Workshop on Off-Road Autonomy

Call For Papers

Off-road autonomy entails R&D on a technology stack that enables autonomous and robotic systems to navigate through unstructured, off-road environments. Whereas on-road autonomy has to deal with the not-easy problems of figuring out how to share roads with road occupants such as cars, bicyclists, pedestrians, etc., while abiding by the traffic rules and following driving conventions.

By contrast, off-road autonomy does not have to concern too much about interactions with road occupants, but no clear rules and boundaries of where and how to drive poses a different set of challenges under the paradox of choice. For example, off-road autonomy should enable its host system to know where it can drive on in a way not to damage the host system. No human driver wants to drive into a stream with unknown depth and current strength, even if it is a shortcut to the destination. To make things more complicated, the path it drove on yesterday might not be available today due to the changes of the environment or it may have to change the way it drove in the same area.

Due to such intrinsic differences between these two fields, in contrast to what is often proposed and believed, it is not just a matter of transferring what we learned from on-road autonomy to the field of autonomous driving on off-road.

Thus the objective of this workshop aims at bringing together researchers and practitioners working on off-road autonomy, in order to discuss the challenges from automating off-road maneuvering, the issues of realizing off-road autonomy, to share latest results of their research, to discuss what matters most to accomplish the goals of off-road autonomy, and to network people in the field.

Topic of Interest

This workshop solicits high-quality technical papers. The topics of interest include but not limited to the following:

– Sensor fusion for estimating traversability
– Data set on and for off-road driving
– Exploratory maneuvers
– Calibration methods for easier and quicker transfer of autonomy stack
– Transfer learning for applying urban and/or on-road AD stack to off-road
– Economic learning approach for off-road maneuvers, e.g., online learning, self-supervised learning, etc.
– Knowledge representation: Terrain, moving and static objects, weather
– Long-term localization and mapping in off-road environments
– Addressing the characteristics of off-road terrains, e.g., estimating lateral slips and mitigating them
– Autonomous navigation for GPS-denied and rough terrains
– State estimation / SLAM for off-road environments

Important Dates
Paper submission due: Feb 2, 2024
Paper acceptance notification: Mar 30, 2024
Camera ready due: Apr 22, 2024
Workshop date: Jun 2, 2024

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