



## **Guest Editor's Introduction: Multimedia Authoring and Presentation Strategies, Tools, and Experiences**

Authoring a multimedia presentation is a process by which spatial and temporal relationships of a document are specified. Spatial relationships describe the page layout of a multimedia presentation and the temporal relationships specify the sequence of presentation of objects in a multimedia document. Multimedia documents can be authored so that users can view them in a highly interactive manner, giving rise to hypermedia documents. Presentation of multimedia documents in a networked environment raises several interesting issues. Since some objects such as video and audio have real-time characteristics, there may be a need for guaranteed system resources for ensuring continuity in multimedia presentations. The required system resources include server disk bandwidth and network bandwidth. During a multimedia presentation, availability of these system resources may vary. Hence, there may be a need for scalability/adaptivity in a multimedia presentation based on the available system resources.

This special issue includes papers covering a wide range of strategies and tools for multimedia authoring and presentation. These papers are divided into two parts. First part, carrying four papers, deals with hypermedia document authoring, interactivity, and collaboration. The second part, carrying another set of four papers, touches upon issues such as network/system support for multimedia applications, scalability/adaptivity. In the first part, Caumanns presents a bottom-up methodology for generating hypermedia documents. This methodology begins the authoring process with a set of media objects, sequences a selected set of these objects into a tree structure, and then uses the tree structure to build a set of screen pages. Each screen page is finally converted into individual HTML files. Next, Heath et al. propose a model for building and structuring large-scale hypermedia applications. This model includes a new linking approach that allows authors to explicitly represent concepts contained and link them in some meaningful manner.

Vazirgiannis et al., in the third paper, deal with interactive multimedia documents. They represent interactions as events and model complex interactions using a composition of algebra and spatiotemporal events. This paper also describes a rendering system for interactive multimedia documents based on a client-server architecture using Java. The last paper by Baek et al. considers collaborative aspects involved in designing multimedia systems and applications. Here, the authors discuss a collaborative design environment called Knowledge Management System (KMS), that allows designers to share their design knowledge freely. They also share the experiences of the design groups that used KMS for their work.

In the second part of this special issue, papers describe system support and scalable/adaptive approaches for multimedia presentations. First paper by Hung Keng et al. describes a CORBA (Common Object Request Broker Architecture) based architecture for providing Quality of Service (QoS) support to multimedia applications. QoS support is in terms of

assured network bandwidth for transporting multimedia objects comprising a presentation. This architecture incorporates a Real-time Stream Service (RTSS) that allows real-time streams such as video and audio through a CORBA channel. In the second paper, Veeravalli and Barlas address the issue of minimizing the access time of a requested multimedia document in a situation where multiple servers can provide the document. In their approach, each server assumes responsibility for sending a portion of the multimedia document to the requesting client. Based on this approach, the authors suggest single-instalment and multi-instalment strategies for minimizing a multimedia document access time.

Next, Jourdan et al. present a scalable toolkit for multimedia authoring. The basic idea behind this toolkit is to use a set of synchronized views for authoring. These views include presentation view for displaying a document and scenario view for showing the temporal organization of a document. The scalable toolkit, named *Mikado*, allows extension/modification of the authoring environment and provides a portable platform that allows operations in the Internet. Prabhakaran, in the last paper, surveys the different strategies that can be used for adapting a multimedia presentation to varying system load conditions. These strategies are classified into three categories and the paper discusses when these categories of adaptation approaches can be used.

In conclusion, this special issue carries several interesting approaches for multimedia authoring and presentations. We believe that the papers in this special issue will help the multimedia community to more easily make use of these widely spread results and will also stimulate further research in this topic.

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