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Robotics for Environment Sensing

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Message from the Guest Editor

In the last decades, robotics has evolved significantly, both in terms of technologies developed and applications, especially in the field of environmental monitoring. Robots have been developed in different shapes, sizes and with different capabilities becoming a fundamental data gathering tool for scientists studying – not only – our planet. Design and implementation of robotic systems for environmental research still present significant challenges to robotics researchers, especially in the field of Mobile Robot Olfaction (MRO) – the discipline that studies mobile robots with gas sensing capabilities. MRO requires the fusion of different disciplines, such as signal processing, machine perception, autonomous navigation, and pattern recognition, in order to address the challenges related to gas and environmental sensing in unstructured environments. Typical tasks addressed by MRO systems are trail guidance, gas distribution modeling/mapping, and gas source localization as well as gas detection/finding, odor discrimination and concentration estimation, gas plume tracking, and gas source declaration.



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Special Issue



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Message from the Editor-in-Chief

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