Edit Wear & Read Wear

- Computational wear
- What is Edit Wear?
- What is Read Wear?
- How do they work?
- Advantages
- Limitations
Graphically depict the history of author interactions with documents

- Which sessions of the document is most stable?
- Which sections are most unstable?
- What are the relative ages of document sections?
- How often have sections of the document been edited?
- What edits were made during the last editing session?
- Who wrote what?
- Who edited what and when did they edit it?
- What have co-authors written and edited since last time?
Read Wear

Graphically depict the history of reader interactions with documents

• How often and how much have sections of the document been read?
• Which sections of this document been read by various categories of the readers?
• Who were the last people to read this section and when?
Scroll Bars
Implementation

- Modify Zmacs:
  provide a hook that allowed an arbitrary function to be run whenever a document line was edited.
User Interface

Menu Wear:
Statistics of previous menu-selections by category of user and by category of context
User Interface

Spread Sheet Wear
Discussion

Advantages

Limitations

Any improvements?
Discussion

1 Privacy: However, I’m curious what users thought of this. It’s obviously an invasion of privacy of sorts (one might argue that it’s no worse than wear on physical records, particularly since for e.g. edit wear a user’s handwriting is distinct while her typewriting is not, but people are always concerned about their privacy on computer systems far above and beyond concerns in the physical world, in part because of the Internet and its linkage and accessibility for information all across the planet.

2 Favorites: I wonder if it has an effect similar to that of the haptic interfaces: “favorites.” In one of the haptics papers it was discussed how users would “land on certain channels without really knowing why”, and I expect that people would pick up on these scrollbar ticks as cues in the same way.——Valkyrie Savage

3 Calculating the time for reading could be difficult when deadline with multi-column articles or when you’re not just reading but performing multiple tasks (reading on screen, writing notes on paper).——Laura Devendorf

4 Positive: Making use of the scrollbar to display the frequency of edits at different locations of the document. If the document is long, then the Edit Wear markers provide a snapshot of the sections where they are most stable or most edited. Instead of having to scroll through the pages (like Microsoft Word) to look for highlights and comments, user can easily navigate to the areas of interest.

Negative: Anyway, the embedded display of Edit Wear and Read Wear might divert too much attention from the new readers. Without a clear value proposition, it is unclear whether we need something like this.——Alex Chung

5 it was unclear to me how useful their interface modification would actually be.—— Steve Rubin
Discussion

6 Negative: In my opinion, the application is not widely adopted in modern text editors because it distracts users’ attention in most of the cases.
Positive: In programming IDE such as Eclipse, the editor shows the error or warning on the side bar so that user can track these issues by clicking on the indicated location. —— Hong Wu

7 Privacy : As addressed in the work itself, the extensive logging of edit and read actions has implications in security: mechanisms to ensure privacy of individual actions are crucial if history is recorded in such a way. —— Ali Sinan Koksal

8 Lack visualization: Hollan et al’s scheme, while unobtrusive, also lacked visual cues making it clear what the visualization represented, which is particularly troublesome for a modal interface that can be configured to display several different types of wear. —— Derrick Coetzee

9 Applications: source code version control system, online document system, dynamically changing the mouse scroll speed of document according to the read wear so the document tends to stop at most viewed positions——Yin-Chia Yeh

9 One problem with this paper is the lack of linking the rationale to the end result. In addition, the paper is not particularly detailed on the implementation of the system. —— Jason Toy

10 Data storage: My other biggest concern was data storage. The paper seems to hope for memory becoming cheaper and more accessible rather than suggesting a solution. Storing data about each line makes the data storage for each document almost 2x – 3x as big as a regular document and I don’t know if this would ever be memory efficient. —— Apoorva Sachdev
Zoetrope: Interacting with the Ephemeral Web
Zoetrope

A web page for Seattle traffic conditions
Zoetrope

Lenses, filters, and visualizations
Each page is stored in two databases:
(1) as XML providing Zoetrope access to the structure and text for indexing and extraction
(2) as an image providing Zoetrope nearly instant access to the page’s visual appearance.
System Architecture

$< T_i, C_i > \rightarrow \text{Transform (xy) } \rightarrow < T_i, C'_i > \rightarrow \text{Filter time = 6pm} \rightarrow < T_i, C''_i > \rightarrow \text{Render}$

Ci: a content item
Ti: time when that content was sampled from the web
Temporal Lenses

✧ Visual Lenses:
   draw a rectangle around an area of interest

✧ Structural Lenses:
   track selected HTML content independent of visual position

✧ Textual Lenses:
   track arbitrary text regardless of where it appears on the page
Textual Lenses

based on unstable or semi-stable content.
Applying Filters to Lenses

- Filtering on Time
- Filtering on a Keyword
- Filtering on Amounts
- Duplicate Elimination
- Compound Filters
- Trigger Filters
Visualizations

- Timelines and Movies
- Clustering
- Time Series
This timeline visualization shows the duration and frequency of news articles on the cbc.ca website.
This cluster visualization shows traffic data according to weather conditions.
A time series visualization displays the Harry Potter book sales, or Muggle Counter, over time.
Export Temporal Data

Create a Google Spreadsheet “visualization” that sends the lens-selected values to the external Google Spreadsheet system

http://www.youtube.com/watch?v=7C-B7qdClak
Discussions:

1 Advantages?
- Why not go back to see the history of the webpage?
- Motivation?

2 limitations?
- Data-storage?
- Scale up?
- Overload?

3 Improvements?
Discussion

1 Negative: Latency issue arises when the interface demands to use Zoetrope to dynamically re-render pages. There are a lot of overheads when transforming data from the database to visual elements for display. Keeping history of changes requires much storage capacity and large bandwidth to deliver content dynamically.

Negative: I'm not certain if the system can scale up. The algorithms mentioned in this paper sounds too simple to be true. There are assumptions that most webpages are XHTML formatted and everything is well formed. Explanation is needed for the indexing formula to organize the history of web pages in database. Relational database might not the best solution for this purpose.—— Alex Chung

2 First, their system is powerful but very complicated. Second, the paper skirts around the issue of scalability.—— Steve Rubin

3 On the other hand, the system is fragile: they were forced to cache images of rendered pages to support an interactive experience, but this cache is not invalidated properly when the browser, window size, or browser settings such as text size changes. The DOM based schemes used in structural lenses are also fragile, as their study points out - users have little recourse if their query fails other than viewing history of the entire page. Because old versions of pages are stripped of Javascript, they may lack dynamic features or even become impossible to navigate effectively. I don't see a clear solution to these problems.

——Derrick Coetzee
Discussion

4 They didn’t conduct usability test in detail. If we can easily (time or money) retrieve historical information (generally we care about) from web sites, this tool might lose momentum.—— Donghyuk Jung

5 One thing I did not like about the design of Zoetrope was their filter input. All the examples in the paper assumed a normal user, however the filter input was in a format that was similar to a cron job, which few if any non-programmers know about. In terms of execution and usability, I feel that the authors could have done a better job.—— Jason Toy

6 Again, the biggest concern with this paper is data-storage, storing multiple versions of a page over time (they haven’t defined a horizon for their page storage) despite compressing would still take a lot of space.—— Apoorva Sachdev

7 It seems like both of these papers focus on providing access to as much information as possible, but that can lead to information overload. However, the authors later describe visualization techniques that help to alleviate this overload as well as some scenarios (such as temporal "videos" of changing web page) that do seem well-motivated.—— Sally Ahn
Thank You!