

A Survey of Recognizing of Daily Living Activities in Multi-User Smart Home Environments

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Abstract : The advancement in information and communication technologies (ICT) and wireless sensor networks have played a pivotal role in the design and development of real-time healthcare solutions, mainly targeting the elderly living in health-assistive smart homes. Such smart homes are equipped with sensor technologies to detect and record activities of daily living (ADL). This survey reviews and evaluates existing approaches and techniques based on real-time sensor-based modeling and reasoning in single-user and multi-user environments. It classifies the approaches into three main categories: learning-based, knowledge-based, and hybrid, and evaluates how they handle temporal relations, granularity, and uncertainty. The survey also highlights open challenges across various disciplines (including computer and information sciences and health sciences) to encourage interdisciplinary research for the detection and recognition of ADLs and discusses future directions.

Keywords : daily living activities, smart homes, single-user environment, multi-user environment

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