

Topic 12

Architectures and Algorithms for Multimedia Applications

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In the recent years multimedia technology has emerged as a key technology, because of its ability to represent information in disparate forms as a bit-stream. This enables data from text to video and sound to be streamed, stored, processed, and delivered in digital form. A great part of the current research community effort has emphasized the delivery of the data as an important issue of multimedia technology. However, in the long run, also the creation, processing, and management of multimedia will most likely dominate the scientific interest. The aim to deal with information coming from video, text, and sound may result in a data explosion. The requirement to store, process, and manage large data sets naturally leads to the consideration of programmable parallel processing systems as strong candidates for supporting and enabling of multimedia technology. This makes, together with the inherent data parallelism in the data types, multimedia computing a natural application area for parallel processing. Concepts developed for parallel and distributed algorithms in general are quite useful for the implementation of distributed multimedia systems and applications. And hence, also the adaptation of these general methods to distributed multimedia systems is an interesting topic worth while studying.

This year, 9 papers discussing multimedia technology topics were submitted. Each paper was reviewed by at three reviewers and, finally, we selected 3 regular and 2 short papers, on the topics of: The design aspects of video mapping and network traffic balancing improving Double P-Tee architectures; An investigation on transmission schedulers that reduce the traffic burstiness in a Server-less Video-on-Demand System on Internet-like network topologies; A study on distributing multimedia content over peer-to-peer network by using a scheduling scheme that results in minimum buffering delay. A dynamic multicasting policy based on a phased proxy caching to reduce network bandwidth from a server to its clients. An enhanced register file architecture that performs either matrix multiplications or can be used to enlarge register bandwidth.

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