

MouseLight: Bimanual Interactions on Digital Paper using a Pen and a Spatially-aware Mobile Projector. Song, et al. CHI 2010.

What are the core research questions addressed by the work?

- What is the interaction space of using a projector and a pen bimanually to virtually augment content on top of paper?

What motivates the work?

- Past work required users to alternate between using the device as a pen and as a projector, which prevents seamless paper interactions.
 - Decouple pen input & projector output

How does the work understand the usage, capabilities, and limitations of paper?

- Paper is ubiquitous, mobile, and scalable
- Computers for command execution & providing active feedback

What is the target application domain of the work?

- Not specified

What are some proposed extensions to paper proposed by the work?

- Provide rich dynamic visual feedback in paper interactions
- Enables following interactions:
 - Copy and paste
 - Search
 - Camera
 - Palettes (colour, drawing and measurement)
- Uncoupled input & output for more mobility & functionality

How are the proposed extensions implemented?

- System consists of three elements
 - (1) interactive paper as a passive output surface and an interactive input surface
 - (2) digital pen as an input device
 - Use of an Anoto-based digital pen with bluetooth communication (ADP-301)
 - (3) a handheld, spatially-aware projection device
 - Custom device using a Microvision SHOW projector for output and two additional Anoto-based pens (ADP-301) for position tracking

What findings have been obtained from either the implementation process or an evaluation of the proposed system?

- The system improves the use of digital pen input on paper by augmenting it with a spatially-aware mobile projector
- Left hand tool manipulation was rated lower in part due to system size
 - Relative convenience of use versus efficiency
 - Hardware limitations
- An notable interaction modality - a bimanual tool glass metaphor: Comparable to positioning a magnifying glass in one hand and using a tool in the other