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Sensing and Control for Autonomous Vehicles

Applications to Land, Water and Air Vehicles

Series: Lecture Notes in Control and Information Sciences

- Presents recent trends in the field of autonomous control systems
- Focuses on applications to land, water and aerial vehicles
- Fills a gap in the literature by addressing autonomous guidance, navigation and control (GNC) systems

This edited volume includes thoroughly collected on sensing and control for autonomous vehicles. Guidance, navigation and motion control systems for autonomous vehicles are increasingly important in land-based, marine and aerial operations. Autonomous underwater vehicles may be used for pipeline inspection, light intervention work, underwater survey and collection of oceanographic/biological data. Autonomous unmanned aerial systems can be used in a large number of applications such as inspection, monitoring, data collection, surveillance, etc. At present, vehicles operate with limited autonomy and a minimum of intelligence. There is a growing interest for cooperative and coordinated multi-vehicle systems, real-time re-planning, robust autonomous navigation systems and robust autonomous control of vehicles. Unmanned vehicles with high levels of autonomy may be used for safe and efficient collection of environmental data, for assimilation of climate and environmental models and to complement global satellite systems. The target audience primarily comprises research experts in the field of control theory, but the book may also be beneficial for graduate students.

1st ed. 2017, IX, 518 p. 212 illus., 170 illus. in color.

Printed book

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