Developing a Virtual Workbench for Charter Historians

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International Medieval Congress, Leeds
July 4, 2013
Interactive Systems for Digital Cultural Heritage

- A huge amount of money and effort are changing physical resources into digital representations

- Where do we start in trying to design new interactive systems for these digital artefacts?
Interactive Systems for Digital Cultural Heritage (2)

• The most common advanced technology we have for interacting with historical documents?
  –  http://discovery.nationalarchives.gov.uk/SearchUI/
  –  http://www.hrionline.ac.uk/causepapers/
  –  Good stuff – but largely a big search engine

• Sometimes small projects come up with gorgeous, enriching web interactions – however, these are often ad-hoc approaches and not reproducible – nor do we understand the design principles for them

• And what if we want to do more than just find and display documents? Surely people are doing things with the documents – why aren’t we supporting those tasks?

• Because … unlike home and office systems, we have no context or knowledge of what those tasks are!
A history lesson...

• ChartEx was born out of a medieval historian with this great idea:
  – Create an online tool that would allow her to use her domain knowledge to reason about documents and synthesize new knowledge about history – in particular about locations in space and time (e.g. where was the blacksmith shop on Goodram Gate?)
  – What she really didn’t want was a computer just running off and coming up with a bunch of stuff automatically
  – It was about helping her, the historian, do the thing she does best – tell stories about the past from the artefacts we have from history
A history lesson...(2)

- We immediately saw a parallel with an HCI idea from around 2000 from Beaudoin-Lafon: *instrumental interaction*
- Beaudoin-Lafon argued that many of the systems we build deskill people; we pursue systems that do everything automatically, when instead we should be finding ways to let the use contribute their knowledge to the system – where the system becomes an instrument (i.e. like a scalpel for a doctor)
A history lesson ... (3)

• We liked the idea so much that we jumped in with both feet. It ticked all the boxes
  – Really hard problems that would stretch our HCI theories and practices
  – Creation of new interesting interactive technologies
  – Fun! It isn’t boring like life insurance, or banking, or scary like safety in aerospace or medicine – it is about enriching our lives and our culture
But what should the system do?

Right, so what do you want out of this? What kinds of things should we be looking for?

Things about people and the places they lived.

Ummm … okay … what do those look like?

Ummm … things about buildings and people, and how land changed hands between groups of people.

But if I wanted to represent the key things in the document, how would they be linked together?

Don't you know?
Classic problem in a different domain

Historian View of Problem

Technologist View of Problem
Technology vs. Domain

• In true interdisciplinary work there is no common vocabulary – everyone speaks a different language
• For technology people the tendency is to grab their tech terminology while the users talk about their domain
• What do we do in HCI when we hit a problem like this?
Contextual Design to the Rescue!

• Contextual design
  – Getting technologists, designers and domain experts working to design systems that users need in a specific domain and context

• However – there was an extra layer to the ChartEx problem – we did not know what information was important to the historians

• That’s a little different than traditional participatory design – but maybe we can try some of our participatory stuff with historians to see if we can understand how people work with their contents
Contextual Design around Document Contents

• We had a group markup session!
  – Had a moderator/scribe and 2-3 historians
  – Each historian brought their 3 favourite charters
  – We then chose a type of “thing” (entity) that we wanted marked up: Actors (People, Institutions), Places, Sites, Events
  – For each entity type, people pointed to parts of the document that were of that type
  – For each entity, the historians indicated the relationships and roles that entity was playing in the document.

• As HCI practitioners we observed the types of things that they were interested and recorded them for later reference and use in designs
Contextual Design around User Tasks

• We needed to know more than just content of the documents, we needed to know what people did with them when doing research

• A further problem is: research is tacit knowledge; it is often very hard for researchers to describe how they synthesize new information
Contextual Inquiry

- To deeply understand the tasks of historians, we undertook a contextual inquiry
- We asked the historians to find a problem they had recently solved and retrospectively walk us through the solution
  - One historian identified a set of shops on a street in York
  - Another identified particular trends in witness lists in Essex
  - Another traced the holdings and influence of an Abbot in Catalonia
Contextual Inquiry (2)

• We recorded the sessions and then did partial transcriptions of the videos
  – Identified key actions and tasks undertaken
  – Utterances where people talked about things that were important in either the documents or their notes
• Distilled a set of basic requirements that fell into three broad activities:
  – Searching for documents in collections
  – Interacting with individual documents to understand their contents
  – Relating information between documents
• Tied into all of this was ideas around their confidence in particular pieces of data (e.g. the Abbot in Document A is a Bishop in Document B)
Interaction Design

• We began by dividing the interface it the three activities
• Started with the easy one: searching for documents in collections
• Evaluation of initial ideas in a co-design workshop
• Second prototype focused on exploring relationships within and between documents
Prototype
<table>
<thead>
<tr>
<th>Archive</th>
<th>Document ID</th>
<th>Document Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borthwick</td>
<td>00...12</td>
<td>...egret placens! Thomas massa sem...</td>
</tr>
<tr>
<td>Borthwick</td>
<td>00...13</td>
<td>...Curabilur nutrum Thomas mollis nulla...</td>
</tr>
<tr>
<td>Borthwick</td>
<td>00...32</td>
<td>...molestio vulputate Tomas est molestio...</td>
</tr>
<tr>
<td>Borthwick</td>
<td>00...41</td>
<td>...Ut lobortis Tomas dolor id...</td>
</tr>
<tr>
<td>Borthwick</td>
<td>00...45</td>
<td>...Aeneae legatis Thomas multis sodales...</td>
</tr>
<tr>
<td>DEEDS</td>
<td>11...27</td>
<td>...nunc. Sed Thomas auctor elevend...</td>
</tr>
<tr>
<td>DEEDS</td>
<td>11...28</td>
<td>...a elevend. Tomas prin feugiat...</td>
</tr>
<tr>
<td>DEEDS</td>
<td>11...33</td>
<td>...sem id Tomas texitque. Nam...</td>
</tr>
<tr>
<td>TNA</td>
<td>22...54</td>
<td>...Donec viva Thomas locat a...</td>
</tr>
<tr>
<td>TNA</td>
<td>22...55</td>
<td>...aegue convallis. Thomas morti consequat...</td>
</tr>
<tr>
<td>TNA</td>
<td>22...56</td>
<td>...Ebam massa Thomas turpa, tretique...</td>
</tr>
<tr>
<td>TNA</td>
<td>22...76</td>
<td>...Aeneae aegue Thomas una, atique...</td>
</tr>
<tr>
<td>Vicars Choral</td>
<td>406</td>
<td>...non prelitum Tomas non, lobortis...</td>
</tr>
<tr>
<td>Vicars Choral</td>
<td>458</td>
<td>...apicem. Maturae Tomas nec maurus...</td>
</tr>
<tr>
<td>Vicars Choral</td>
<td>473</td>
<td>...pretum vulputato, Thomas purus lectus...</td>
</tr>
</tbody>
</table>
ChartEx Virtual Workbench v1.0

Search:

Thomas

Archives included in search:
- Borthwick
- TNA
- DEEDS
- Vicars Choral

Search Results

Search Results

Document Text


Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himesaeos. Vivamus mattis nisi sapien, nec imperdiet enim. Curabitur eu eros odio, id aliquam dui. Proin nec sagittis tellus. Praesent ut risus non lorem aliquam posuere non eget tortor. Vestibulum moles ut semper sagittis.

Show markup:
- Person
- Place
- Transaction
- Institution
- Site
- Date

Document Images

![Document Image 1](image1.png)
![Document Image 2](image2.png)

Document Details

Language: English
Date: January 1292
Held by: York Online Digital Library
Source reference: VC 3VI 326
Document Text


Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Vivamus mattis nisi sapien, nec imperdiet enim. Curabitur tellus eu odio, id aliquam purus. Proin nec sagittis tellus. Praesent ut risus non metus at aliquam pellentesque non egestor tortor. Vestibulum molor ullamcorper sagittis.

Show markup:
- [ ] Person
- [ ] Place
- [ ] Transaction
- [ ] Institution
- [ ] Site
- [ ] Date

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Language: English
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Outcomes of Evaluation of Lo-fi Prototype

• Overall, the historians liked what they saw
  – Very positive about being able to investigate relationships between the documents
  – Liked that they could keep their own copies and update those copies with their own knowledge (e.g. confidence)

• One really interesting outcome
  – Some historians wanted to be able to go from a high level view and immediately see the relationships – then drive down to document level
  – This is something they couldn’t do previously, and shows how our elicitation methods capture some things, but we need the evaluation steps!
Future Work

• Next steps
  – High fidelity prototype of the workbench is under way with integration with data from the NLP and data mining
  – Evaluations with medieval historians (give us your card if interested in helping or email us at helen.petrie@york.ac.uk and christopher.power@york.ac.uk) coming in Autumn 2013
Questions?
Resources
