Interacting with Personal Fabrication Machines

In anticipation of 3D printers reaching millions of users, I am investigating how to allow future users to interact with the new hardware. I present a series of interactive software+hardware systems that I created to answer this question. They are characterized by two main properties. First, they produce physical output quickly, allowing users not only to see their results, but also to touch and test their mechanical properties as users work towards a solution. Second, the systems allow users to interact directly with the workpiece, i.e., rather than using a digital 3D editor, users manipulate the workpiece located inside the 3D printer by pointing at it, causing the machine to then modify the workpiece accordingly. I put my research into perspective by drawing analogies to the evolution of interactive computing from batch processing, to turn taking, to direct manipulation.

Bio:

Stefanie Mueller is a PhD student working with Patrick Baudisch at the Human-Computer Interaction Lab at Hasso Plattner Institute. In her research, she develops novel hardware and software systems that advance personal fabrication technologies. Stefanie has published 10 papers at the most selective HCI venues CHI and UIST, for which she received a best paper award and two best paper nominees. She is also serving on the CHI and UIST program committees as an associate chair. In addition, Stefanie has been an invited speaker at universities and research labs, such as MIT, Stanford, UC Berkeley, Microsoft Research, Disney Research, and Adobe Research.

The lecture will be held on Sunday, 10.04.2016, at 13:30, Taub 337