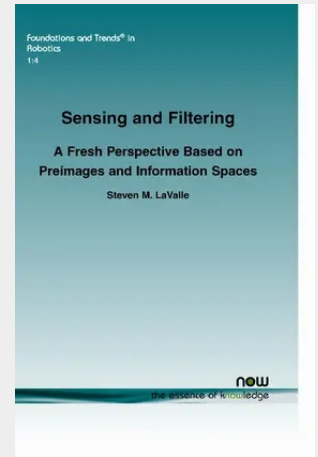


Sensing and Filtering

A Fresh Perspective Based on Preimages and Information Spaces

Where do robots get their information? For a given task, what information is actually necessary? What is even meant by "information"? These questions lie at the heart of robotics and fall under the realm of sensing and filtering. In *Sensing and Filtering*, the author presents an unusual view of these subjects by characterizing the uncertainty due to the many-to-one mappings between the world and sensor readings. This is independent of noise-based uncertainty and reveals critical structure about the possible problems that can be solved using specific sensors. The set of all sensor models is arranged into a lattice that enables them to be compared for purposes of interchangeability. Filters, which combine sensor observations, are expressed in terms of information states (not information theory), a concept that was introduced in decision and control theory. *Sensing and Filtering* provides the reader with modeling tools and concepts for developing robotic systems that accomplish their tasks while carefully avoiding the reconstruction of unnecessary state information. This is in contrast to the approach usually taken in planning and control, which is to fully reconstruct and maintain the state at all times. The new approach may enable simple, robust, and inexpensive solutions to tasks such as navigation, topological mapping, coverage, patrolling, tracking, and pursuit-evasion.



90,00 €

84,11 € (zzgl. MwSt.)

Nicht mehr lieferbar

Artikelnummer: 9781601985248

Medium: Buch

ISBN: 978-1-60198-524-8

Verlag: Now Publishers

Erscheinungstermin: 22.02.2012

Sprache(n): Englisch

Auflage: 1. Auflage 2012

Serie: Foundations and Trends® in Robotics

Produktform: Kartoniert

Seiten: 132

Format (B x H): 156 x 234 mm

