

Situational Awareness for Assistive Technologies

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The development of smart assistive technology for personal living and public environments is an opportunity that has been recently recognized by research labs across the world. A particular theme that has garnered attention in many countries is the problem of an aging population. The combination of a much larger elderly population and the ever increasing cost of providing full-time human care for them means that finding practical assisted living solutions for this group is becoming increasingly important. Computing is the obvious choice to provide an answer to this growing problem, but to have a real impact, computer-based assistive technologies will need to possess the ability to interact with, and interpret, the actions and situations of those they are designed to assist.

The papers in this book explore the diversity of the field of ambient intelligence, as well as the wide range of approaches and variety of applications that may prove to be possible. Consideration is given to how space, action, time, and other contexts can be represented and reasoned about for use in sensory mapping, multi-agent interactions, assisted living, and even emergency responses. Many techniques are examined; variety represents one of the most important strengths of this area, meaning that the weakness of one approach can be offset by the capability of others.

The book consists of research contributions dealing with the crucial notion of situational awareness within assistive smart systems emerging as an overarching concept. An applied computer science character has been retained, whilst bringing to the fore research projects where formal knowledge representation and reasoning techniques have been demonstrated to be applicable to areas within the broader field of ambient intelligence and smart environments.

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Contents:

Commonsense Situational Awareness for Assistive Technologies – Agenda of the STAMI Initiative

M. Bhatt and H. Guesgen

Possible-World and Multiple-Context Semantics for Common-Sense Action Planning

M.J. Santofimia, S.E. Fahlman, X. del Toro, F. Moya and J.C. Lopez

Knowledge Representation and Reasoning for Sensory-Rich Smart Environments to Support Independent Living

A. Mileo, D. Merico and R. Bisiani

A Context and Situational Aware Multi-Agent System for Ambient Assisted Living Assistance and Support

J. McNaull, J.C. Augusto, M. Mulvenna and P. McCullagh

Situation Awareness: An Agent-Oriented Software Engineering Perspective

R. So and L. Sonenberg

Context-Aware Web-Service Coordination for Emergency Response in Smart Environment

A. Smirnov, T. Levashova, A. Kashevnik and N. Shilov

Models of Indoor Environments – A Generic Interactive Model for Design and Simulation of Building Automation

K. Rannat, M. Meriste, J. Helekivi and T. Kelder

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