Dissertation Defense

WHAT: Amanda Parkes: "Phrases of the Kinetic: Dynamic Physicality as a Dimension of the Design Process"

WHEN: Tuesday, March 3, 2009 1:00pm - 3:00pm

WHERE: Wiesner Room, MIT Media Lab (2nd Floor)

DISSERTATION COMMITTEE: Hiroshi Ishii Muriel R. Cooper Professor of Media Arts and Sciences MIT Media Laboratory Cynthia Breazeal LG Career Development Professor of Media Arts and Sciences MIT Media Laboratory Chuck Hoberman Founder and President Hoberman Transformable Design

ABSTRACT: At its core, the concept of Tangible Interfaces leverages the idea of using the movement of the body as an inherent part of the human side of a human-computer interaction, assuming that bodily engagement and tactile manipulation can facilitate deeper understanding and more intuitive experiences. However, as an interaction principle in our era of digital design, motion construction and control has been underutilized as a design tool, leaving open the possibilities of motion's natural ability to draw our attention, provide physical feedback, and convey information through physical change. This dissertation postulates that the ability to experiment, prototype, and model with programmable kinetic forms is becoming increasingly important as digital technology becomes more readily embedded in our objects and environments. The need for tools and systems with which to create, manipulate, and finesse physical motion in response to computational and material input remains an under-developed design area. This thesis aims to establish principles of kinetic design through the exploration of two approaches to motion construction and manipulation: motion prototyping as a methodology for design thinking, learning, and communication and physically dynamic state memory as a methodology for organic form finding and transformation in the design process. To demonstrate these aims, Parkes presents three interface systems: Topobo, a system for motion construction and dynamics physics education with children; Kinetic Sketchup, a system for motion construction and prototyping in architecture and product design; and Bosu, an augmented textile interface offering an experimental approach to digitally augmented organic form finding through kinetic memory in soft materials for fashion and product design.