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Handbook of Research on User Interface Design and Evaluation for Mobile Technology
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Section II: Novel Interaction Techniques for Mobile Technologies

This section focuses on the innovative possibilities for interaction with mobile technologies. Starting with a potential classification scheme for mobile interaction techniques, this section looks at a number of novel interaction techniques such as text entry, speech-based input, and audio and haptic interaction for mobile devices. Chapters are included which introduce the concept of unobtrusive interaction and the use of EMG signals to achieve subtle interaction. This section concludes with a look at visual means of interaction, from camera-based input, through 3D visualisation and the presentation of large data sets using starfield displays, to projected displays for collaborative interaction.

Section III: Assistive Mobile Technologies

The potential for well designed mobile technologies to fulfill an assistive role - that is, as assistive technologies - is increasingly being realised. This section presents a selection of chapters which discuss the design implications specific to assistive mobile technologies. The section starts with a discussion of the key issues and trends of designing and evaluating mobile assistive technologies before looking at design to support specific demographics, including seniors, mental health interventions, and visually impaired users. The chapter concludes with a look at designing the user interface to the ultimate assistive mobile device, the smart wheelchair.

Section IV: Evaluation Techniques for Mobile Technologies

The rapid evolution of mobile technologies has posed a number of challenges in terms of effective evaluation strategies, which has opened this area up to interesting, ongoing debate - especially with regards the value of lab versus field evaluations. Starting with a theoretical look at the concepts and issues involved in evaluating mobile human-computer interaction, this section covers the spectrum of evaluation as it applies to mobile technologies. Chapters are included which look at adaptation of traditional methods to meet the needs of mobile evaluations, and chapters which outline means to systematically select, combine, and tailor methods to the specific needs of any given evaluation. The use of appropriated heuristic evaluation, wizard-of-oz studies, cognitive modeling as a testing tool, and Fitt's Law as a performance measure are all covered in this section. The use of multilayered evaluation approaches, the application of the Privacy Regulation Model as an evaluation tool, and a framework and model for identifying, organising, and classifying usability factors of mobile phones are also discussed. This section reflects the aforementioned debate regarding lab versus field evaluation of mobile technologies by including chapters representing both sides of the argument, including those which present innovative mechanisms and set-ups for use in each context.

Section V: Case Studies

This final section includes a selection of detailed case studies. These illustrate many of the concepts discussed in previous sections and cover the design of mobile technology for a closed environment (in this case, a hospital), the design of a memory-aid, an application for reviewing meeting records, and a tool for mobile collaborative reading, as well as the evaluation of learner satisfaction in a multi-platform learning system.