

Vision-Based Human Activity Recognition

This book offers a systematic, comprehensive, and timely review on V-HAR, and it covers the related tasks, cutting-edge technologies, and applications of V-HAR, especially the deep learning-based approaches. The field of Human Activity Recognition (HAR) has become one of the trendiest research topics due to the availability of various sensors, live streaming of data and the advancement in computer vision, machine learning, etc. HAR can be extensively used in many scenarios, for example, medical diagnosis, video surveillance, public governance, also in human-machine interaction applications. In HAR, various human activities such as walking, running, sitting, sleeping, standing, showering, cooking, driving, abnormal activities, etc., are recognized. The data can be collected from wearable sensors or accelerometer or through video frames or images; among all the sensors, vision-based sensors are now the most widely used sensors due to their low-cost, high-quality, and unintrusive characteristics. Therefore, vision-based human activity recognition (V-HAR) is the most important and commonly used category among all HAR technologies.

The addressed topics include hand gestures, head pose, body activity, eye gaze, attention modeling, etc. The latest advancements and the commonly used benchmark are given. Furthermore, this book also discusses the future directions and recommendations for the new researchers.

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