

Current and Future Features of Digital Journals

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Abstract. Features in currently available systems are often restricted to passive 'consumption' of articles stored in the corresponding digital journal. This paper classifies features into two categories (overall system structure, and content based features) and gives an outlook of planned implementations in the Journal of Universal Computer Science (J.UCS). It also shows that using the powerful Hyperwave Information Server (HIS) makes it quite easy to *implement* features and make knowledge management features (such as 'find an expert on a topic') available to users of a digital journal.

1 Introduction and Overview

First generation publishing systems were very static and inflexible. Simple pages encoded in some digital format were prepared by some editorial team, stored on a server system, and then transferred to the user on request. Systems were based on ordinary web-servers without any interactive features but 'get document XXX' were very often used as base system. With ongoing development of technologies user supporting tools like 'search through the content stored on a server' etc. were implemented. This paper is about features available in digital journals. The following systems were explored in detail:

ACM-DL: Digital library of the ACM (Association for Computing Machinery) [ACM Digital Library, 2002].

LINK: Information service published by Springer [LINK, 2002].

Xplore: Service published by IEEE (Institute of Electrical and Electronics Engineer) [IEEE-xplore, 2002].

ScienceDirect (SD): published by Elsevier [Science Direct, 2002]

JoDI: The Journal of Digital Information maintained by the IAM Research Group, University of Southampton [JODI, 2002].

JUCS: The Journal of Universal Computer Science. A publication of the Know-Center in cooperation with Springer Co.Pub., JOANNEUM RESEARCH and the IICM, Graz University of Technology [J.UCS, 2002].

To simplify the following discussion, we use the bold printed keys to refer to the systems, i.e. we write *Xplore* when we talk about the digital library system of the IEEE. *ACM-DL*, *LINK*, *Xplore* and *ScienceDirect* are serving

several journals, conference proceedings and books. *JoDI* and *JUCS* are serving *one* journal each. The selected libraries are very diverse in terms of amount of data provided to the user, offered features, licensing etc. Nevertheless, the selected systems are all electronic publishing systems trying to support the user in information and knowledge gathering, therefore the demands on the features are very similar.

In the following sections we take a critical look at selected qualities of systems, categorized this two categories:

Overall System Structure and Features: like exploring the content stored in the systems via searching and browsing as well as refining articles once found in the system.

Content Related Features: like document formats and interactive and active features using the content or parts of the content.

At the end of each subsection we take a look at the differences between the selected features and features available in *JUCS*. We also present some ideas of future improvements related to the corresponding topic.

2 Overall System Structure and Features

Organization and structure of *information entities* are a main issue in information systems. The digital world consists of servers, index- and content pages. Disadvantages of traditional libraries (like limited space in shelves, borrowed books are not available to other users etc.) are easily 'repaired' in the digital equivalent. But there are problems to solve: we all know the *lost in hyperspace syndrome* (e.g. [Theng and Thimbleby, 1998]) and try to avoid it in the design of an information system's user interface.

The content of almost every investigated digital libraries is available not only in electronic form but also in printed form. Articles also appear on paper, whereby the electronic edition appears usually earlier (e.g. *LINK*'s 'Online First'-service). Since every page includes a page number, an additional navigation feature is added to the content.

In a printed environment space is always an issue and articles must not exceed some predefined number of pages. Electronic editions are easier to handle in this respect: They offer (nearly) unlimited storage space, therefore there is (usually) no limit to the size of an information entity. It is easy for an electronic system to add additional material to an entity, e.g. information about the author (link to the homepage of the author, curriculum vitae, email address etc.), additional software, tutorials etc. While all these features are 'nice to have', they also have massive drawbacks: just consider archiving the material. Problems related to the electronic format of the content and reliability of storage mediums arise.

Let us take a look at navigation-features of a digital publishing system. Finding the right content starting from the entry page of the system may be accomplished in two ways: by browsing (see section 2.1) or by searching for a title, author's name etc. (see section 2.2). If the right article is explored, functions like