Announcement

Call for Papers:

Special Issue of the International Journal of Human-Computer Studies: Applications of Affective Computing in Human-Computer Interaction

(Submission deadline 31 August 2001)

The last decade has shown a strong influence of cognitive psychology and cognitive science perspectives on human-computer interaction (HCI) theory, design and practice. As complex systems have come to dominate many real world domains, it has become necessary to use cognitive task analysis, cognitive modeling, and cognitive systems engineering as specialties that inform understanding of how humans adapt to unexpected situations, changes in performance demands, information and outcome uncertainties, and unintended consequences of actions. The decade has in turn also seen an increased awareness of the social components of HCI and joint human-machine decision making. Researchers have applied findings from theory and fieldwork to address these issues and to develop new theories, methodologies, and innovative applications in the human-computer interaction area. An explosion of human interface technologies involving ecological interface designs, agents, virtual immersive workspaces, decision support systems, avatars, distributed architectures, and computer-supported cooperative work have come on the scene as the means to address these complex problems. Yet an important facet of complexity has been missing: the role of affect in human-computer interaction.

Psychological and neuroscience research over the past decade suggests that affect plays a critical role in decision making and performance, by influencing a variety of cognitive processes (e.g. attention, perception, planning, etc.). This includes not only the more familiar, extreme, and potentially negative influences of affective states, but also the highly adaptive affective modulation of problem solving and performance. In spite of these emerging data about the critical role of affect in decision-making, the role and function of affect is generally not considered in the disciplines that address the broad issues of understanding complex systems and complex behavior. Models and designs proposed as unique solutions to HCI problems typically consider only cognitive factors. Consequently, the resulting systems are often unable to robustly adapt to real-world situations where affective factors may play a role, or even predominate. Cognition that is situated “in the wild” is particularly entwined with the influences of affect and consequent perceptions, beliefs, and situation assessments; all of which can significantly influence proposed cognitive models, cognitive system designs, or field study applications.
Only recently has the subdiscipline of computer science—*affective computing*—begun to make explicit some of these issues and concerns. Affective computing is an emerging, interdisciplinary area, addressing a variety of research, methodological, and technical issues pertaining to the integration of affect into human-computer interaction. The specific research areas include recognition of distinct affective states, user interface adaptation and function integration due to changes in user’s affective state, supporting technologies such as wearable computing for improved affective state detection and adaptation, etc. A broad range of applications exist for affective computing, including education and training; virtual environments for assessment, diagnosis, and treatment of a variety of cognitive and affective disorders and disabilities; improved decision aiding systems for both individual and team settings, and many others.

As an emerging discipline, affective computing raises a number of critical questions. How then may we proceed? What does the consideration of affect and affect-induced behaviors offer the field of HCI? What is their role in the development of theories of cognitive science? How may they be integrated as components of user modeling? How would they influence adaptive interface design? Do they make a difference in ethnographic practices and how do they constrain our interpretation of goals, events, and work? Are affect and affect-induced perceptions and beliefs something to be eliminated from systems design? Does the consideration of affective influence require the re-definition of “rationality”? How are these concepts defined and used? Are these concepts to be avoided or embraced; ignored or integrated? What are the different types of affects and how can they be measured? How do affective states change within an individual, within a situation, and from one event to the next; and how can these changes be predicted and recognized? What are the implications of these issues for various subtopics within HCI? These are just some of the questions we would like to explore as new avenues of concern in HCI.

As a new area, affective computing can benefit from a variety of perspectives provided by the many complementary, interdisciplinary research areas relevant to HCI. The goal of this special issue of the *International Journal of Human-Computer Studies* is to collect in one volume papers describing recent progress in the broad emerging area of affective computing and its relevance to human-computer interaction.

The general topics include but are not limited to the following:

- **Recognition of distinct affective states:**
  - Theoretical considerations and limits
  - Methodologies and approaches (autonomic signals, facial expressions, behavioral manifestations)
  - Supporting technologies
- **Adaptations to affective states:**
  - Prediction of the effects of distinct affective states on cognition and performance
  - Adapting decision aiding and user interface to the user’s affective state to improve/maintain performance
- **Synthesis of affective states:**
  - Generation of realistic facial expressions and behavioral manifestation of affective states in virtual agents
• Applications:
  — Individual and team task training and assessment
  — Virtual reality assessment, treatment, and diagnosis environments
  — Decision support systems
  — Virtual reality gaming, edutainment, and infotainment

TYPE OF SUBMISSION
Two types of submission are invited:

• Long research papers describing original research, methodological or technical innovations, or novel application areas.
• Short papers describing research in progress or presenting a particular opinion or theoretical perspective

Any questions should be addressed to the special issue editors listed below.

SUBMISSION FORMAT
Refer to the IJHCS web page at: http://www.academicpress.com/ijhcs,
information for authors page at: http://www.academicpress.com/ww/journal/hc/hcifa.htm

SUBMISSION PROCESS
Titles, Abstracts, and Keywords should be e-mailed to both guest editors as soon as possible indicating in the subject line that the submission is for the special issue.

Full papers should be e-mailed to both guest editors, indicating in the subject line that the submission is for the special issue. Initial submission should be as a single file in either Word, PS or PDF format. If electronic submission is impossible then hard copy is acceptable.

Should the paper be acceptable for publication submission of the final form should follow the journal format, details of which can be found at the sites listed above.

IMPORTANT DATES
Deadline for title, abstract, keywords 30 April 2001
Deadline for papers 31 August 2001
Notifications of acceptance 31 December 2001
Deadline for final draft 10 February 2002

SPECIAL ISSUE EDITORS
Eva Hudlicka, Ph.D. Michael D. McNeese, Ph.D.
Psychometrix Associates, Inc. The Pennsylvania State University
1805 Azalea Drive 120 S. Burrowes Street, 518D Rider I Building
Blacksburg, VA 24060, U.S.A. University Park, PA 16801-3857, U.S.A.
hudlicka@acm.org mmcneese@ist.psu.edu
Tel: + 1 (540) 552-4803 Tel: + 1 (814) 865-7885
Fax: + 1 (540) 552-4807 Fax: + 1 (814) 865-5604