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Titolo	Computer Vision and Machine Learning with RGB-D Sensors // edited by Ling Shao, Jungong Han, Pushmeet Kohli, Zhengyou Zhang
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Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (313 p.)
Collana	Advances in Computer Vision and Pattern Recognition, , 2191-6586
Disciplina	006.37
Soggetti	Optical data processing Artificial intelligence User interfaces (Computer systems) Image Processing and Computer Vision Artificial Intelligence User Interfaces and Human Computer Interaction
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I: Surveys -- 3D Depth Cameras in Vision: Benefits and Limitations of the Hardware -- A State-of-the-Art Report on Multiple RGB-D Sensor Research and on Publicly Available RGB-D Datasets -- Part II: Reconstruction, Mapping and Synthesis -- Calibration Between Depth and Color Sensors for Commodity Depth Cameras -- Depth Map Denoising via CDT-Based Joint Bilateral Filter -- Human Performance Capture Using Multiple Handheld Kinects -- Human Centered 3D Home Applications via Low-Cost RGBD Cameras -- Matching of 3D Objects Based on 3D Curves -- Using Sparse Optical Flow for Two-Phase Gas Flow Capturing with Multiple Kinects -- Part III: Detection, Segmentation and Tracking -- RGB-D Sensor-Based Computer Vision Assistive Technology for Visually Impaired Persons -- RGB-D Human Identification and Tracking in a Smart Environment -- Part IV: Learning-Based Recognition -- Feature Descriptors for Depth-Based Hand Gesture Recognition -- Hand Parsing and Gesture Recognition with a Commodity Depth Camera -- Learning Fast Hand Pose Recognition -- Real time Hand-Gesture Recognition Using RGB-D

Sensor.

Sommario/riassunto

The combination of high-resolution visual and depth sensing, supported by machine learning, opens up new opportunities to solve real-world problems in computer vision. This authoritative text/reference presents an interdisciplinary selection of important, cutting-edge research on RGB-D based computer vision. Divided into four sections, the book opens with a detailed survey of the field, followed by a focused examination of RGB-D based 3D reconstruction, mapping and synthesis. The work continues with a section devoted to novel techniques that employ depth data for object detection, segmentation and tracking, and concludes with examples of accurate human action interpretation aided by depth sensors. Topics and features: Discusses the calibration of color and depth cameras, the reduction of noise on depth maps, and methods for capturing human performance in 3D Reviews a selection of applications which use RGB-D information to reconstruct human figures, evaluate energy consumption, and obtain accurate action classification Presents an innovative approach for 3D object retrieval, and for the reconstruction of gas flow from multiple Kinect cameras Describes an RGB-D computer vision system designed to assist the visually impaired, and another for smart-environment sensing to assist elderly and disabled people Examines the effective features that characterize static hand poses, and introduces a unified framework to enforce both temporal and spatial constraints for hand parsing Proposes a new classifier architecture for real-time hand pose recognition, and a novel hand segmentation and gesture recognition system Researchers and practitioners working in computer vision, HCI and machine learning will find this to be a must-read text. The book also serves as a useful reference for graduate students studying computer vision, pattern recognition or multimedia.