

(1) On the necessity of user-friendly CAPTCHA

Christos A. Fidas, Artemios G. Voyiatzis, and Nikolaos M. Avouris. CHI 2011

A "Completely Automated Public Turing test to tell Computers and Humans Apart" (CAPTCHA) is a mechanism widely used nowadays for protection of web applications, interfaces, and services from malicious users. A questionnaire-based survey combined with a real usage scenario of a native-language CAPTCHA mechanism was conducted in order to investigate several aspects that affect end-user perceptions related to the quality of CAPTCHA. A total of 210 participants of age between 19 and 64 participated during May and July 2010. The survey results validate the common belief that CAPTCHAs are still difficult for humans to solve. They also provide insights that can be applied to improve users' experience on interacting with CAPTCHA systems.

(2) Typing on flat glass: examining ten-finger expert typing patterns on touch surfaces

Leah Findlater, Jacob O. Wobbrock, and Daniel Wigdor, CHI 2011

Touch screen surfaces large enough for ten-finger input have become increasingly popular, yet typing on touch screens pales in comparison to physical keyboards. We examine typing patterns that emerge when expert users of physical keyboards touch-type on a flat surface. Our aim is to inform future designs of touch screen keyboards, with the ultimate goal of supporting touch-typing with limited tactile feedback. To study the issues inherent to flat-glass typing, we asked 20 expert typists to enter text under three conditions: (1) with no visual keyboard and no feedback on input errors, then (2) with and (3) without a visual keyboard, but with some feedback. We analyzed touch contact points and hand contours, looking at attributes such as natural finger positioning, the spread of hits among individual keys, and the pattern of non-finger touches. We also show that expert typists exhibit spatially consistent key press distributions within an individual, which provides evidence that eyes-free touch-typing may be possible on touch surfaces and points to the role of personalization in such a solution. We conclude with implications for design.

(3) The impact on musculoskeletal system during multitouch tablet interactions

Cecil Lozano, Devin Jindrach, and Kanav Kahol. CHI 2011.

HCI researchers and technologists have heralded multitouch interaction as the technology to drive computing systems into the future. However, as we move towards a world where interaction is based on human body movements that are not well documented or studied, we face a serious and a grave risk of creating technology and systems that may lead to musculoskeletal disorders (MSD's). Designers need to be empowered with objective data on the impact of multitouch interactions on the musculoskeletal system to make informed choices in interaction design. In this paper we present an experiment that documents kinematic (movement) and kinetic measures (EMG) when interacting with a multitouch tablet. Results show that multitouch interaction can induce significant stress that may lead to MSDs and care must be taken when designing multitouch interaction.

(4) "Now, i have a body": uses and social norms for mobile remote presence in the workplace

Min Kyung Lee and Leila Takayama. CHI 2011

As geographically distributed teams become increasingly common, there are more pressing demands for communication work practices and technologies that support distributed collaboration. One set of technologies that are emerging on the commercial market is mobile remote presence (MRP) systems, physically embodied videoconferencing systems that remote workers use to drive through a workplace, communicating with locals there. Our interviews, observations, and survey results from people, who had 2-18 months of MRP use, showed how remotely-controlled mobility enabled remote workers to live and work with local coworkers almost as if they were physically there. The MRP supported informal communications and connections between distributed coworkers. We also found that the mobile embodiment of the remote worker evoked orientations toward the MRP both as a person and as a machine, leading to formation of new usage norms among remote and local coworkers.

(5) Starcraft from the stands: understanding the game spectator

Gifford Cheung and Jeff Huang. CHI 2011

Video games are primarily designed for the players. However, video game spectating is also a popular activity, boosted by the rise of online video sites and major gaming tournaments. In this paper, we focus on the spectator, who is emerging as an important stakeholder in video games. Our study focuses on Starcraft, a popular real-time strategy game with millions of spectators and high level tournament play. We have collected over a hundred stories of the Starcraft spectator from online sources, aiming for as diverse a group as possible. We make three contributions using this data: i) we find nine personas in the data that tell us who the spectators are and why they spectate; ii) we strive to understand how different stakeholders, like commentators, players, crowds, and game designers, affect the spectator experience; and iii) we infer from the spectators' expressions what makes the game entertaining to watch, forming a theory of distinct types of information asymmetry that create suspense for the spectator. One design implication derived from these findings is that, rather than presenting as much information to the spectator as possible, it is more important for the stakeholders to be able to decide how and when they uncover that information.