Democratizing Hardware
UX Prototyping

Prof. Dr. Jan Borchers
Media Computing Group
hci.ac
18.06.19
## Personal Design vs. Personal Fabrication

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<th>Local Design</th>
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Altair: $397 (1975)
We introduce Sketch & Stitch, an interactive embroidery system with technical considerations and application examples. Alternating between sketching and stitching, users build and test their design incrementally. Sketch&Stitch features representing circuit boards, components, and wiring diagrams, enabling a wider audience to integrate fabrics and electronics into interactive textiles.

Sketch&Stitch uses Circuitry Stickers as placeholders for real electrical components. Users draw their art and circuit directly on fabric using colored pens. The system takes a picture of the sketch, converts it to embroidery patterns, and sends them to an embroidery machine. The system then takes a picture of the sketch, converts it to embroidery patterns, and sends them to an embroidery machine. The system then takes a picture of the sketch, converts it to embroidery patterns, and sends them to an embroidery machine. The system then takes a picture of the sketch, converts it to embroidery patterns, and sends them to an embroidery machine.

E-Textiles are fabrics that integrate electronic circuits and components. Makers use them to create interactive clothing, furniture, and toys. However, this requires significant manual labor and skills, and using technology-centric design tools.

In e-textiles, conductive threads, inks, polymers, or textiles are attached directly to a base fabric, creating interactive, and functional textile artifacts for both playful and serious applications. It combines the visual and haptic aspects, making it an effective tool for designers, hobbyists, and artists alike.
FlowBoard
ARPen
Personal Fabrication is Democratizing Hardware UX Prototyping

Personal Fabrication requires Personal Design Tools

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