LUNCHEON KEYNOTE

Tangible Bits: Beyond Pixels

Hiroshi Ishii
Tangible Media Group
MIT Media Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts, USA

ABSTRACT

Where the sea meets the land, life has blossomed into a myriad of unique forms in the turbulence of water, sand, and wind. At another seashore between the land of atoms and the sea of bits, we are now facing the challenge of reconciling our dual citizenships in the physical and digital worlds. Windows to the digital world are confined to flat square ubiquitous screens filled with pixels, or "painted bits." Unfortunately, one cannot feel and confirm the virtual existence of this digital information through one's body.

Tangible Bits, our vision of Human Computer Interaction (HCI), seeks to realize seamless interfaces between humans, digital information, and the physical environment by giving physical form to digital information, making bits directly manipulable and perceptible. Guided by this vision, we are designing "tangible user interfaces" which employ physical objects, surfaces, and spaces as tangible embodiments of digital information. These involve foreground interactions with graspable objects and augmented surfaces, exploiting the human senses of touch and kinesthesia. We are also exploring background information displays which use "ambient media." Here, we seek to communicate digitally-mediated senses of activity and presence at the periphery of human awareness. Our goal is to realize seamless collaborative interfaces taking advantage of the richness of multimodal human senses and skills developed through our lifetime of interaction with the physical world.

In this talk, I will present the design principles and a variety of tangible user interfaces the Tangible Media Group has presented in Media Arts, Design, and Science communities including ICC, Ars Electronica, Centre Pompidou, Venice Biennale, ArtFutula, IDSA, ICSID, AIGA, ACM CHI, SIGGRAPH, UIST, CSCW.
http://tangible.media.mit.edu/

SPEAKER BIOGRAPHY

Hiroshi Ishii is a tenured Professor of Media Arts and Sciences, at the MIT Media Lab. He co-directs Things That Think (TTT) consortium and directs Tangible Media Group. Hiroshi Ishii's research focuses upon the design of seamless interfaces between humans, digital information, and the physical environment.

At the MIT Media Lab, he founded and directs the Tangible Media Group pursuing a new vision of Human Computer Interaction (HCI): "Tangible Bits." His team seeks to change the "painted bits" of GUIs to "tangible bits" by giving physical form to digital information.

Ishii and his team have presented their vision of "Tangible Bits" at a variety of academic, industrial design, and artistic venues (including ACM SIGCHI, ACM SIGGRAPH, Industrial Design Society of America, AIGA, Ars Electronica, Centre Pompidou, and Victoria and Albert Museum), emphasizing that the development of tangible interfaces requires the rigor of both scientific and artistic review. A display of many of the group's projects took place at the NTT InterCommunication Center (ICC) in Tokyo in summer 2000. A three-year-long exhibition "Get in Touch" featured the Tangible Media group's work at Ars Electronica Center (Linz, Austria) from September 2001 through August 2004. He was elected to CHI Academy by ACM SIGCHI, and it was announced in CHI 2006 in Montreal.

Prior to MIT, from 1988-1994, he led a CSCW research group at the NTT Human Interface Laboratories, where his team invented TeamWorkStation and ClearBoard. In 1993 and 1994, he was a visiting assistant professor at the University of Toronto, Canada. He received B.E. degree in electronic engineering, M.E. and Ph.D. degrees in computer engineering from Hokkaido University, Japan, in 1978, 1980 and 1992, respectively. For more information, refer to
http://www.media.mit.edu/
http://ttt.media.mit.edu/
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