Xiangyun Meng

PhD Candidate · University of Washington

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Education

University of Washington *Seattle, WA*

PhD Computer Science *2017 - present*

- Advisor: Dieter Fox

National University of Singapore *Singapore*

BS Computer Science *2010 - 2014*

- 1st Class Honors

Professional Experience

2024	**Research Intern**, NVIDIA
2023	**Research Intern**, Accenture
2022-2023	**Perception Lead, UW RACER Team**, University of Washington, Overland.AI
2017-2023	**Research Assistant**, University of Washington
2021	**Research Intern**, NVIDIA
2020, 2023	**Graduate Teaching Assistant**, University of Washington

Research Interests

Robotics

Foundation models for Robot Navigation, Manipulation and Control

- Building end-to-end models for robust and general robot autonomy.
- Learning-based navigation and manipulation skills, including visual obstacle avoidance, topological mapping, grasping, and agile quadrupedal locomotion.
- Large-scale photorealistic simulation training for robust sim2real transfer.

Computer Vision

2D/3D Robot Perception

- Vision and LiDAR-based terrain perception for driving in challenging conditions (high-speed, off-road).
- Domain adaptation to leverage data collected from different sensors for learning.

Skills

Programming Languages: Python, C, C++

Frameworks: PyTorch, ROS, ROS2

Hardware Platforms: Polaris RZR, NVIDIA Jetson, Boston Dynamics Spot, ClearPath Warthog

Publications

Sanghun Jung, JoonHo Lee, **Xiangyun Meng**, Byron Boots, Alexander Lambert. "V-STRONG: Visual Self-Supervised Traversability Learning for Off-road Navigation". *ICRA 2024*.

Yuxiang Yang, Guanya Shi, **Xiangyun Meng**, Wenhao Yu, Tingnan Zhang, Jie Tan, Byron Boots. "CAJun: Continuous Adaptive Jumping using a Learned Centroidal Controller ". *Conference on Robot Learning 2023*.

Amirreza Shaban*, JoonHo Lee*, Sanghun Jung*, **Xiangyun Meng**, Byron Boots. "LiDAR-UDA: Self-ensembling Through Time for Unsupervised LiDAR Domain Adaptation ". *International Conference on Computer Vision 2023*.

Xiangyun Meng, Nathan Hatch, Alexander Lambert, Anqi Li, Nolan Wagener, Matthew Schmittle, JoonHo Lee, Wentao Yuan, Zoey Chen, Samuel Deng, Greg Okopal, Dieter Fox, Byron Boots, Amirreza Shaban. "TerrainNet: Visual Modeling of Complex Terrain for High-speed, Off-road Navigation". *Robotics: Science and Systems 2023*.

Yuxiang Yang, **Xiangyun Meng**, Wenhao Yu, Tingnan Zhang, Jie Tan, Byron Boots. "Continuous Versatile Jumping Using Learned Action Residuals". *Learning For Dynamics and Control Conference 2023*.

Yuxiang Yang, **Xiangyun Meng**, Wenhao Yu, Tingnan Zhang, Jie Tan, Byron Boots. "Learning semantics-aware locomotion skills from human demonstration". *Conference on Robot Learning 2022*.

Lirui Wang, **Xiangyun Meng**, Yu Xiang, Dieter Fox, "Hierarchical policies for cluttered-scene grasping with latent plans". *IEEE Robotics and Automation Letters 2022*.

Amirreza Shaban*, **Xiangyun Meng***, JoonHo Lee* (* equal contribution), Byron Boots, Dieter Fox, "Semantic Terrain Classification for Off-road Autonomous Driving". *Conference on Robot Learning 2021*.

Xiangyun Meng, Yu Xiang and Dieter Fox, "Learning Composable Behavior Embeddings for Long-horizon Visual Navigation". *IEEE Robotics and Automation Letters 2021*.

Xiangyun Meng, Nathan Ratliff, Yu Xiang and Dieter Fox, "Scaling Local Control to Large-Scale Topological Navigation". *ICRA 2020*.

Xiangyun Meng, Nathan Ratliff, Yu Xiang and Dieter Fox, "Neural Autonomous Navigation with Riemannian Motion Policy". *ICRA 2019*.

Xiangyun Meng, Wei Wang, and Ben Leong, "SkyStitch: a Cooperative Multi-UAV-based Realtime Video Surveillance System with Stitching". *Proceedings of the ACM Multimedia Conference 2015*

Awards

2017 **Graduate Fellowship**, University of Washington

2015 **Lijen Industrial Development Medal (2nd top student)**, National University of Singpoare
FYP Innovation Award, National University of Singapore

2010-2014 **Dean's List (7 semesters)**, National University of Singapore

Invited Talks

Spring 2021. *Robust and Scalable Visual Navigation without a Metric Map*. Guest Lecture for CS331B: Interactive Simulation for Robot Learning, Stanford University.

Fall 2021. *Robust and Scalable Visual Navigation without a Metric Map*. Invited talk: Tartan SLAM Series at CMU Robotics.

Fall 2022. *Perception for Off-Road Autonomous Driving*. Invited talk: Learning for Agile Robotics Workshop at CoRL 2022.

Teaching Experience

Winter 2023 **CSE 478 Autonomous Robotics**, Teaching Assistant

Spring 2020 **CSE 571 Ai-Based Mobile Robotics**, Teaching Assistant