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HCI is a multidisciplinary field focused on human aspects of the development of computer technology. As computer-based technology becomes increasingly pervasive—not just in developed countries, but worldwide—the need to take a human-centered approach in the design and development of this technology becomes ever more important. For roughly 30 years now, researchers and practitioners in computational and behavioral sciences have worked to identify theory and practice that influences the direction of these technologies, and this diverse work makes up the field of human–computer interaction. Broadly speaking it includes the study of what technology might be able to do for people and how people might interact with the technology. The HCI series publishes books that advance the science and technology of developing systems which are both effective and satisfying for people in a wide variety of contexts. Titles focus on theoretical perspectives (such as formal approaches drawn from a variety of behavioral sciences), practical approaches (such as the techniques for effectively integrating user needs in system development), and social issues (such as the determinants of utility, usability and acceptability).

Titles published within the Human–Computer Interaction Series are included in Thomson Reuters’ Book Citation Index, The DBLP Computer Science Bibliography and The HCI Bibliography.

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Pervasive Health

State-of-the-art and Beyond

 Springer

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ISSN 1571-5035

ISBN 978-1-4471-6412-8

ISBN 978-1-4471-6413-5 (eBook)

DOI 10.1007/978-1-4471-6413-5

Springer London Heidelberg New York Dordrecht

Library of Congress Control Number: 2014935971

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Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Foreword

Health is off the desktop. As with other computer-mediated personal services and applications, health is moving to mobile devices. And rightly so; supporting health is complex, dynamic, and inherently situated. Pervasive health provides a range of challenges and opportunities for technology, for human-centered informatics, and for social policy.

Pervasive technologies present critical new affordances for managing human health. In many cases, they provide a new key source of support that can make the difference for a person in coping with the external world confidently and autonomously. For example, prosthetic mobile devices can ameliorate sensory disabilities in hearing and seeing in real-time/real-world interactions through speech recognition and smart camera capabilities mediating real-time/real-world interactions.

Many people, in countries with no dietary reason for it, are obese; they are ticking time bombs for a host of serious medical problems. Most of these risks can be eased by making healthy eating choices, situation by situation. Pervasive tools can help people track and confront their own dietary practices, and can provide advice when it is actionable.

Health problems often emerge from a nexus of lifestyle issues, for example, obesity can be exacerbated by sedentary routines and high levels of stress (as well as by hereditary factors). Being more active, coping with stressors, and developing strategies and resources for coping and resilience are long-term lifestyle changes. Achieving change of this sort requires feedback, guidance, and various kinds of support. Pervasive tools can help people monitor and integrate many facets of their daily activity, and can provide feedback and guidance, as well as access to social or even professional support, in the event, when advice is actionable.

Health is not merely the absence of morbidity. The contemporary concept of health is salutogenetic (Antonovsky); it emphasizes strengthening life factors that enhance health and well-being, rather than merely attenuating or eliminating those that cause illness. Pervasive technologies enable a wide range of reciprocal human-to-human interactions and cooperative activities that develop social capital, and thereby enhance well-being. For example, in mobile time banking people can arrange to do favors for one another, or to engage in activities together.

More generally, pervasive health support can allow elderly people and people with disabilities to function more independently through a wider range of life contexts and for a longer period of time. Enabling personal autonomy is more than just cost-effective for society, it enhances human well-being, and helps patients to remain people.

It's great to see Holzinger, Ziefle, and Roecker's "Pervasive Health: State-of-the-art and Beyond" helping to summarize our progress and set sights on further directions.

John M. Carroll

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