Mobile healthcare (m-health) can be defined as the emerging mobile and network technologies for healthcare [1,2]. Ultimately, the convergence of information and telecommunication infrastructures around mobile health systems is enabling cost effective technologies, which will have a powerful impact on the way different healthcare organizations deliver healthcare to their patients. The integration of emerging mobile technologies into these applications needs to be evaluated in a systematic way.

Rapid advances in mobile and network technologies in recent years have opened new opportunities for new and innovative means of health care delivery using these emerging wireless technologies. The new mobile and networking technologies such as 3G/4G cellular networks and the new generation of WLAN and ad hoc networks have extended the medical information coverage. These will have potential for new mobile devices such as new Personal Digital Assistants (PDA) and cell phones dedicated for new mobile health care applications with improved convenience and versatility to health providers and patients. One of the major challenges in these areas is wireless medical video streaming and compression techniques for healthcare scenarios. Traditional compression techniques such as MPEG-4 have enabled the delivery of rich multimedia information over mobile networks, however more work is required to validate the new mobile compression techniques for medical applications and clinical environments.

The purpose of this special issue is to assemble original and innovative contributions in the area of mobile technologies for health care applications. It deals with issues related to the development, dissemination and use of mobile information and wireless technologies in healthcare and m-health technologies.

The topics of this special issue can be summarized as:
- Mobile telemedicine applications
- Wireless multimedia systems for health care or disaster management
- Multimedia delivery over 2.5G/3G/4G networks
- Wearable sensors
- Security issues in mobile telemedicine system

The special issue is organized by three guest editors, who were responsible for soliciting quality papers, who assembled the board of reviewers, and tried to ensure a thorough review process. All the guest editors have strong expertise in the field of mobile health care.

In this special issue, we include five papers, which cover a broad range of topics. The authors reside in two different continents and five different countries. In their papers, the authors report their innovative
achievements in the area of mobile technologies for health care applications and provide in-depth analysis from different angles.

The first paper, authored by Zou, Istepanian and Wang, et al from Kingston University, describes a Mobile Diabetes Management and Internetworking System – MDMIS. In MDMIS system, a mobile patient station collects blood glucose measurements from a glucose meter through Bluetooth and transmits the data to the medical centre via internetworking communications. The system has been demonstrated on various mobile devices such as PDAs and smart phones.

The second paper, written by Olariu, Maly and Foudriet, et al from Old Dominion University, USA and Fraunhofer FOKUS, Germany, proposes a wireless system architecture, called Wireless Interactive Remote Medicine (WIRM), that support telemedicine in disaster relief. Such architecture includes leading-edge image compression technology, a robust interactive visualization tool, and a high-performance wireless multimedia network.

The third paper, written by Otto, Milenkovic and Sanders, et al from University of Alabama in Huntsville, presents a wireless body area network that can monitor various vital signs, providing real-time feedback to the user and medical personnel. The authors have implemented the hardware prototype and proposed the TinyOS based software architecture. The design issues such as power and event management have been addressed.

The fourth paper, written by Buchinger and Hlavacs, from University of Vienna, Austria, reports an experimental study on the influence of the video frame rate on the subjective quality of digital video. For given bit rates, this study determines the optimal frame rate for the used videos. Based on the experimental results, this paper concludes that the optimal frame rates can be as low as 10 or even 5 frames per second.

The final paper in this special issue, written by Papadimitriou and Tsaoussidis from Demokritos University of Thrace, Greece, evaluates the TCP and UDP’s capabilities of supporting the real-time multimedia applications. This paper conducts a large number of experiments and defines a new metric to assess the real-time performance. Based on the experimental results, this paper draws the conclusion that UDP traffic occasionally has a negative impact on the system behavior compared with TCP traffic.

In closing, we would like to thank all the members of the editorial board, reviewers and the Rinton Press publisher, for making this journal possible. Special thanks go to Ms. Yuechun Chu for her significant contributions to this special issue. We would also like to thank the authors who have chosen this journal as a medium to publish their research results. We hope that readers will find these papers useful, informative, and innovative.

References:
