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Autonomous Mobile Robots: Real-Time Sensing, Navigation, and Control

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Message from the Guest Editor

Autonomous mobile robots can be used for different applications such as precision agriculture, field robotics, search and rescue, planetary exploration, etc. Sensors, together with navigation and control algorithms, allows improving autonomy in different manners. Exteroceptive sensors as LIDARs, stereocameras, ultrasonic devices, IR cameras and others helps mobile robots to get rich information about surrounding environment, useful to support robot navigation in path and motion planning algorithms. Proprioceptive sensors as current sensors, IMUs, vibration sensors, wheel sinkage sensors, become useful in improving robot awareness of the surface. A combination of both kinds of sensors, together with artificial intelligence algorithms, would improve the autonomous navigation and control of robots. Potential topics include, but are not limited to:

- Novel perception systems for robot navigation and localization
- Novel sensors for robot localization
- Robot localization without GNSS
- Novel proprioceptive sensors onboard mobile robots
- Path planning for mobile robots
- Motion planning for mobile manipulators
- Field tests with autonomous mobile robots
- Applications of mobile robots.

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Message from the Editor-in-Chief

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