User Interface Design for the Ageing Population

Project Leader
REN Xiangshi, Dr. Eng.
Professor, Information Systems Engineering
Director and Professor, Center for Human-Engaged Computing

Keywords: Human Computer Interaction (HCI), User interface design, Human performance models, Pen-based interaction, Eye-based interaction, Multi-touch interaction, Haptics interface, Ageing population

1. Objective

This project aims to develop scientific foundations for the design of user interfaces that optimally suit the capabilities and needs of older adults. The project will carry out human computer interaction research on topics including Natural User Interfaces, Eye-based Interactions, gesture/touch (pen and/or finger) input, game user interfaces, and modeling of human performance, with consideration of the needs of the ageing population.

2. Project Outline

Given the growing ageing population and the advance of technology, there is a need for a focus on how technology can be used to meet the needs of the aged. Human Computer Interaction (HCI) entails the study of physical, cognitive and engineering aspects of the design of information technology to meet human needs. This project will carry out HCI studies to develop interface designs that will improve user experience and usability for older adults and help reduce their dependence on expensive and socially stigmatized specialized devices.

Our group has worked in the field of HCI for more than twenty years, and has extensive experience in this research field, particularly in user interface design, input interaction techniques and the modeling of human performance. Cooperating with domestic and international researchers, we have achieved excellent academic results. Our research emphasizes a deep understanding of human interaction capabilities and the modeling of human performance. Research outcomes will not only contribute to the understanding of human behavior, but will also support the design of systems suitable for various interaction conditions.

Successful SSP students will have opportunities to be involved in collaborative research projects with other institutions and/or overseas universities. All SSP students who want to obtain Ph.D. degrees must pass a preliminary examination (at the end of the second academic year) and a final doctoral examination in a public hearing (at the end of the third academic year). To pass these examinations, SSP students must publish excellent research papers in top-tier class international conferences (ACM CHI, ACM UIST) and international journals or transactions in the field of HCI.

3. Required Skills and Knowledge

The applicant must have an outstanding track record in Computer Science, information technology and/or HCI. The applicant should demonstrate outstanding academic performance (e.g., good programming skills, strong knowledge of mathematics and statistics, experience with interaction technologies e.g. eye tracking systems, smartphones and motion tracking systems), research ability, good communication and interpersonal skills, and demonstrated ability to work as part of a team and also independently in a lab environment. The applicant must have strong ability in the English language (Japanese would be a plus, but is not essential).

Publications can be found at:

http://www.info.kochi-tech.ac.jp/ren/pdf/Xiangshi-REN-CV.pdf

See our admission guidelines:

https://www.kochi-tech.ac.jp/english/admission/ssp_aft19oct/ssp_application_guideline.html

Contact

Email: ren.xiangshi@kochi-tech.ac.jp