

RSS 2025 Workshop on Resilient Off-road Autonomous Robotics (RSS-ROAR)

June 25, 2025,

**University of Southern California,
Los Angeles, California**

Workshop Location: Olin Hall of Engineering (OHE) Room 100B

Poster Location: Epstein Family Plaza

Time	Session
08:15-08:30	Opening Remarks
08:30-09:00	Keynote Talk 1: Radar Localization for Driving Off the Road (Tim Barfoot)
09:00-09:30	Keynote Talk 2: Learning Robust Computer Vision in Unknown Environments (Marija Popović)
09:30-09:45	Oral Presentation 1: Meta-Learning Online Dynamics Model Adaptation in Off-Road Autonomous Driving
09:45-10:30	Coffee break and Poster Session
10:30-11:00	Keynote Talk 3: Robot Navigation in Complex Indoor and Outdoor Environment (Dinesh Manocha)
11:00-11:30	Keynote Talk 4: Future Surface and Aerial Mobility for Mars Exploration (Masahiro (Hiro) Ono)
11:30-11:45	Oral Presentation 2: OVerSeeC – Open-Vocabulary CostMap Generation from Satellite Images and Natural Language
11:45-12:00	Oral Presentation 3: Online Adaptation of Terrain-Aware Dynamics for Planning in Unstructured Environments
12:00-12:15	Oral Presentation 4: Kinodynamic Motion Planning for Mobile Robot Navigation across Inconsistent World Models
12:15-12:30	Oral Presentation 5: Long Range Navigator (LRN): Extending robot planning horizons beyond metric maps
12:30-14:00	Lunch Break.
14:00-14:30	Keynote Talk 5: Off Road Autonomy in Feature Sparse Environments (Anton Netchaev)
14:30-15:00	Keynote Talk 6: TBD (Byron Boots)
15:00-15:30	Keynote Talk 7: Reading the Dirt: Learning What Matters (and What Doesn't) for Off-Road Navigation (Joydeep Biswas)
15:30-16:00	Coffee break and Poster Session
16:00-16:30	Keynote Talk 8: Spatial AI and ML for Autonomous Robot Navigation in Rough Terrains (Hyun Myung)
16:30-17:00	Keynote Talk 9: Robotic Autonomy in Complex Environments with Resiliency (Stuart Young)
17:00-17:50	Panel Discussion: Foundation Models and Large Language Models in Off-Road Robotics: Hype or Reality?
17:50-18:00	Closing Remarks.

Workshop Poster Schedule

Session A - 9:30-10:20 AM (Epstein Plaza)

- Meta-Learning Online Dynamics Model Adaptation in Off-Road Autonomous Driving
- OVerSeeC – Open-Vocabulary CostMap Generation from Satellite Images and Natural Language
- Online Adaptation of Terrain-Aware Dynamics for Planning in Unstructured Environments
- Kinodynamic Motion Planning for Mobile Robot Navigation across Inconsistent World Models
- Long Range Navigator (LRN): Extending robot planning horizons beyond metric maps
- VertiSelector: Automatic Curriculum Learning for Wheeled Mobility on Vertically Challenging Terrain
- Verti-Bench: A General and Scalable Off-Road Mobility Benchmark for Vertically Challenging Terrain
- GND: An Outdoor Global Navigation Dataset with Multi-Modal Perception and Traversability
- Learning Smooth State-Dependent Traversability from Dense Point Clouds

Session C 3:00-3:50 PM (Epstein Plaza)

- BEV-Patch-PF: Particle Filtering with BEV-Aerial Feature Matching for Off-Road Geo-Localization
- Wheeled Lab: Modern Sim2Real for Low-cost, Open-source Wheeled Robotics
- MAGIC-VFM Meta-learning Adaptation for Ground Interaction Control with Visual Foundation Models
- LunarLoc: Segment-Based Global Localization on the Moon
- ADEPT: Adaptive Diffusion Environment for Policy Transfer Sim-to-Real
- Dynamics Modeling using Visual Terrain Features for High-Speed Autonomous Off-Road Driving
- M2P2: A Multi-Modal Passive Perception Dataset for \Off-Road Mobility in Extreme Low-Light Conditions
- Traverse the Non-Traversable: Estimating Traversability for Wheeled Mobility on Vertically Challenging Terrain
- Learning to Predict Mobile Robot Stability in Off-Road Environments



Website



SLACK



ZOOM