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Impact Analysis of Solutions for Chronic Disease Prevention and Management

10th International Conference on Smart Homes and Health Telematics, ICOST 2012
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Preface

We are now living in an era where lower-cost, higher-performance technology has the potential to become truly ubiquitous as it integrates seamlessly with our everyday lives. It could be argued that the realization of these concepts will be most significant toward promoting independent living and increasing the quality of life for the rising numbers of older people and, with it, the prevalence of chronic conditions such as cardiovascular disease, cancer and dementia. Such illnesses are placing significant and unsustainable pressure on health and social care services across the globe. In an effort to help to alleviate some of these pressures, researchers are investigating the potential to embed assistive technology within home environments and beyond. Indeed, studies have shown that people with chronic illnesses often prefer to remain living within their own homes for as long as possible. A challenge in supporting their independent living is to ensure that technology-driven health solutions provide an equal quality of care when compared to institutional care facilities. Key to this success is the provision of 'smart' homes, which are able to provide automated and personalized levels of support, based on the profiles of each occupant.

Realizing a smart home is, however, not an easy task. To facilitate their successful development, smart homes are typically equipped with a large number of sensors, which are attached to household objects or embedded within appliances so that they may track the occupants. These sensors generate a large amount of data, which must then be organized and mined using computation intelligence approaches to extract features that contribute most to the recognition of particular behaviors, environmental changes or to identifying activities of daily living.

A large body of research in this area now exists; however, we have not yet witnessed the advent of truly smart homes. What is needed is a coordinated and collaborative approach to technology development based on a user-centered design methodology with strong industrial and health and social care service support to ensure large-scale uptake.

This volume contains the papers presented at the 10th International Conference on Smart Homes and Health Telematics (ICOST). ICOST is now considered as a premier venue for bringing together stakeholders from clinical, academic and industrial perspectives, along with end users and their family carers to explore how smart homes and health telematics can foster independent living and offer an enhanced quality of life. The ethos behind the conference is to promote collaborative stakeholder-led research in an effort toward realizing the true potential that smart homes and health telematics services can offer.

After nine very successful conferences held in France (2003), Singapore (2004), Canada (2005), Northern Ireland, UK (2006), Japan (2007), USA (2008), France (2009), Korea (2010) and Canada (2011), the 10th International Conference on

Smart Homes and Health Telematics was hosted for the first time in the Tuscany region of Italy, during June 13–15, 2012.

Each year, the conference focuses on a particular theme. We felt it was pertinent during the 10th anniversary of the event that the theme should be related to the "Impact Analysis of Solutions for Chronic Disease Prevention and Management." This LNCS volume presents the dynamic program of papers, which incorporated a range of technical-, clinical- and industrial-related keynote speakers, oral and poster presentations along with demonstrations and technical exhibits. The volume focuses on reflecting on the gains made in this research domain by reporting on the research findings of real-word deployments of assistive technology within a smart home context.

Competition among the 74 original submissions to the conference was very high. Submissions from authors from over 25 countries were reviewed by an International Program Committee consisting of domain experts from over 15 counties. In the end, 25 full papers were accepted (34%) for oral presentation with a further 22 short papers accepted (30%) for poster presentation at the event. These papers were categorized into a number of sessions that include: "User Engagement for Improved Adoption of Assistive Technologies", "Self-Management and Tele-Rehabilitation", "Advances in Remote Monitoring and Activity Recognition", "Sensor Networks for Unobtrusive Monitoring Solutions", and "Real World "Aware" Systems".

We would like to take this opportunity to sincerely thank the Scientific Committee for the guidance during the preparations for the event and especially all of the Program Committee who worked tirelessly to deliver reviews within a short time frame. Their efforts have contributed toward producing this volume, which contains an exciting and varied range of scientific studies. We thank the Organizing Committee members who devoted their time over several months to prepare for and support the delivery of the conference. We would also like to specially acknowledge the EasyChair Conference System, which facilitated the paper submissions, the review process and the proceedings generation. Finally, we wish to acknowledge all of the support received from the event promoters, which helped host the conference at such a special venue.

June 2012

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