

“High-Low Tech: Rethinking Cultural and Material Contexts for Computation”

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Abstract

People knit scarves, build furniture, sew clothing, and solder radios together in their homes and garages. Diverse groups of people--girls and boys, grandparents and college students--lovingly engage in these hands-on low-tech hobbies. In contrast, companies produce high-tech things by high-tech processes, using teams of people and sophisticated machinery to build devices like cell phones, computers, pharmaceutical drugs, and cars. But this clear division between high-tech and low-tech is beginning to blur. A host of new tools is making many of the resources previously available only to companies accessible to individuals, empowering people to design, engineer, and build devices they never could before.

This talk envisions a near future in which individuals integrate traditional craft, new engineering methods, and web-honed communication skills to build and share information about "high-low tech" devices like temperature sensing scarves, algorithmically generated furniture, and radically customized cell phones. The presentation will discuss burgeoning high-low tech communities, focusing on ways that professional designers and engineers can support and encourage this new creative movement. It will present examples of high-low tech artifacts--including embroidered circuits and paper computers--and examples of tools that empower others to construct high-low tech devices--including the LilyPad Arduino, a construction kit that enables novices to build fabric-based wearable computers.

Bio:

Leah Buechley is an Assistant Professor at the MIT Media Lab where she directs the High-Low Tech research group. The High-Low Tech group explores the integration of high and low technology from cultural, material, and practical perspectives, with the goal of engaging diverse groups of people in developing their own technologies. Leah is a well-known expert in the field of electronic textiles (e-textiles), and her work in this area includes developing a method for creating cloth printed circuit boards (fabric PCBs) and designing the commercially available LilyPad Arduino toolkit. Her research was the recipient of the best paper award at the 2006 International Symposium on Wearable Computers and has been featured in numerous articles in the popular press including the New York Times, Boston Globe, CRAFT Magazine, Denver Post, and Taipei

Times. Buechley received PhD and MS degrees in computer science from the University of Colorado at Boulder and a BA in physics from Skidmore College.