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Preface

The Second International ICST Conference on Wireless Mobile Communication and Healthcare—MobiHealth 2011—took place on the island of Kos, Greece, during October 5–7, 2011. MobiHealth 2011 was held in parallel with the 10th International Workshop on Biomedical Engineering providing the opportunity to their more than 150 scientific participants to have many fruitful discussions and exchanges that contributed to the success of the events. Kos, the birthplace of the “father” of medicine, Hippocrates, was a delightful venue for the conference.

The MobiHealth International conference series started in Cyprus last year. This year the number of submissions doubled. More than 80 high-quality papers were received. Each paper was carefully evaluated by at least two independent experts. The final program featured 60 papers presented in ten sessions and two workshops with topics covering: intrabody communications, chronic disease monitoring and management, ambient assistive technologies, implantable and wearable sensors, emergency and disaster applications. Invited and contributed papers showed in a unique manner the rapidly changing face and context of healthcare delivery services facilitated by the advances in wireless communications, mobile computing and sensing technologies. Participants from 27 countries worldwide made the conference truly international in scope.

Apart from invited and contributed presentations and workshop papers, during MobiHealth 2011, participants also had the privilege to attend timely keynote lectures by four leading experts, which motivated vigorous discussions.

In his keynote lecture, Yadin David outlined recent progress in telehealth and teledmedicine systems emphasizing how on-demand communication of clinical information can be achieved. He reviewed the forces and barriers to mainstream deployment of telehealth systems, and concluded that a good understanding of the forces of quality, cost, home care support and remote management is required by developers, integrators, users and payers.

Nikos Bourbakis addressed the issue of security and protection of private patient data in continuous monitoring applications in terms of safe exchange of health information, as well as secure authentication/authorization access of these valuable data. In his keynote lecture, he presented a mobile-health monitoring system/prototype (Prognosis) and a secure access protection mechanism for information exchange based on strong compression-encryption-hiding mechanisms for information protection and biometrics for information access.

In his keynote lecture, Yang Hao focused on body-centric wireless communications with the use of wearable and implantable wireless sensors. He provided a comprehensive review of recent developments in monitoring behavior related to human physiological response and presented background information on the use
of wireless technology and sensors to develop wireless physiological measurement systems. Emphasis was given to recent progress in non-invasive detection of vital signs for chronic disease management.

Sergio Guillen, in his keynote presentation, outlined the concept of "Ambient Assisted Living (AAL)" as a strategy based on the use of information and communications technologies to develop and to provide applications and services that enable older people to live longer independently, while reducing the dependency time. He discussed the interconnection between AAL and "ambient intelligence," and emphasized that although AAL is still more a vision than a reality, in its completion, each user could set the AAL solutions according to individual needs, tastes and economic ability, as they would do with the furnishings and equipment in their homes.

Current and emerging developments in wireless communications integrated with advances in pervasive and wearable technologies are having a radical impact on healthcare delivery systems. The contributions presented in Mobihealth 2011 represented some of these recent developments and illustrated the multidisciplinary nature of this important and emerging concept. A number of very timely mobile communication systems that can be used for patient monitoring and healthcare delivery, as well as several information and communication technology platforms for chronic disease management and support of the aging population were presented. The field of wireless medical devices was also explored. Novel implantable and wearable sensory and monitoring devices were proposed and the performance of protocols that are widely used for biomedical telemetry was investigated. Mobile and wireless technologies for healthcare delivery and emergency as well as ambient assistive technologies for pervasive healthcare services were also investigated.

Furthermore, sessions in Mobihealth 2011 explored, examined and debated the ways in which mobile technology developments are expected to transform healthcare delivery, research, business and policy for the twenty-first century. Several open issues and technical challenges were identified as key factors for invigorating healthcare delivery and assisting the shift toward preventive, personalized and people-centered care. Innovative solutions for remote management of diseases, treatment and rehabilitation, outside hospitals and care centers would be based on closed-loop approaches and would integrate components into wearable, portable or implantable devices coupled with appropriate platforms and services. Emphasis would be placed on less obtrusive, self-calibrating and energy-efficient pervasive devices with multi-sensing, advanced on-board processing, communication and actuation capabilities. Context-aware, multi-parametric monitoring of health parameters, lifestyle, activity, ambient environment parameters becomes of utmost importance. Analysis, interpretation and use of the acquired multi-parametric data, in conjunction with established or newly created medical knowledge, are expected to revolutionize medical decision making and action.

Mobihealth 2011 would not have been possible without the dedicated work of many people. Many thanks go to our special session organizers and to the
members of the Technical Program Committee, who did an excellent job to uphold quality and promote academic excellence in the review process.

We would also like to extend our sincere thanks to our Local Arrangements Chair, Yiannis Gkialas, and all the members of the Organizing Committee, Asimenia Kiourti, Evi Tripoliti and Maria Christopoulou, who contributed to this venture with great energy and enthusiasm. Our work was made as easy as it could be through the exceptional professionalism of our Conference Coordinator, Justina Senkus.

We are grateful to the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, and the European Alliance for Innovation for sponsoring this event. Furthermore, generous support for the conference was provided by the Institute of Communication and Computer Systems, the National Technical University of Athens, the IEEE Greece Section and the IEEE EMBS Greece Chapter. We gratefully acknowledge the technical co-sponsorship and endorsement provided by the IEEE EMBS and the IFMBE. Finally, we would like to thank the Hellenic Ministry of Culture, the Prefecture of South Aegean and the Local Authorities of Kos for their sponsorships.

The papers included in these proceedings are the end result of a tremendous amount of creative work and a highly selective review process. We hope that they will serve as a valuable source of information on the state of the art in mobile health.

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