

BOOK REVIEW

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Intelligent Multimedia Multi-Agent Systems – A Human-Centered Approach

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Agents have been identified as a high-potential technology for many application areas. This book discusses how the multi-agent approach, viewed as computational models in which agents with limited ability cooperate each other to accomplish a goal, is useful to develop intelligent multimedia systems. Intelligent multimedia provide advanced tools for designing active databases with agents, multimedia and intelligent objects.

The book appears as a collection of logically-interconnected research topics, that cover a wide range of current research in agent, multi-agent, human-computer interaction, and multimedia architecture. The research theme chosen for this book, “the human-centered approach” reflects the need to articulate the complex human-computer issues that surround multimedia systems. More in detail, in the book the term multimedia is addressed in two main contexts. Firstly, the human-centered modeling of data in order to improve the representational efficiency and effectiveness of the human-computer interface. Secondly, the issues of multimedia information management and retrieval on the Internet. The research tools used in both domains are strongly coupled with the agent and multiagent technology.

In the first chapters (1-2-3) the book describes the basic theories and technologies, including soft computing ones, used to design intelligent multimedia multi-agent systems. After the discussion on the foundations, the book deepens on four components of the human-centered system development framework: 1) activity-centered analysis component, 2) problem solving ontology component, 3) transformation agent component, and 4) multimedia interpretation component. From the computational viewpoint, in Chapters 4 and 5 a Human-Centered Virtual Machine (HCVM) is described as the agent-oriented platform for building intelligent multimedia multi-agent systems.

To prove the expressiveness of HCVM a number of meaningful applications are discussed. Medical diagnosis, treatment decision support, face detection and annotation application are chosen as real-size problems and discussed in Chapters 5, 6, and 7. Chapter 8 is dedicated to the role of distributed communication and intelligence as key issue of human-centered systems. This feature is discussed on the basis of experiments performed on two Internet applications. The last part of the book (Chapters 9, 10, 11, 12) starts with a discussion on the evolution of multimedia information management and retrieval, before getting into the need for user-centered architectures for electronic commerce. Still framed in the Web context, a medical image retrieval application is outlined and discussed as further application of HCVM.

The style of writing in this book is similar to that of a research work, thus I feel that the book is more appropriate for research purpose or an introductory graduate level course rather than as an introductory volume for an undergraduate level. For the research-oriented reader the book provides a complete and interesting discussion, enriched of practical results.

I consider this book a very good book to have on one’s shelf if one needs to apply software agent technology for advanced multimedia design.

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