

Current state and future promise of m-Health

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Book information

m-Health: Fundamentals and Applications by Robert S.H. Istepanian and Bryan Woodward. 387pp. Wiley, 2016. ISBN: 978-1-118-49698-5.

Book review

To be convinced that m-Health is rapidly becoming part of our everyday lives, you only need to take a trip to the electronics shelves of your local supermarket and admire the array of portable devices able to acquire vital signs such as heart rate, oxygen saturation and blood pressure. The devices will normally be bundled with the software needed to upload the data gathered and to plot graphs that we can interpret as indicators of our health.

In delivering a much-needed book for the rapidly growing m-Health communities in both industry and academia, the authors draw on the extensive knowledge they have gained as a result of many years of experience of working at the forefront of the field. Indeed the lead author can be credited with coining the term m-Health. The book provides authoritative and comprehensive coverage of the current state-of-the-art of m-Health from health monitoring, signal processing and data communications perspectives. The book is an important reference for those already involved in the field as well as providing a valuable introduction to those new to the area. The style of writing in the book is personable, clear and concise and the authors are to be congratulated on providing a book that remains easy to read and of reasonable length despite the range and depth of coverage provided.

The first chapter sets the context of m-Health systems and this is deepened in a second chapter that gives a number of useful examples of real systems that taken together

cover the range of m-Health systems currently available. The contents of the main technical chapters have been carefully chosen to help the reader establish order from the bewildering array of m-Health devices and methods that have been developed in the last decade. The principal chapters split m-Health into its main functional elements, namely the acquisition of patient data, the software methods used, communication techniques and how m-Health has been incorporated into wider healthcare systems. As part of these descriptions the book ensures that a number of areas of most recent interest are also covered, including a number of leading areas of current research work such as cloud computing to allow individual patients and medical staff to share information and the use of big data to learn how trends and patterns in the vital signs obtained from large numbers of patients can be put to use in the identification of the onset of medical conditions. The authors are careful throughout the book to emphasise security aspects where appropriate, as this is important in an area where sensitive personal data need to be transmitted over networks.

The final chapter includes a discussion of a major risk to the future perception of m-Health, namely the proliferation of off-the-shelf devices whose scientific foundation is often questionable. That the regulation of such devices is largely absent threatens the integrity of m-Health itself. It is important that the emerging standards are directed in such a way that it becomes a requirement to ensure that proper medical trials be completed, with rigour akin to that stipulated by the pharmaceutical industry, before m-Health systems are allowed to operate in a domain where lives are at stake. In our everyday experience of computer systems, we are all only too aware of the frequent failure of software and the intermittent nature of mobile phone signals. But these are not the only challenges in m-Health, consider

that these systems must also acquire vital signs accurately and reliably, data transmission and storage must be secure and the assimilated clinical information must be presented in a manner that is timely and easy to interpret. The book concludes that if these challenges can be overcome, the m-Health systems of the future can help provide what increasingly seems to be out of reach for most healthcare systems: affordable and effective care for all.

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Footnote

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