



Call for Book Chapters for the Elsevier Inc.:

“Ambient Assisted Living and Enhanced Living Environments: Principles, Technologies and Control”

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Introduction

The increase in medical expenses due to societal issues like demographic ageing, puts strong pressure on the sustainability of health and social care systems, on labour participation, and on quality of life for older people or for persons with disabilities. Enhanced Living Environments (ELE) encompasses all ICT technological achievements supporting true Ambient Assisted Living (AAL) environments. ELE promotes the provision of infrastructures and services for the independent or more autonomous living, via the seamless integration of info-communication technologies within homes and residences, thus increasing their quality of life and autonomy maintaining one's home the preferable living environment for as long as possible, therefore not causing disruption in the web of social and family interactions.

Different ELE technologies are today aiming to construct safe environments around assisted peoples and help them maintain independent living. Most efforts towards the realization of ambient assisted living systems are based on developing pervasive devices and use Ambient Intelligence to integrate these devices together to construct a safety environment. The missing interaction of multiple stakeholders needing to collaborate for ELE environments supporting a multitude of AAL services, as well as barriers to innovation in the markets concerned, the governments, and health and care sector, these innovations do not yet take place at a relevant scale. *Many fundamental issues in ELE remain open.* Most of the current efforts still do not fully express the power of human being, and the importance of social connections and societal activities is less noticed. And effective ELE solutions

requires appropriate ICT algorithms, architectures and platforms, having in view the advance of science in this area and the development of new and innovative connected solutions (particularly in the area of pervasive and mobile systems). The book aims to provide, in this sense, a platform for the dissemination of research efforts and presentation of advances in the ELE area that explicitly aim at addressing these challenges. The book will constitute a flagship driver towards presenting and supporting advance research in the area of Enhanced Living Environments.

The Overall Objective of the Book

The overall objectives of this book are:

- Offer a coherent and realistic image of today's architectures, techniques, protocols, components, orchestration, choreography and development related to the Ambient Assisted Living (AAL) and Enhanced Living Environment (ELE) areas.
- Explain state-of-the-art technological solutions for the main issues regarding AAL and ELE, as well as supporting systems: resource and data management, fault tolerance, security, monitoring and controlling, etc.
- Present the benefits of AAL and ELE, and the development process of scientific and commercial applications and platforms to support them.

The book's mission is to make readers familiar with those concepts and technologies that are successfully used in the implementation of today's AAL/ELE systems, or have a good chance to be used in future developments. The approach is to not separate the theoretical concepts concerning the design of such systems from their real-world implementations. For each important topic that one should master, the book aims to play the roles of bridge between theory and practice and of instrument needed by professionals in their activity. To this aim, the topics will be presented in a logical sequence, and the introduction of each topic will be motivated by the need to respond to claims and requirements coming from a wide range of AAL/ELE applications. The advantages and limitations of each model or technology in terms of capabilities and areas of applicability will be presented through concrete case studies for AAL/ELE systems and applications.

The book will also present up-to-date technological solutions to the main aspects regarding AAL/ELE systems and applications, a highly dynamic scientific domain that gained much interest in the world of IT in the last decade. Such systems have matured to commercially viable business AAL computing and network infrastructures. The book will discuss nowadays AAL/ELE technologies designed to solve some of the thorniest business problems affecting applications in areas such as health and medical supply, smart city and smart housing, Big Data and Internet of Things, and many more. Along with covering architectural components behind the ELE vision, the book will introduce readers to technologies supporting the development of AAL applications. In this aspect, the book aims to present the actual AAL/ELE systems that are becoming more and more attractive in academia and industry for a wide-range of actual and next-generation applications. Most IT vendors and enterprise solutions adopters view such systems beyond developed today as foundations of the technology of the future AAL/ELE applications.

Topics:

Chapters should be written in a manner readable for both specialists and non-specialists.

Recommended topic areas include, but are not limited to:

- *Sensing and Monitoring*: Identification and Sensing Technologies, Risks Detection, Activity Recognition, Tele-mobile monitoring, Diet and Exercise monitoring, Drugs monitoring, Vital Signs Supervision, Identification of Daily Activities.

- *ICT instrumentation and Middleware support for Smart Environments*: Mobile Ad Hoc Networks and Wireless Sensor Networks (WSNs), RFID and 2-D codes for real-world labelling, Smart Sensors, Wearable Computing, Custom made internet-connected objects, Semantic Middleware Infrastructure (Semantic Web, OSGi, DLNA, DPWS, Home automation standards).
- *Human-Computer Interaction at AAL environments*: Ubiquitous and Mobile Interfaces, Multi-modal Interaction, Context-aware Frameworks and Sensing (context modelling, user-focused, automatic-generation of user interfaces, sentient computing, knowledge-based approach, affective and social interfaces, etc.).
- *Environment Adaptation based on intelligence*: Knowledge Representation and Management for user and environment modelling and understanding (Ontologies, Semantic Web, Logic, Expert Systems, Cognitive systems, Non-logical reasoning, Multi-agents), Autonomic Computing, Responsive and Proactive Systems and Dynamic Reconfiguration, Ontologies for user and environment modelling and understanding, Learning, Reasoning and Adaptation Techniques over context models, Collaborative Smart objects.
- *Intelligent Healthcare and Homecare Environments*: Ambient Intelligence for AAL, E-Learning for AAL, Artificial Intelligence techniques for AAL, Context-Awareness in Assistive Environments, Modeling of human activity and behaviour for providing timely assistance, Collaborative Systems for AAL, Decision Support Systems.
- *ELE Architectures and Platforms*: Smart Homes and Supervised Homes, Hospital Communication Management for AAL, Living Labs.
- *Key applications domains*: Ambient and Assisted Living, Smart Devices and Intelligent Products, Smart Environments, Assistive Environments, e-Care, e-Health, Environmental Control Systems, Technology to realise Smart and Assistive Environments, Experiences with existing Smart and Assistive Environments.

Any other relevant topic with the AAL/ELE is of primary interest and can be hosted as a chapter in the Book.

Schedule & Deadlines

- **28 June 2015**: Submission of chapter proposal (max. 2-pages) / Intention to submit a chapter to Editors (E-mail: ciprian.dobre@cs.pub.ro, rgoleva@gmail.com, mavromoustakis.c@unic.ac.cy, ngarcia@di.ubi.pt, mastorakis@gmail.com).
- **12 July 2015**: Notification of acceptance
- **6 September 2015**: Sample Chapter Submission
- **25 October 2015**: Full Chapter Submission (PDF)
- **6 December 2015**: Notification of Full Chapter Acceptance
- **24 January 2016**: Revised Chapter Submission

Manuscript Preparation

Please consider the set of Guidelines available online at http://aapele.eu/BookAAPELE_ELE15 when preparing the chapter. Please read them carefully when preparing the manuscript. Please note that chapters should be self-content and they should give a vision on the topic to be covered, problems, issues, lessons learned and challenges. Therefore, please note chapter would not require much technical content or extensive experimental analysis (although authors are free to decide about that as seen fit for chapter's objectives).

Each final manuscript should be 18-25 pages long (**formatted**). Depending on the number of submissions, longer manuscripts will also be accepted. Online at http://aapele.eu/BookAAPELE_ELE15 there is also a Latex template for the chapter that you can freely use. Please try to adopt it when preparing the manuscript – if you need additional changes to the template, please contact the editors. Be advised that the final published manuscript might look differently – Elsevier production team is not imposing a particular format, and they will streamline all of the documents when the manuscript gets to the typesetting stage, to fit it into the book templates.

The submission Web site is https://easychair.org/conferences/?conf=BookAAPELE_ELE15. Please note that both (**email and via EasyChair**) submission methods should be used for cross confirmation.