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Wireless Mobile Communication and Healthcare

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MobiHealth 2010

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Revised Selected Papers

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Preface

MobiHealth 2010 the International ICST Conference on Wireless Mobile Communication and Healthcare is now history and we hope that it was a successful experience for all participants. During its course, we had the privilege to attend keynote lectures by leading experts as well as invited and contributed paper presentations which uniquely revealed the rapidly changing face of healthcare delivery services facilitated by wireless communications, mobile computing and sensing technologies.

In his keynote address, Guang-Zhong Yang outlined the advances in wireless healthcare services by considering the increasing sophistication and miniaturization of wireless sensor technologies. The talk focused on the provision of “ubiquitous” and “pervasive” monitoring of physical, physiological, and biochemical parameters in any environment without activity restriction and behavior modification. Maria-Teresa Arredondo, in her keynote address, outlined the need for novel solutions to the problems faced by the European health systems in handling chronic diseases. The talk focused on the major role of patient-centered health systems in chronic disease management, prevention and cost reduction in the medium-long period, and outlined the increasing active role of patients and families in self-care, health promotion and disease prevention.

New research, applications and case studies were featured within the framework of MobiHealth 2010. A number of highly timely mobile communication systems that can be used for public health, home and chronic disease monitoring were presented. Recent advances in e-health were discussed, and the potential of integrating leading-edge networking technologies, such as cloud-based services and mobile communications, with personal health records in order to offer healthcare services over the Web was investigated. Interoperability issues in e-health were examined and the current challenges, directions and recommendations toward an e-health interoperable framework were presented. The field of wireless medical devices was also explored. Novel implanted and wearable sensory devices were proposed, and the performance of protocols which are widely used for biomedical telemetry was investigated. Moreover, signal processing techniques for healthcare monitoring systems were proposed. A series of projects in the field of wireless communications in healthcare were presented, providing telehealth and telecare platforms for ambient assisted living, elderly monitoring and chronic disease management.

Several open issues and technical challenges were identified as key factors for revitalizing health care delivery and assisting the shift toward preventive, personalized and citizen-centered care. These include a new generation of less obtrusive, energy-efficient pervasive and non-invasive sensors for body area networks and large-scale screening purposes. Furthermore, as more and more data are gathered, thanks to increased sensing capability, data processing and interpretation become

more crucial. Expert systems and intelligent, self-adaptive, disease-specific and predictive algorithms based on a combination of data acquired from different sensor types have to be developed, capable of turning acquired data and information into knowledge to support medical decision making and action. Emphasis should be placed on usability, user acceptance, standardization and interoperability towards ubiquitous and pervasive healthcare delivery services. Emerging applications were identified, which include lifestyle and general well-being monitoring, monitoring and management of neurodegenerative diseases, computer-assisted rehabilitation and therapy and social networking of relatives and peers for the monitoring of elderly.

The conference organization was the combined effort of many people working as reviewers, authors, committee members and support staff and we want to thank all of them for their contribution.

We hope all conference participants enjoyed both the scientific and social programs, established new friendships and partnerships and experienced MobiHealth 2010 as a memorable event that stimulated their thinking and refreshed their motivation and energy.

Konstantina S. Nikita
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