Call for Participation

Programming Reality:
From Transitive Materials to Organic User Interfaces

Over the past few years, a quiet revolution has been redefining our fundamental computing technologies. Flexible E-Ink and OLEDs displays, shape-changing and light-emitting materials, parametric design, e-textiles, sensor networks, and intelligent interfaces promise to spawn entirely new user experiences that will redefine our relation with technology. In one example, future flexible displays will allow us to design devices that are completely flexible, and that can curve around everyday objects or our bodies. These and other developments are opening up unprecedented opportunities for innovation and require us to re-examine and re-evaluate some of the most basic user interface design principles.

This workshop invites researchers and practitioners to imagine and debate this future, as well as prototype next-generation interfaces. We will explore two converging themes. *Transitive Materials* will focus on how emerging materials and computationally-driven behaviors can operate in unison blurring the boundaries between form and function, human body and environment, structures and membranes, while supporting the design of computational systems that are intrinsically capable of interactivity and personalization. *Organic User Interfaces* (OUI) will explore future interactive designs and applications as these materials become commonplace. The OUI vision is based on an understanding that in the future the physical shape of display devices will become non-flat, potentially arbitrary and even fluid or computationally controlled. This allows display devices and entire environments to take on shapes that are 3D, flexible, dynamic, modifiable by users or self-actuated.

In the future we will observe increasing integration of computation and physical environment, to the point where basic material properties will be computationally controlled. In this brave new world, we will be programming not only computers or devices, but the fabric of reality itself. We invite interested participants to join us in discussing, inventing and prototyping this exciting future.

Topics

In addition to the issues already noted, topics of interest include, but are not limited to:

- Possibilities and needs served by emerging transitive materials
- Biomimetic, biologically-inspired and biological materials and interfaces
- Flexible digital paper, OLED and E-Ink computers
- Electronic textiles
- Interactive spaces and architectural applications for transitive materials
- Advanced actuators and haptics
- Shape-shifting and physically actuated devices
- Physically reconfigurable computers
- Parametric design and fabrication technologies
- Sensors and techniques for multi-touch and full-body interaction
- Effects of materials and form on design and affordances
- Interaction techniques for non-flat and curved display surfaces
- Tangible and embodied interfaces
- Soft mechanics
- Methodologies for interaction design using transitive materials
- Personalization of shape changing and transitive material interfaces
- End–user customization of the massively–interactive environment
- Relationship between membrane and structure in design and computer science
- Value and role of craft, collaborative development, and community knowledge

Workshop Format and Submission Instructions

We invite researchers and practitioners from the art, engineering, design (architecture, fashion, textiles) and scientific disciplines (HCI, wearables, materials) to submit a 4-page paper in the standard CHI Extended Abstracts Format describing their current work, new designs, ideas and positions. A maximum of 20 participants will be selected in terms of originality and relevance to the workshop themes and based on a review of their papers by the organizers. The selected papers will be made available on the workshop website to allow participants to familiarize themselves with each other's work before the event. Please direct all submissions and enquiries to **programmingreality@media.mit.edu**

More information can be found at http://www.organicui.org/ and http://www.transitivematerials.com/

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