Preface for the Special Issue on uHealthcare

The annual growth of the world's economy in addition to recent achievements in the fields of medicine that have primarily targeted at improving general levels of the quality of health are contributing to the increase of growth in the numbers of older people within our population. The negative effect of this growth within the population is the increased financial burden which is being placed on health and social care services. An opportunity is therefore available to address a range of these challenges through the introduction of ubiquitous Healthcare (uHealthcare). uHealthcare involves the automatic and intelligent provision of healthcare services through deployments of innovative and pervasive technological solutions in an everywhere and any time fashion.

This special issue on uHealthcare focuses on current research and trends within the uHealthcare domain, specifically focusing on the topic of Ambient Assistive Living (AAL) and associated communication infrastructures for uHealthcare. The concept of AAL has now become widely accepted in research societies and has been recognized as attempting to deliver improved solutions and services for older people. The topics of AAL are largely diverse covering a wide range of areas from technological, social and economic perspectives. In this special issue a number of pertinent research issues within AAL have been addressed. All articles submitted have been peer-reviewed by at least two reviewers and five papers were finally selected to be published based on the reviewers' recommendations.

The first paper of this special issue, entitled “Acoustic monitoring and localization in social care”, presents the concept of utilizing acoustic signals for AAL-based systems. Within the paper a range of different methods are described which have been developed to utilize acoustic signals for event detection and classification in addition to localization of users in monitoring and controlling contexts.

The second paper, entitled “Collective experience: A database-fuelled, inter-disciplinary team-led learning system”, presents the framework which supports the collection and analysis of daily experimentations captured by medical records of patients. The clinical knowledge is extracted from the recorded databases to support clinicians in predicting the utility of diagnostic tests, interventions and in informing prognosis.

The third paper of this special issue, entitled “pHealth service deployment methodology – A case study”, presents a unified process methodology in the design and development of personalized health services.

The fourth paper, entitled “CardioSential: A 24-hour Heart Care and Monitoring System”, describes a newly developed 24-hour heart-care and monitoring system utilising smart phones and wireless devices. The paper discusses the relevance of the new approach in the provision of valuable information for monitoring heart-rate and heart-disease with low-costs and high levels of convenience.

The fifth and final paper of this special issue, entitled “Machine-to-machine communications for healthcare”, provides an insight into the field of machine-to-machine (M2M) communication within the healthcare domain. A systematic approach is presented which can support an effective system design in addition to the analysis of the network requirements necessary when targeting healthcare and M2M communication. This paper will be published separately in the forthcoming issue of JCSE.

We hope that this special issue will provide a valuable insight into the current efforts within the domain and contribute further to the widespread deployments of uHealthcare within real everyday environments.

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