

## ***Call for Book Chapters***

***For the Book “Enhanced Living Environments: From Models to Technologies”***

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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 elderly and/or people with disabilities. The Enhanced Living Environment (ELE) paradigm encompasses all information and communication technological achievements (ICT) supporting true Ambient Assisted Living (AAL). ELE promotes the provision of infrastructures and services for independent or more autonomous living, via the seamless integration of ICT 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 aiming today to construct safe environments around assisted people and help them maintaining independent type of living. Most efforts towards the realization of AAL systems are based on developing pervasive devices and use Ambient Intelligence to integrate these devices together to construct a safety environment. *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. Therefore, the societal activities are less noticed. Effective ELE solutions require appropriate ICT algorithms, architectures and platforms, having in view the advance of science in this area and the development of new and innovative networking solutions (particularly in the area of pervasive and mobile systems). This book aims to provide, in this sense, a platform for the dissemination of research efforts and presentation of advances in the ELE area by addressing these challenges. The objective is to constitute a flagship driver towards presenting and supporting advance research in the area of Enhanced Living Environments.

### **Overall Objectives of the Book**

- To 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.
- To explain state-of-the-art technological solutions for the main issues related to AAL and ELE, as well as supporting systems for resource and data management, fault tolerance, security, monitoring and control, etc.
- To 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 role of a bridge between theory and practice, and of an instrument needed by professionals in their activity. For 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 practical 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 ICT 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 Cities and Smart Homes, Big Data, Internet of Things (IoT), 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 ICT vendors and enterprise solutions adopters view such systems beyond the ones 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:**

- *Introduction to the AAL and ELE systems*: an introduction to the area and topics covered by these subjects.
- *Sensing and Monitoring*: identification and sensing technologies, activity recognition, risks and accidents detection, tele-mobile monitoring, diet and exercise monitoring, drugs monitoring, vital signs supervision, identification of daily activities, etc.
- *ICT instrumentation, middleware and cloud support for smart environments*: Body Area Networks (BANs), Mobile Ad Hoc Networks (MANETs) and Wireless Sensor Networks (WSNs), Radio-Frequency IDentification (RFID) and 2D 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), mobile cloud, etc.
- *Human-Computer Interaction within AAL environments*: ubiquitous and mobile interfaces, multi-modal interaction, context-aware frameworks and sensing (context modelling, user-centricity, 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-agent systems), autonomic computing, responsive, proactive and dynamically reconfigurable systems, 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/m-Learning for AAL, artificial intelligence techniques for AAL, context-awareness in assistive environments, modelling of human activity and behaviour for providing timely assistance, collaborative systems for AAL, decision support systems.

- *ELE architectures and platforms*: smart and supervised homes, medical remote monitoring, 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/m-Health, environmental control systems, technology to realize smart and assistive environments, experiences with existing smart and assistive environments.

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

### **Schedule & Deadlines**

- ~~20 February 2016~~ **10 March 2016**: Submission of chapter proposal (max. 2-pages) / Intention to submit a chapter to Editors (E-mails: [ciprian.dobre@cs.pub.ro](mailto:ciprian.dobre@cs.pub.ro), [carlos.valderrama@umons.ac.be](mailto:carlos.valderrama@umons.ac.be), [Ivan.Ganchev@ul.ie](mailto:Ivan.Ganchev@ul.ie), [ngarcia@di.ubi.pt](mailto:ngarcia@di.ubi.pt), [rjg@tu-sofia.bg](mailto:rjg@tu-sofia.bg)).
- **20 March 2016**: Notification of chapter proposal acceptance
- **19 June 2016**: Full chapter submission via EasyChair: <https://easychair.org/conferences/?conf=iet-aal2016>.
- **11 September 2016**: Notification of full chapter acceptance
- **27 October 2016**: Revised chapter submission

### **Manuscript Preparation**

Please follow the manuscript formatting guidelines below to submit the original version in Microsoft Word or LaTeX format:

- <http://cipsm.hpc.pub.ro/IET/AuthorGuidev1.0.pdf>
- [http://cipsm.hpc.pub.ro/IET/IETLaTex\\_Readme.docx](http://cipsm.hpc.pub.ro/IET/IETLaTex_Readme.docx)
- [http://cipsm.hpc.pub.ro/IET/IETLaTex\\_template.zip](http://cipsm.hpc.pub.ro/IET/IETLaTex_template.zip)

Each final manuscript should be 20-25 pages long (formatted). Depending on the number of submissions, longer manuscripts will be also accepted.

Inquiries (e-mail) and submissions (in Word or PDF) can be forwarded electronically to any of the editors, or alternatively:

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