



## **Special Session “Magnetic-Based Localization Techniques”**

### **Abstract**

For centuries, Earth’s magnetic field has been used for determining the direction of the magnetic North. However, since the Earth’s magnetic field is usually perturbed due to the proximity of ferromagnetic materials and electric currents, the magnetic North is difficult to find in indoor and urban environments. Therefore, the magnetometer has historically been discarded for indoor and urban navigation applications. In the last decade, two alternative ways of extracting information out of a perturbed magnetic environment have been proposed: a, the magnetic fingerprinting makes use of the fact that the magnetic distortion is highly modulated in space, but relatively constant in time; b, the perturbed magnetic field can be used to estimate the biases of the gyroscopes, which affect severely the orientation estimation if not compensated.

In this special session we would like to gain an overview of the last innovative proposals of localization algorithms for indoor and urban environments mainly or partially based on magnetic measurements.

### **Keywords**

Calibration, bias compensation, magnetic fingerprinting, magnetic SLAM, sensor fusion

### **Technical Program Committee**

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### **Important Dates**

- Submission deadline: 15 May 2021
- Notification of acceptance: 21 June 2021

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