ABSTRACT:

I am interested in creating environments, objects and user experiences where digital computing is seamlessly blended into physical world. In this talk I review some of the approaches to combine digital computing and the real world, drawing from my early work on virtual and augmented reality, tangible and tactile interfaces, as well as some from the latest research projects that are currently being pursued in Disney Research Pittsburgh interaction group.

I will focus on two basic approaches to achieve this blending between virtual and real. The first is to enhance user interfaces and interactions with physical, real-world qualities. This can be achieved, for instance, by taking advantage of the properties of the materials that a computer is made of. In one example, we used bending as a primary interaction technique when designing an interface for flexible computers. The second approach is to enhance everyday objects and environments with digital properties, such as overlaying the world around us with computer-generated images, creating augmented-reality experiences. Both of these approaches, however, point to the future where with the development of new smart materials, novel display and actuators technologies we will be able to computationally control increasingly more aspects of the world around us, further blending computer-generated and physical realities. In this new brave world we will no longer be programming computers anymore, we will be programming the reality itself.

BIO:

Ivan Poupyrev is a Senior Researcher at Disney Research, Pittsburgh, a unit of Walt Disney Imagineering. There he directs a user interface research group that is focused on creating and investigating user interface technologies for future entertainment and digital lifestyles. Before joining Disney he spent nine years working at Sony Computer Science Laboratories, in Tokyo where he was developing tactile user interfaces, investigated shape changing devices and bendable computers. The results of his work has been presented at various conferences, demonstrated at trade conventions, reported in popular media, published as books and released on the market in Sony products.

Ivan Poupyrev graduated from Moscow Airspace University, USSR with Masters in Applied Mathematics and Computer Science in 1992. While working on his doctorate degree at Hiroshima University, he stayed three years as a Visiting Scientist at Human Interface Technology Laboratory, University of Washington working on virtual reality and 3D user interfaces. He defended his PhD in 1999 and joined ATR International in Kyoto, where he was working as a researcher for 2 years before joining Sony Corporation.

HOST: Brad Myers

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