NewsPaperBox – Online News Space: a visual model for representing the social space of a website

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1. ABSTRACT

NewsPaperBox[*] propounds an alternative visual model utilizing the treemap algorithm to represent the collective use of a website that evolves in response to user interaction. While the technology currently exists to track various user behaviors such as number of clicks, duration of stay on a given web site, these statistics are not yet employed to influence the visual representation of that site's design in real time. In that sense, this project propounds an alternative modeling of a representational outlook of a website that is developed by collaborations and competitions of its global users. This paper proposes the experience of cyberspace as a generative process driven by its effective user participation.

Keywords: Collective Intelligence, Visual Design, User Interaction, Informatics, Typography

2. INTRODUCTION

In the early stages of Internet use, websites were designed in a closed system of predefined content, which was organized in a semi-hierarchical order of hyperlinks. For some users, this sense of unalterable, rigid content emitting from the screen injected a sense of alienated drifting into the experience of the Internet. Certain utopian views in social sciences characterized this era as an out of body experience and an integral part of the evolution of mankind. Web users were highly limited in their manipulation ability to interact with the systems, thus their situation could be considered as being passive observers of the available given content.

Current advances in network technology have created the opportunity of near instantaneous data exchange between global users and interactive systems. Networks enable delocalization of our personal data spheres, and our interactions occurring in an interactive system evolve into an integration of separate commitments to the content of an experience. Technically, every connection leaves its trace; every spectator becomes a spectacle in the databases of cyberspace. As users access information through websites and communicate via e-mail, information pertaining to our online activity is registered in the databases of communication networks regardless if the information is volunteered or not.

Considering the ubiquity of 'comments' sections and witness accounts to news articles published on large network news sites, many people believe computer mediated communication in general is changing the mono-vocal, one way communication of mass media, yet the interactions of users still remain to be effectively articulated.

3. PROJECT DESCRIPTION

On certain news media websites, some text driven imagery registers the active participation of users through additional content and critique but this participation is not manifested in the visual form of the website. NewsPaperBox is a visual and systematic approach to online news media that proposes an alternative means of visual interaction with news sites functioning as a symbolic social sites, and consequently as research on the representation of a website's active use through in its form.

4. TREEMAP ALGORITHM

The treemap algorithm used to develop the visual layout of the NewsPaperBox (see Figure 1), rather then being a fixed mathematical formula, is an alternative approach for visualizing hierarchical, tree structured databases in limited two-dimensional spaces. With the treemap algorithm, a given space is used completely utilized; the space is subdivided into rectangles according to a given data query and the whole structure is visible as an instance.

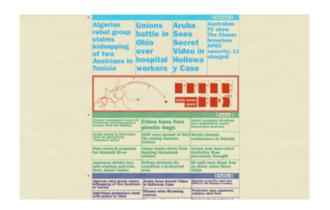[*] http://www.newspaperbox.net

Figure 1. Treemap algorithm implementation

This approach gives the user the ability to see the whole system and visually compare information according to a chosen 'variables'. This characteristic of the treemap algorithm makes it highly adaptable in different contexts and enables the user to redefine the parameters of representation.

After its publication, the treemap algorithm was rewritten in many forms in order to deal with its visual and technical issues (Shneiderman 1998).
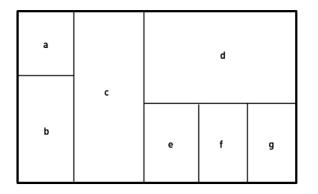

Figure 2: Treemap division

The most commonly used formulation that visually enhanced the basic algorithm is "Squarified Treemap" written by Mark Bruls, Kees Huizing, and Jarke J. vanWijk. In this specific method, rectangles in a single mode are subdivided and placed according to their closeness to the aspect ratio of a square, which is one. By setting this parameter as a controller, the visual layout of the treemap appears more orderly and readable because thin long rectangles with high aspect ratios are avoided, but the presentation of original data is altered. Since objects are sorted in a decreasing order in terms of their 'variable', placements of rectangles change dramatically in every data manipulation (Bruls and others 2000: 4).

5. REPRESENTING COLLECTIVE USAGE IN DATABASE

The "Squarified Treemap" (Bruls and others 2000) was taken as a reference in writing the NewsPaperBox's code as it enabled the necessary space for textual information, but its inner working have been slightly altered. Since NewsPaperBox involves an interactive relationship, constant radical replacement of the content would end up in loss of orientation for the user. In writing of the Treemap code for NewsPaperBox project, an abstract variable –namely 'weight'- was taken as the base for subdivisions of news headers. This abstract variable is set to be identical for all headlines as the site is initially started, giving equal areas for the headlines of each article. Through the dynamic interaction of the users, the server collects data regarding their amount of reading and interaction with the article. Reading as the basic interaction of user in text-based media is a challenging data to acquire via technical means because of its subjective quality. The simple queries of mouse clicking or rating systems used widely by sites are too abstract for a logical analysis, since user might have merely passed over the information while spending considerable amount of time elsewhere. These two situations are considered as the same data in most cases. In NewsPaperBox, users' subjective interaction of reading a text is transformed into a visual challenge in order to collect more sufficient data regarding the reading activity. Upon entering the site, the user is confronted with the whole set of accessible information. In order to start reading an article, a box containing the news has to be dragged and dropped via mouse to a set of available points placed a the sides of the main block. Then the article is placed in a half open box, which can be opened by an icon placed below its bottom point. The user has to enlarge the article's box that reveals the hidden content (see Figure 3). By these simple measures interactive stretching and placing, we are able to collect data on how much of the content was opened (so presumably read) by the user. In NewsPaperBox, the time spent with an open window is accepted as an indicator of the relevance to the user of a given news box.

Eventually, the algorithm calculates the amount of reading and time spent with the article. Within this calculation, the amount of reading is compared with the available content and the 'weight' of the article is changed accordingly.

Figure 3. Interactive reading process

Once the user closes the article, site restructures the areas of news headlines according to the new value of

the article's 'weight'; effectively presenting the initial design as a perpetually evolving space that passes on to the next user. By maintaining this ongoing relationship, the website acts as a shared social object that is altered by every users reading activity. The website content is also updated daily –as newspapers are- and with each update the design resets back to its initial form while the restructured design from previous days are stored in an accessible database and subjected to the continual process of user-drive alteration.

Even as the project proposes an innovative foundation for visual interaction and dynamic design over collective databases, further development is possible in terms of its application. While news reading windows can certainly be left open when the user is doing other tasks, and this behavior can be determined through various cognition methods such as eye-position tracking and ignored as errors, those functions currently fall outside the scope of the initial NewsPaperBox project.

A dynamic user interface that allows for the manipulation of content by the users would enhance the collective characteristics of the project. Also, further field research and experiments of the project's efficiency in collecting reading data need to be completed in order to test the initial assumptions made in terms of the reading activity.

6. CONCLUSION

The current NewsPaperBox proposal is as an online news site, but there is broad potential for application as the system is suitable to every text-based website. Once a site is equipped with a user interface that allows content publishing, that site could then be employed as any number of text-based 'social' sites, such as independent news sites, event calendars, forums, bulletin boards, small advertisement sites, and online auction sites.

The underlying idea of the NewsPaperBox project came from a recent change in the dynamics of Internet that opened up the possibility for Internet users to share and showcase their personal content. Prior to these developments, this ability was only accessible to a limited number of website builders. 'Social' websites equipped with content management technology are changing the landscape of the Internet into a more dynamic platform of social interaction.
Furthermore, since information available on the Internet is mainly text based, the interactive capabilities of the users have largely been limited to content management that is highly regulated by copyright legislation. Because of this, the social interactivity of the Internet is not sufficiently articulated in its visual representation. Doing so would bring much diversity to the medium. The NewsPaperBox project proposes a visual model for representing the social space of a website in its form by enabling dynamic interaction between the user and the website interface. As these

interactions are transmitted to the database of the site, a social memory is constructed. The site is passed on to others as an object of exchange, which bares marks of using and of a history.

7. REFERENCES

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