

# 2<sup>nd</sup> Workshop HCI for Medicine and Healthcare (HCI4MED): Evaluation of Information Technology in Healthcare

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## ABSTRACT

Medicine and Healthcare are currently subject to exceedingly rapid technological change. Information technology (IT) is continually penetrating into and driving this healthcare. Following the 1<sup>st</sup> Workshop HCI4MED at HCI 2008 in Liverpool [8], in 2009 we focus on one extremely important topic: *Evaluation of IT in Healthcare*. Following a case-based approach, we will discuss and review *diverse methods of evaluation*. Researchers from different disciplines will work on the interrelation of medical, technological, psychological and social factors and their consequences for the design, development, use and acceptance of smart IT in healthcare. The participants of this workshop will gain insight into whether and to what extent, different healthcare applications have the potential to contribute towards enhancing the *performance* on three levels: patients/caregivers; clinicians; hospital managers. Moreover, it is of vital importance that evaluation results are integrated into engineering at a systemic level in order to impact future IT: as well as understanding the issues that stakeholders can and do encounter, we need to ensure that effective solutions are engineered. It is particularly important for Medical Information Systems to be designed with the appropriate awareness of the diversity of the end users.

## Categories and Subject Descriptors

H.5, D.2, J.3, J.4, K.4

## General Terms

Design, Human Factors, Measurement

## Keywords

Evaluation, Usability, Methods, Assessment, Performance, Acceptance, Medicine, Health Care, IT

## 1. INTRODUCTION AND MOTIVATION

The increasing functionality and performance of IT is resulting in a *mass of information* [1], [4]; however, human perception and cognition does not advance at the same speed [10], consequently the *quality of information in healthcare* is of increasing importance [6]. The daily actions of medical professionals is a central concern, supporting them with new and emerging technologies, but patients and their clinically untrained caregivers — and also untrained users of IT are a growing factor, for instance in home management of chronic illness. A wide range of users are encountered, even for simple devices, ranging from patients to medics to technicians to nurses, and all have different skills and backgrounds, yet all need to be able to use devices *rapidly and without error* (or to manage the errors that occur). The traditional approaches of HCI are essential, but they are unable to cope with the complexity of typical modern interactive devices in the safety critical context of medical devices [12], [13]; this has led to a broad range of UCD methods (see e.g. [9], [7], [5], [11], [14]); however, much further work is necessary, especially to *bridge both user models and system models*. One very important aspect which concerns patients, medical professionals and hospital managers more than others is the tangible use of IT within their profession. Therefore it is obvious that the evaluation of new technology to emphasize the advantages, where clarifying the disadvantages is of inestimable value. The range of different usability evaluation methods and HCI research methods [3] can be confusing and occasionally lead to the use of an inappropriate method, which in worst case could lead to biased results.

## 2. AIMS OF THE WORKSHOP

Ideally this workshop is an appropriate setting for the investigation of multidisciplinary user interfaces in health care, from the point of view of patients, medical professionals and hospital managers, thereby corresponding to the three levels of Bronfenbrenner (1977) [2]: microlevel, mesolevel and macrolevel. Unlike last year's mini conference approach, the emphasis will be on discussion and exchange of ideas. We have hopes that this workshop will stimulate the production of a joint

publication (e.g. a volume of Springer Lecture Notes in Computer Science) on the appropriate selection of evaluation methods for IT in healthcare and their effective application.

### 3. WORKSHOP TOPICS

Topics include, but are not limited to: Formal Methods and Methodologies (including Agile Methods); Usability of Medical Information Systems; Human Aspects of Future Technologies in Health Care; Evaluation of Safety Issues for Healthcare; Usability Evaluation in Ambient Assisted Living and Life Long Learning, etc.

### 4. WORKSHOP APPROACH

This workshop will take a case-based approach, allowing participants to understand a set of scenarios, and contribute their perspectives onto that. This will highlight differences and disjunctions between approaches, focusing discussion and debate amongst the participants. The main aim of the day is to generate focused interest on specific problems and approaches.

### 5. WORKSHOP COMMITTEE

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