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| | Titolo | Mobile robots : navigation, control and sensing, surface robots, and AUVs / / Gerald Cook, Feitian Zhang |
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| | ISBN | 1-119-53482-8<br>1-119-53483-6<br>1-119-53470-4 |
| | Edizione | [Second edition.] |
| | Descrizione fisica | 1 online resource (346 pages) : illustrations |
| | Disciplina | 629.892 |
| | Soggetti | Mobile robots<br>Robots - Control systems |
| | Lingua di pubblicazione | Inglese |
| | Formato | Materiale a stampa |
| | Livello bibliografico | Monografia |
| | Note generali | Previous edition issued in print: 2011. |
| | Nota di bibliografia | Includes bibliographical references and index. |
| | Nota di contenuto | Kinematic models for mobile robots -- Mobile robot control -- Robot attitude -- Robot navigation -- Application of Kalman filtering -- Remote sensing -- Target tracking including multiple targets with multiple sensors -- Obstacle mapping and its application to robot navigation -- Operating a robotic manipulator -- Remote sensing via UAVs -- Dynamics modeling of AUVs -- Control of AUVs. |
| | Sommario/riassunto | Presents the normal kinematic and dynamic equations for robots, including mobile robots, with coordinate transformations and various control strategies This fully updated edition examines the use of mobile robots for sensing objects of interest, and focus primarily on control, navigation, and remote sensing. It also includes an entirely new section on modeling and control of autonomous underwater vehicles (AUVs), which exhibits unique complex three-dimensional dynamics. Mobile Robots: Navigation, Control and Sensing, Surface Robots and AUVs, Second Edition starts with a chapter on kinematic models for mobile robots. It then offers a detailed chapter on robot control, examining several different configurations of mobile robots. Following sections look at robot attitude and navigation. The application of Kalman Filtering is covered. Readers are also provided with a section on |

remote sensing and sensors. Other chapters discuss: target tracking, including multiple targets with multiple sensors; obstacle mapping and its application to robot navigation; operating a robotic manipulator; and remote sensing via UAVs. The last two sections deal with the dynamics modeling of AUVs and control of AUVs. In addition, this text: . Includes two new chapters dealing with control of underwater vehicles. Covers control schemes including linearization and use of linear control design methods, Lyapunov stability theory, and more. Addresses the problem of ground registration of detected objects of interest given their pixel coordinates in the sensor frame. Analyzes geo-registration errors as a function of sensor precision and sensor pointing uncertainty Mobile Robots: Navigation, Control and Sensing, Surface Robots and AUVs is intended for use as a textbook for a graduate course of the same title and can also serve as a reference book for practicing engineers working in related areas.