Record Nr. UNINA9910254313103321 Autore Liu Honghai **Titolo** Human Motion Sensing and Recognition: A Fuzzy Qualitative Approach // by Honghai Liu, Zhaojie Ju, Xiaofei Ji, Chee Seng Chan, Mehdi Khoury Pubbl/distr/stampa Berlin, Heidelberg:,: Springer Berlin Heidelberg:,: Imprint: Springer, 2017 **ISBN** 3-662-53692-7 Edizione [1st ed. 2017.] 1 online resource (XVI, 281 p. 131 illus., 112 illus. in color.) Descrizione fisica Collana Studies in Computational Intelligence, , 1860-949X;; 675 006.3 Disciplina Soggetti Computational intelligence Artificial intelligence Biomedical engineering Human physiology Computational Intelligence Artificial Intelligence Biomedical Engineering and Bioengineering **Human Physiology** Lingua di pubblicazione Inglese Materiale a stampa **Formato** Livello bibliografico Monografia Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Introduction -- Fuzzy Qualitative Trigonometry -- Fuzzy Qualitative Robot Kinematics -- Fuzzy Qualitative Human Motion Analysis -- Fuzzy Gaussian Mixture Models -- Fuzzy Empirical Copula for Estimating Data Dependence Structure -- A Unified Fuzzy Framework for Human Hand Motion Recognition -- Human Hand Motion Analysis with Multisensory Information -- A Novel Approach to Extract Hand Gesture Feature in Depth Images -- Recognizing Constrained 3D Human Motion: An Inference Approach -- Study of Human Action Recognition Based on Improved Spatio-temporal Features -- A View-invariant Action Recognition based on Multi-view Space Hidden Markov Models. . Sommario/riassunto This book introduces readers to the latest exciting advances in human motion sensing and recognition, from the theoretical development of fuzzy approaches to their applications. The topics covered include

human motion recognition in 2D and 3D, hand motion analysis with

contact sensors, and vision-based view-invariant motion recognition, especially from the perspective of Fuzzy Qualitative techniques. With the rapid development of technologies in microelectronics, computers, networks, and robotics over the last decade, increasing attention has been focused on human motion sensing and recognition in many emerging and active disciplines where human motions need to be automatically tracked, analyzed or understood, such as smart surveillance, intelligent human-computer interaction, robot motion learning, and interactive gaming. Current challenges mainly stem from the dynamic environment, data multi-modality, uncertain sensory information, and real-time issues. These techniques are shown to effectively address the above challenges by bridging the gap between symbolic cognitive functions and numerical sensing & control tasks in intelligent systems. The book not only serves as a valuable reference source for researchers and professionals in the fields of computer vision and robotics, but will also benefit practitioners and graduates/postgraduates seeking advanced information on fuzzy

techniques and their applications in motion analysis.

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