PD232 Aug 2:1

Human Computer Interaction

Instructor

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Teaching Assistant

Email:

Department: CPDM

Course Time: Wed 11am - 1pm, Wed 2pm - 5pm

Lecture venue: CPDM Classroom

Detailed Course Page: https://cambum.net/HCI2016/HCI2016.htm

Announcements

Brief description of the course

Discussing basics of human psychology and their implications in interface design

Teaching to conduct user trials and reporting results

Making aware of state of the art HCI research

Evaluating user interfaces

Writing international standards relevant to HCI

Undertaking representative HCI project

Prerequisites

Basic knowledge of computer science, psychology, mathematics and statistics

Syllabus

Basic theories of visual and auditory perception, cognition, rapid aiming movement and their implications in electronic user interface design, Concept of user modelling, Multimodal interaction, Eye gaze and finger movement controlled user interface, Usability evaluation, User study design, Basic principles of experiment design, Conducting t-test and one-way and repeated measure ANOVA, Parametric and non-parametric

statistics, Interaction design for automotive and aviation environments, HCI in India, Writing international standards through ITU and ISO.

Course outcomes

· Basic guidelines to design good interface

· Idea of user modelling and interface personalization

· A usability evaluation tool to develop inclusive interfaces

· Conducting usability evaluation and reporting results

· Knowledge about novel interaction technologies

· Knowledge about HCI issues in developing countries and in automotive and aviation environments

· Basic know-how about writing international standards

· A HCI research paper co-authored by students as course project

Grading policy

30% Assignment

30% Examinations

40% Project

Assignments

1. Investigate existing user interfaces of software applications, websites, smartphones or any other electronic product (like microwave oven, camera and so on).

2.   Identify three problems with existing user interfaces. Each problem needs to be associated with different contexts or applications than the other two problems.

3.   Explain the problem and propose a solution. If possible, relate the problem with a human factor (like visual search, rapid aiming movement, learning, memory and so on)

4.   Plan a way to evaluate how your proposed solution can be proven better than the existing user interface.

Resources

Shneiderman B. "Designing The User Interface - Strategies for Effective Human-Computer Interaction." Pearson Education

Johnson P. "Human Computer Interaction: psychology, task analysis and software engineering." McGraw Hill Book Company, 1992.

Buxton B., Sketching User Experiences: Getting the Design Right and the Right Design, Morgan Kaufmann

Biswas P., Inclusive Human Machine Interaction for India, Springer 2014

Newell A. "Unified Theories of Cognition." Cambridge, MA, USA: Harvard University Press, 1990

Card S., Moran T. and Newell A. "The Psychology of Human-Computer Interaction." Hillsdale, NJ, USA: Lawrence Erlbaum Associates, 1983

Anderson J. R. and Lebiere C. "The Atomic Components of Thought." Hillsdale, NJ, USA: Lawrence Erlbaum Associates, 1998.

Field A. "Discovering Statistics Using SPSS." SAGE Publications Ltd., 2009.

Hampson P. J. and Moris P. E. "Understanding Cognition." Oxford, UK: Blackwell Publishers Ltd., 1996.

John B. E. and Kieras D. "The GOMS Family of User Interface Analysis Techniques: Comparison And Contrast." ACM Transactions on Computer Human Interaction 3 (1996): 320-351.

Johnson-Laird P.A. "The Computer and The Mind." Cambridge, MA, USA: Harvard University Press.

Handbook of Human-Computer Interaction Ed. Helander M. Amsterdam, Netherlands: Elsevier Ltd.