Foreword

There are significant demographic changes worldwide that have potentially challenging social, geopolitical, and financial consequences for individuals, families, the wider society, and governments globally. The demographic changes will result in a rapidly growing elderly population with healthcare implications including Alzheimer type diseases—a leading cause of dementia. Dementia requires long-term care to manage the challenging behavioral symptoms, which are primarily exhibited in terms of agitation and aggression. The impact of such symptoms can interrupt patient care and lead to premature institutionalisation in residential care.

There is an increasing research effort from EU, USA, Japan, and other countries which is addressing the monitoring of patients with dementia. The aim of the health policy with regard to dementia is to ensure that significant improvements are made across key areas such as improved awareness, earlier diagnosis and intervention, and a higher quality of care. Such goals are at present possible to achieve by 24/7 real-time healthcare monitoring utilizing semi-automated health monitoring systems incorporating decision support systems. Health monitoring systems generally utilize video observation and sensor monitoring with data transfer achieved using mobile communications technologies. The hardware (sensors) and mobile systems using Wi-Fi, 3G, and 4G are generally well developed; the issues lie in developing software capable of processing a patients with dementia’s current “status” in intelligent context-aware pervasive decision-support systems.

Decision-making systems in healthcare have been an intensive field of research and development. With the rapid developments in the ICT sector, especially sensor technologies delivering more low-cost devices that are computationally more powerful, their connectivity to Internet (Internet of Things), and Cloud computing, the research in this field is witnessing a shift into a new generation of decision-making systems.

The present book provides state-of-the-art solutions and beyond by considering new data sources, specifically sensorial data sources, automatic collection of data for real-time healthcare monitoring implementing “big data” solution to extract knowledge for assisting doctors, nurses, and carers in their decision making about home care.

I would like to stress the high quality chapters in the book, providing views on the solutions, challenges, and research trends in the monitoring of patients with dementia and eHealth systems. The multi-disciplinary nature of this book is a valuable feature. It comprises healthcare, computational modelling, data technologies, sensorial technologies, privacy, trust, and security. It also considers and discusses ethics and social aspects as defined and regulated by health governmental bodies.
Foreword

The challenges in dementia patient monitoring are both difficult and relevant. Researchers, doctors, nurses, and developers are working on them with enthusiasm, tenacity, and dedication to develop new methods of analysis and provide new solutions to such challenges. In this new era of Internet technologies, it is necessary to increase efforts and provide doctors, professionals, and students, with state-of-the-art knowledge on the dementia patient monitoring and eHealth systems. This book is a valuable achievement in that direction and I would like to congratulate the editors for such an achievement.

I hope the readers enjoy the book and find it useful for their professional activity.

Makoto Takizawa
Hosei University, Japan

Makoto Takizawa is currently a full professor of the Department of Advanced Sciences, Hosei University, since April of 2013. He was a full professor at the Department of Computers and Information Science, Seikei University, from April of 2008 to March of 2013. He was a full professor of the Department of Computers and Systems Engineering, Tokyo Denki University (TDU) from 1986 to 2008. From 1989 to 1990, he was a visiting professor of the GMD-IPSI (currently, Fraunhofer), Darmstadt, Germany. He is also a regular visiting professor of Department of Computer Science and DAKE Centre of Keele University, England, since 1990. He is a visiting professor of Xidian Univ. and also an international advisor of Chinese Key State Lab. of ISN, Xidian University, X’ian, China, since 2004. He has published widely in journals, including IEEE Systems Journal and IEEE Transactions on IE and international conference papers including IEEE AINA and IEEE ICDCS. His research interest includes high-speed communication protocols, group communication protocols, distributed object systems, distributed database systems, distributed transaction management, fault-tolerant distributed systems, distributed systems security, role-based access control, transactional mobile agent systems, and Peer-to-Peer (P2P) systems. He is a senior member of IEEE, member of ACM, and IPSJ fellow.