

ButterflyNet: A Mobile Capture and Access System for Field Biology Research. Yeh, et al. CHI. 2006.

What are the core research questions addressed by the work?

- Supporting field biology practices with an integrated paper-digital system

What motivates the work?

- Paper notebooks still used in the workplace despite the availability of digital tools
- Lack of tools that support capture and management of heterogeneous data

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

- Capabilities of paper: cheap, robust, turn on instantly, have infinite battery life, provide a fluid and flexible surface for jotting down ideas on the go, better support for mobile practices
- Limitations of paper: Unable to support interactive computation, difficult to use as a communication medium, no support for multimedia content, no means of interacting with digital information
- In the specific domain of biology research:
 - Paper notebooks are a central organizing tool
 - Use for data capture:
 - Notebooks are a definitive record of notes that are taken everywhere by field biologists
 - Field biologists gather information from a diverse set of sources: written notes are supplemented with specimens, photos, GPS data, audio, video
 - Need for data transformation and tool integration:
 - Biologists dependent on computers for data analysis
 - Data interpretation requires paper data to be entered into computers
 - Robustness
 - Paper notebooks can take extraordinary amounts of abuse before failing

What is the target application domain of the work?

- Field biology research

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

- Support capture and management of heterogeneous data, aid the transformation process, and preserve the best aspects of current paper-centric practices, rich information access

How are the proposed extensions implemented?

- A hodgepodge of technologies: a “smart” camera (Windows XP), digital pen, more of a fancy software infrastructure

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

- The work identified the following limitations with the proposed system:
 - Aided transcription still tedious
 - Concern with pen loss
 - Integration of photos and notes helpful
 - Granularity of media organization is low

- Specimen tagging requires additional field time
 - Any additional field time is not appreciated by biologists