2021

52. **Yuexin Ma**, Xinge zhu, Xinjing Cheng, Ruigang Yang, Jiming Liu, Dinesh Manocha. AutoTrajectory: Label-free Trajectory Extraction and Prediction from Videos using Dynamic Points. European Conference on Computer Vision (ECCV), 2020

53. Xinge Zhu, **Yuexin Ma**, Tai Wang, Yan Xu, Jianping Shi, Dahua Lin. SSN: Shape Signature Networks for Multi-class Object Detection from Point Clouds. European Conference on Computer Vision (ECCV), 2020

54. Wei Li, Chengwei Pan, Rong Zhang, Jiaping Ren, **Yuexin Ma**, Jin Fang, Feilong Yan, Qichuan Geng, Xinyu Huang, Huajun Gong, Weiwei Xu, Guoping Wang, Dinesh Manocha, Ruigang Yang. AADS: Augmented Autonomous Driving Simulation using Data-driven Algorithms. Science Robotics, 2019

55. Runnan Chen, **Yuexin Ma**, Nenglun Chen, Daniel Lee, Wenping Wang. Cephalometric Landmark Detection by Attentive Feature Pyramid Fusion and Regression-Voting. International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2019

56. Yang Yi, Feng Ni, **Yuexin Ma**, Xinge Zhu, Yuankai Qi, Riming Qiu, Shijie Zhao, Feng Li, Yongtao Wang. High Performance Gesture Recognition via Effective and Efficient Temporal Modeling. International Joint Conference on Artificial Intelligence (IJCAI), 2019

57. Yiling Pan, Bin Wang, Xiaohu Guo, Hua Zeng, **Yuexin Ma**, Wenping Wang. Q-MAT+: an Error-Controllable and Feature-Sensitive Simplification Algorithm for Medial Axis Transform. International Conference on Geometric Modeling and Processing (GMP), 2019

58. **Yuexin Ma**, Xinge Zhu, Sibo Zhang, Ruigang Yang, Wenping Wang, Dinesh Manocha. TrafficPredict: Trajectory Prediction for Heterogeneous Traffic-Agents. AAAI Conference on Artificial Intelligence (AAAI), Oral, 2019

59. **Yuexin Ma**, Dinesh Manocha, Wenping Wang. Efficient Reciprocal Collision Avoidance with Heterogeneous Agents Using CTMAT. International Conference on Autonomous Agents and Multiagent Systems (AAMAS), Oral, 2018

60. **Yuexin Ma**, Dinesh Manocha, Wenping Wang. AutoRVO: Local Navigation with Dynamic Constraints in Dense Heterogeneous Traffic. ACM Computer Science in Cars Symposium (CSCS), 2018

61. **Yuexin Ma**, Zhonggui Chen, Wenchao Hu, Wenping Wang. Packing Irregular Objects in 3D Space via Hybrid Optimization. Symposium on Geometry Processing (SGP), 2018

62. Weikai Chen*, **Yuexin Ma***, Sylvain Lefebvre, Shiqing Xin, Jonàs Martínez, Wenping Wang. Fabricable Tile Decors. ACM Transactions on Graphics (TOG), 36(6), 2017.

63. **Yuexin Ma**, Xinge Zhu, Yujing Sun, Bingzheng Yan. Image Tagging by Joint Deep Visual-Semantic Propagation. Pacific-Rim Conference on Multimedia (PCM), 2017.

·Funding·

- **Government Projects**
  1. Natural Science Foundation of China (国家自然科学基金青年基金), No.62206173 2023
  2. Natural Science Foundation of Shanghai (上海市自然科学基金), No.22dz1201900 2022
  3. Shanghai Sailing Program(上海市扬帆计划), No.22YF1428700 2021

·Academic Service·

- Reviewer of CVPR, ICCV, ECCV, AAAI, IJCAI, IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Multimedia, and Computer Vision and Image Understanding, etc.
- Challenge Chair of CVPR 2019 Workshop of Autonomous Driving
- Area Chair of Chinese Conference on Pattern Recognition and Computer Vision(PRCV) 2023
- 中国计算机学会计算机视觉专委会委员 2022,2023
- 中国图学学会可视化与认知计算专业委员会委员 2022,2023
- CAAI 认知系统与信息处理专业委员会委员 2022,2023

·Awards·

- 上海市优秀教学成果（高等教育类）一等奖 （虞晶怡 何旭明 郑杰 高盛华 屠可伟 赵登吉 Laurent Kneip Manolis Tsakiris 王浩 马月昕） 2022.10
- First-author paper “TrafficPredict: Trajectory Prediction for Heterogeneous Traffic-Agents” obtained **Most Influential AAAI Papers** of AAAI 2019. Rank 13. 2021.10
- SemanticKITTI Multi-Scan Semantic Segmentation, rank 1st 2021.01
- SemanticKITTI Semantic Segmentation, rank 1st 2020.11
- SemanticKITTI Panoptic Segmentation, rank 1st 2020.11
- NuScenes Camera-based 3D Detection, rank 2nd 2020.12
- NuScenes LiDAR Semantic Segmentation, rank 2nd 2020.12
- **Best paper candidate** of PCM (Pacific-Rim Conference on Multimedia) 2017.11

·Honor·

- Shanghai High-level Talents 2021
- Outstanding Individual of Baidu RAL 2018

- Best Tutor of the University of Hong Kong 2016
- Hong Kong PhD Fellowship Award (HKPFS) 2015
- Presidential Scholarship of Shandong University 2015
- Google Merit Scholarship 2014
- CCF (China Computer Federation) Top 100 Outstanding Undergraduates of China 2013
- National Scholarship of China 2013, 2014