

Pervasive or Ubiquitous Healthcare?

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Even if pervasive healthcare is in the phase of being consolidated as a new research discipline as stated by Bardram [1] there are still some aspects of it that remain ambiguous to the research community. For example, the indistinct use of the terms “ubiquitous” and “pervasive” as synonyms may not be only a matter of terminology but a matter of helping to set the future direction of the field; the shift from technology towards users-centric models that in one hand is a common claim on pervasive healthcare developments but in the other is not fulfilled by lack of involvement of real users in experiments; the boundaries of the application domains targeted by pervasive healthcare that move frequently from a healthcare-related focus to a lifelong wellness-focus; the clear distinction and positioning of pervasive healthcare from other domains such as ambient intelligence, ambient assisted-living, medical informatics, etc. Clarification of all these ambiguities is important to position the longer-term vision of pervasive healthcare and to find the right contribution of pervasive technologies. The intention of this Special Issue is to motivate reflection on these topics and try to clarify the vision towards future research in pervasive healthcare.

The first paper of this Special Topic by Arnrich et al. [2] introduces the field of pervasive healthcare and presents recent methodological approaches and proposes future research topics. The paper concludes that pervasive healthcare will enable a paradigm shift from the established centralized healthcare model to a pervasive, user-

centered and preventive overall lifestyle health management. In order to provide these new opportunities everywhere, anytime and to anyone, future research is inevitably needed in the following fields: i) pervasive, continuous and reliable long-term monitoring systems; ii) prevention as the key element to maintain lifelong wellness; and iii) design and evaluation methods for ubiquitous patient centric technologies.

The second paper by Katie Siek and Julie Maitland [3] highlights an important aspect of healthcare provisioning that is the relationship between technology adoption and the socioeconomic barriers that caregivers encounter when promoting lifestyle change for improving health. In their work, the authors focus on the problem of dietary behavior change for low-income population and encourage interventions towards fostering the communities social capital for increasing cooperation opportunities and decreasing feeling of isolation.

The third paper by Marco de Sá and Luís Carriço [4] presents an environment for the development of mobile pervasive therapy artifacts (OmniSCOPE). The proposed environment aims to provide therapists with the means for composing and maintaining new therapeutic artifacts according to the needs of patients.

The fourth paper by Marc Bächlin et al. [5] describes a wearable system for providing acoustic feedback to assist Parkinson patients to walk. In their study, the authors evaluate a wearable computer which obtains real-time gait data to provide acoustic feedback based on preset specifications. The results are encouraging and show the benefits of such a context-aware system.

Finally the last paper by Bianying Song and other colleagues [6] focus on the construction of a decision support system for teletraining of patients suffering from COPD. The proposed system was used for observing and controlling physical ergo-

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meter training sessions of COPD patients and was evaluated with healthy subjects in laboratory environment confirming its correct function.

It can be noted that the collection of papers presented here represents different facets of pervasive healthcare research ranging from socioeconomic issues to users acceptance, from wearable technologies to distributed environments, from therapy-oriented to prevention. In any case, as a matter of fact, the different faces of pervasive health presented here converge into a com-

mon ground of user-centricity, need of continuous longer-term monitoring means and provisioning of opportune feedback for decision support anytime, anywhere, conveying towards the achievement of the ultimate goal of ubiquitous health.

References

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