Topic 12
Architectures and Algorithms for Vision and Other Senses

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The following are the proceedings of one of the topics of Euro-Par'99, held in Toulouse, France, on August 31 - September 3, 1999. A wide spectrum of topics are covered in this conference with 23 workshops dedicated to the promotion and advancement of all aspects of parallel computing and ranging from hardware, to software, algorithms, and applications. The theme of this workshop, the 12th of the series, is: Architectures and Algorithms for Vision and other Senses. In fact, due to its extremely high performance requirements, signal and image processing has always been one of the major application areas and one of the driving forces behind the design of special-purpose processors and massively parallel architectures. Presently, new challenges arise from areas like multi-media applications and visual communication in particular. The workshop is intended to provide a forum to present current work and new ideas in this challenging field.

The technical program that come out after the reviewing process consists of 12 regular papers and 1 short paper. The resulting papers deal with various issues that are crucial to meet the computational demands of vision and signal processing, and cover the mentioned topics. In more details, the papers center on the design and evaluation of parallel architectures and special-purpose processors and on the methodologies for efficiently designing algorithms for these architectures. The vision applications considered deal with both 2D and 3D data. They include among the others: stereo matching, identification of geometric primitives, detection of vanishing points, object recognition and volume rendering. The signal processing applications include signal and video compression, wavelet transforms. Two other papers deal with the design of architectures that implement in an integrated fashion basic image and signal processing tasks.

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