Book review:

Elements of Hypermedia Desi_g_n

by

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Hypermedia is one of the buzzwords of the information and communication technology (ICT) era we are living in. It is an acronym made of two other words - 'hypertext' and 'multimedia' - referring, briefly speaking, to a computer-based text enhanced with links making possible non-sequential reading through, and to documents combining several media such as text, sound and video, respectively. All these concepts are around already for some years, but only recent amazing advanceme:rits of ICT hardware and software have laid the ground for their practical application. The growing popularity and availability of the Internet also has played an important in this respect. In particular, the most popular Internet service, the World Wide Web (WWW) attracted millions of users thanks to the use of the hypertext and multimedia capabilities. It triggered the explosion of hypertext information resources over the world. The intuitive and attractive user interface provided by the WW\V browser encourages more and more people to "surf" the Internet. The main feature of the hypertext, i.e., the links leading from one document to other, somehow related, documents is very powerful and conceptually simple at the same time. Hence, more and more hypertext documents are made available on the Internet. On the other hand, as the number of documents and of interconnecting them links grows, the user may easily loose orientation in following subsequent links. Hypermedia create new opportunities for the designer and the user, but require "hypermedia-oriented thinking" on the design stage. The preparation of this new media documents may be rather time consuming and seems to be difficult to be fully automated in the near future. It requires creative and innovative attitude. The book of Peter Gloor presents a number of rules and tools, which are to support a designer of hypermedia documents. The author addresses the problems related to proper information *structu,ring, presentation and manipv,lation.*

The book consists of five parts. The first one deals with the rules which should be observed when designing *the structure* of hypermedia documents. It starts with a brief introduction to the information retrieval concepts, as e.g., indexing or the vector space model, which are then used to establish efficient document structuring. Two next chapters present the basic components of the WWW architecture and its extensions, like CGI, Java, etc. The main body of

the first part is devoted to the exposition of the author's original classification of seven design concepts (tools) for navigation among the hypermedia documents. After the short introduction of these concepts, namely linking, searching, hierarchy, sequentialization, similarity, mapping and agents, they are discussed in depth along with the review of their implementation in existing, either commercial or experimental, software.

The second part of the book presents "the cyber-toolbox", a set of tools implemented by the author and his teams at the MIT and the Dartmouth College. The most advanced among them, called Cybermap, makes it possible to automatically create an overview map for textual documents. It makes an extensive use of clustering analysis techniques to group documents into, so-called, hyper-drawers, that are much easier to represent on screen than the original set of documents. When presenting the tools, the author discusses either theoretical as well as technical details of their implementation.

The third part of the book deals with a special way of information *presentation* possible through the use of hypermedia. More precisely, it discusses the goals and results of the Animated Algorithms project. Obviously, algorithms animation is especially useful for teaching computer science courses. It makes it possible to demonstrate an algorithm in action, to play with its parameters and/or data. Combination of graphical animation of subsequent steps of an algorithm with the hyperlinks leading to the detailed discussion of its principles may produce really invaluable educational tool. Additionally, the same environment is used to demonstrate proofs of algorithms. The author presents in depth the discussion of the process of the algorithm animation and his experiences, good and bad, gathered during the project realization.

The fourth part of the book, the shortest one, presents the VideoScheme - a prototype system for multimedia editing. The development of this system was motivated by the need for a tool supporting repetitive tasks often required when processing audio or video data. The author remarks that most of the multimedia manipulation tools offer typical graphical user interface making possible easy manipulation of the data, but lacking some scripting capabilities. VideoScheme may be employed to, e.g., split a video data into parts of equal size - very simple task, but rather tedious to be done manually. It may be also used in a more sophisticated way, requiring the analysis of the contents of data, as, e.g., to remove sections of silence in the audio data. VideoScheme package is presented in a fairly detailed way, including the syntax of the scripting language employed.

Finally, the fifth part of the book describes the real-life examples of the application of hypermedia design principles and tools discussed in the previous chapters. The author and his team prepared a series of electronic proceedings of conferences organized by Dartmouth College. The description of particular proceedings is preceded by the general considerations of advantages and pitfalls connected with the preparation of such materials. The author compares two different ways of distribution of electronic proceedings, namely CD-ROM and the Web. The process of producing the proceedings is presented in a very detailed

way. Summarizing his experiences in this area, the author emphasises the time-liness required when producing such materials and the need for automatization of this very labour-consuming process.

This book is definitely recommended for all people dealing with hypermedia design, but not only for them. It shows also a lot of opportunities for, e.g., operational research community. There are still many problems, which have to be solved in this attractive area. For example, some more sophisticated cluster analysis algorithms may produce better results in structuring sets of documents. The graph theory results may support the presentation of clusters on the screen. Multimedia data manipulation requires the expertise of many scientific domains. Efficient design of the hypermedia documents has also definitely psychological aspects. Due to the growing popularity of the Internet, being the leading media of the hypermedia content distribution, there are also important sociological questions, which may be better understood by social sciences researchers ac-quainted with the topics presented in the book. Definitely, those dealing with information retrieval will find this book interesting.

Nevertheless, the primary addressee of this book are people dealing with hypermedia documents design and generation. In the first two parts they will find a lot of valuable information and tools descriptions related to the hypertext design securing easy navigation in the web of documents. This is especially useful for those working with the transformation of the traditional texts, like a book, into the hypertext form. The third part may encourage designers to use algorithm animation as an attractive alternative to the more traditional, descriptive presentation of the contents.

The book is very carefully edited. Most of the concepts and tools are illus-trated with relevant figures. There is an extensive bibliography, which amounts to around 200 items. This is supplemented with a lot of the addresses, so called URL's, pointing to the software and other relevant information available on the Internet - really a must in the book about hypermedia. The author shows sound knowledge and practical experience related to the subject. The book presents the state-of-the-art in the area of hypermedia design. The reader will find infor-mation both about products being already in widespread use and about some prototype and academic implementations. This makes it possible to get better understanding of the developments and future trends in this area of information technology application.

The on-line version of the book, employing some tools described within, is also available on the Internet in on-line form:
(URL: http://www.birkhauser.corn/hypermedia/).

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