

# Exploring HCI Challenges: SWUI 2008 at CHI

5th April, 2008, Florence, Italy

This workshop is the fifth in the Semantic Web User Interaction (SWUI) series. This specific workshop is held in conjunction with the Computer Human Interaction Conference; SIGCHI is a special interest group of the ACM. SWUI workshop information can be found at: <http://swui.webscience.org/>.

## Workshop Theme

The goal of the growing SWUI community is to foster collaborative discussions leading to research and projects at the touch-points between advanced HCI research/design and Semantic Web research.

The Semantic Web is not a Web of documents, but a Web of structured and interlinked data. Creating interfaces for interacting with this data is difficult because there is no well-defined web "page" or homogeneous structure to the data. Creating data is at least as important as presenting it, so facilitating efficient and effective data entry is an important aspect of user interaction.

Early on, the Semantic Web was described as "not a separate Web but an extension of the current one... better enabling computers and people to work in cooperation." [1]. Thus, the focus on human-computer interaction has always been part of the vision. Toward the end of 2006, "User Interaction and Applications" was formally introduced into the Semantic Web framework [2], creating an even greater sense of importance for these conversations to take place within the CHI community.

## Interaction Challenges for the Semantic Web

### 1. Interacting in New Ways

The Semantic Web offers opportunities to HCI design, enabling more dynamic/complex data interactions which, on the Web, have been very difficult to achieve. At the same time, the Semantic Web poses new design challenges for current interactions. Semantic data can be mode-less: it is not already deliberately constructed as a page, or as site-specific data to be poured into a page container. There are instead numerous potentially inter-connectable links associated with structured data, possibly from many sources.

- How would users search for suites of associated resources?
- How best to present such resources for exploration and use?
- How to support more consistent presentation of heterogeneous data sources?
- How could interfaces reveal possible connections from one data point to another?

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- With being able to pinpoint the source of any datum, how might we make that provenance usable and useful within the interface?
- If data relationships and inferences are being managed "in the background," how can the actions and assumptions be made transparent without increasing the user's cognitive load?

### 2. Heterogeneous data challenges

Another challenge in the Semantic Web space is how to represent information when the schema of the data is not known in advance, when the data is simply being drawn in via its hyperlink: instead of an address to a page, we are linked to an address for a populated schema, or the data is retrieved automatically and incorporated in the background.

- How do we present this information if we do not know what it contains in advance?
- How do we present its types in useful and meaningful ways?
- How do we understand the data creator's intent, and any assumptions or constraints on how it can be applied?

### 3. Data creation challenges

While much of the current focus is on viewing, navigating and managing Semantic Web data, the implications for users creating data with more structure and interconnectedness is significant.

- How can we leverage research concepts to facilitate structuring information that is easy to enter?
- How can we support subject experts in various domains to provide structured information without significant additional burden?
- What is the role of social creation of data, and collaboratively-managed vocabularies that move us beyond the world of unstructured tags?

Examples can be found at: <http://swui.webscience.org/challenges>

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[1] Berners-Lee, T., Hendler, J., Lassila, O. The Semantic Web. *Scientific American*, May 2001. Online: <http://www.scientificamerican.com/2001/0501issue/0501berners-lee.html>

[2] Berners-Lee et al, September 2006. Fig. 3.2 The Semantic Web Stack c.2006. Page 22. In "A Framework for Web Science." *Foundations and Trends in Web Science*. Vol. 1, No 1 (2006). <http://www.nowpublishers.com/product.aspx?product=WEB&doi=1800000001>