Decentralized Estimation and Control for Multisensor Systems (Hardback)

By Arthur G.O. Mutambara

Taylor Francis Inc, United States, 1998. Hardback. Book Condition: New. 243 x 163 mm. Language: English . Brand New Book. Decentralized Estimation and Control for Multisensor Systems explores the problem of developing scalable, decentralized estimation and control algorithms for linear and nonlinear multisensor systems. Such algorithms have extensive applications in modular robotics and complex or large scale systems, including the Mars Rover, the Mir station, and Space Shuttle Columbia. Most existing algorithms use some form of hierarchical or centralized structure for data gathering and processing. In contrast, in a fully decentralized system, all information is processed locally. A decentralized data fusion system includes a network of sensor nodes - each with its own processing facility, which together do not require any central processing or central communication facility. Only node-to-node communication and local system knowledge are permitted. Algorithms for decentralized data fusion systems based on the linear information filter have been developed, obtaining decentrally the same results as those in a conventional centralized data fusion system. However, these algorithms are limited, indicating that existing decentralized data fusion algorithms have limited scalability and are wasteful of communications and computation resources. Decentralized Estimation and Control for Multisensor Systems aims to remove current limitations...

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