Zooming not Zapping: Demonstrating the ZOIL User Interface Paradigm for ITV Applications

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Abstract
This paper introduces the ZOIL (**Z**oomable **O**bject-Oriented **I**nformation **L**andscape) user interface paradigm, which is aimed at seamlessly integrating media services and content of all kinds into novel "intuitive" and "natural" visual user interfaces. In order to provide an intriguing user experience, ZOIL interfaces combine the principles of object-oriented and zoomable user interfaces with information visualization techniques. To demonstrate ZOIL's benefit for the ITV domain, we will provide visitors with an interactive firsthand experience of ZOIL's alternate interface physics, visual information exploration and usability.

1. Introduction

Our living rooms have turned into a competitive marketplace with a multitude of different services (e.g. IPTV, video-on-demand, video/photo sharing, social networking, personal media management) converging into a new generation of consumer electronics (e.g. internet-connected HDTVs, hard disk equipped set-top boxes, 7th generation game consoles). However, many of these novel devices still use rather conservative interaction models and user interfaces (UIs), which are often ergonomically and cognitively too demanding for the future living room (e.g. cumbersome menu navigation, text-oriented Web applications, hierarchical file systems for media management).

ITV providers should be aware of the fact that solely focusing on content and thoughtlessly relying on traditional user interface concepts can pose a threat to their product's overall user experience, usability and to the successful delivery of their brand proposition (Jetter & Gerken, 2006). This is especially true considering the current need of the industry to unify very different services in a consistent user interface for the living room, a place which is commonly associated with relaxation and entertainment and not with learning and handling complex digital tools with inconsistent UI designs.

2. The ZOIL Paradigm

At the Human-Computer Interaction Group of the University of Konstanz we see the current phase of convergence as an opportunity for rethinking and reshaping traditional UIs with novel interaction models which are strictly oriented towards real user needs and abilities. Therefore we have formulated design principles and designed interactive prototypes to demonstrate our own vision of a novel user interface paradigm suitable for future personal media (Jetter et al., 2008). This ZOIL paradigm (**Z**oomable **O**bject-Oriented **I**nformation **L**andscape) is aimed at replacing traditional WIMP (**W**indows **I**cons **M**enus **P**ointer) or menu-driven interaction styles with direct-manipulation visual interfaces based on the idea of a zoomable "information landscape". This landscape of infinite size and resolution resembles a large whiteboard or desktop and visually integrates all kinds of services in a common workplace under a consistent interaction style. All content and functionality converging into a ZOIL UI (e.g. TV channels, media files, mails, "friends" on a social network) is visualized in an object-oriented manner on the landscape through zoomable icons. All details and functions of an item can then be accessed by zooming in (e.g. to play a media file, to reveal additional metadata, to edit settings or to send a message). This way of spatially navigating within content and functionality by "semantic zooming" in a zoomable user interface (ZUI) is designed to be more "natural" or "intuitive" than browsing through traditional menu and file hierarchies or navigating page-oriented dialogues (Perlin & Fox, 1993). The benefit of ZUIs has become visible in successful commercial applications, e.g. in the Apple iPhone browser and home screen (Apple Inc., 2008) or in Hillcrest Labs' "Home-Framework" for ITV applications (Hillcrest Labs Inc., 2007).

In ZOIL this benefit is furthermore combined with the power of information visualization using "portals". Portals allow the user to visually select arbitrary regions of the information landscape (or of other portals) and to change their visual appearance into analytical or browsing-oriented representations fitting the user's current information need (e.g. geographic maps, timelines, scatter plots, social networks). By nesting and dragging such portals users can rearrange and access all content and functionality using personal combinations of the geographic, temporal, semantic or social dimensions. Furthermore, dynamic queries (Ahlberg & Shneiderman, 1994) allow for an

iterative visual formulation of complex search and filter queries.

3. The Demonstration

Our demonstration will feature an interactive prototype of a ZOIL-based system for ITV-related services (e.g. personal media management) based on Microsoft's .NET and WPF technology. This will allow visitors to get a firsthand experience of ZOIL by navigating the information landscape and by browsing, searching, watching or manipulating content in different visualizations. Our system will be demonstrated in a realistic hardware setting (30" Cinema HD display, Nintendo Wiimote as remote control and pointing device).

Figure 1 shows ZOIL mock-ups that illustrate how a user zooms into her personal information landscape (containing personal annotations and Web bookmarks) to visually explore and read incoming messages using geographical and timeline visualizations and filters.

Our demonstration will also be used to gather user and expert feedback on our current interaction design from visitors in a kind of informal usability test and user interview.

Figure 1 - ZOIL-based ITV system

4. References

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