EURASIP Journal on Applied Signal Processing 2002:4, 341–342

Editorial

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There has been a large volume of research and development work in the area of image analysis for multimedia interactive services in the past decade. The European Union COST 211 Action has actively contributed to this work for many years. The recent focus has been on two major topics: multimedia indexing and retrieval and video segmentation. Five years ago, COST 211 organized the first international workshop on Image Analysis for Multimedia Interactive Services, WIAMIS, which was held in Louvain-la-Neuve, Belgium. Since then, further workshops have been organized in Berlin in 1999 and in Tampere in 2001. The next workshop will be held in London in 2003.

WIAMIS proved to be a major window to the outside world for the closed collaborative Action COST 211. Cross fertilization of ideas is the prime goal in the workshops, in addition to attracting new members working on related areas to COST 211. To reach a broader audience, the Editor-in-Chief of the EURASIP Journal on Applied Signal Processing kindly accepted the proposal to publish a selection of the papers presented at WIAMIS 2001. The authors response to this call-for-papers exceeded our expectations and the editorial board of the journal agreed to allocate two issues for the selected papers. The next issue is planned to appear in June 2002.

This part (Part I) of the special issue covers four main topics. We open the issue with an invited tutorial on the MPEG-7 standard and future challenges for visual information analysis and retrieval. The tutorial is authored by Philippe Salembier who has been actively involved in the MPEG-7 development activity standard since its beginning. Three other papers in the area of indexing and retrieval cover the use of MPEG-7 at the consumer terminal in broadcasting, retrieval based on shape correspondences using ordinal measures, and audio classification in speech and music.

Video segmentation is the focus of the next three papers. As mentioned earlier, video segmentation has been a key research area in COST 211quat. The group has developed a software package called the COST AM (Analysis Model) which can produce, among other outputs, a set of segmentation masks for an input video. A call for Comparison with the COST AM has been issued and some proposals have been received and evaluated. One of these is presented here in a paper authored by E. Sifakis et al., in which they propose a novel algorithm for video segmentation using fast marching and region growing. A major issue related to video segmentation is the segmentation quality, that is, how can one objectively measure the segmentation results. Two papers in this issue propose novel solutions to this important problem.

The last two papers in this part of the special issue focus on watermarking. The first presents a scheme in which characteristics of both spatial and frequency techniques are combined to achieve robustness against image processing and geometric transformations; while the second considers segmentation and content-based watermarking for color image and image region indexing and retrieval.

Part II of the special issue will focus on video segmentation, detection, tracking, motion estimation, and post-processing. We hope the reader will enjoy this issue. The

Guest Editors would like to thank all contributing authors for their efforts in meeting the quality requirements of the journal as well as the tight schedule. We are indebted to the Editor-in-Chief, Ray Liu, for his support and patience.

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Moncef Gabbouj received his B.S. degree in electrical engineering in 1985 from Oklahoma State University, Stillwater, and his M.S. and Ph.D. degrees in electrical engineering from Purdue University, West Lafayette, Indiana, in 1986 and 1989, respectively. Dr. Gabbouj is currently a professor and Head of the Institute of Signal Processing of Tampere University of Technology, Tampere, Finland. From 1995 to 1998 he was a Professor with the Department of Information Technology of Pori School of Technology and Economics, Pori, and during 1997 and 1998 he was on sabbatical leave with the Academy of Finland. From 1994 to 1995 he was an Associate Professor with the Signal Processing Laboratory of Tampere University of Technology, Tampere, Finland. From 1990 to 1993 he was a Senior Research Scientist with the Research Institute for Information Technology, Tampere, Finland. His research interests include nonlinear signal and image processing and analysis, content-based analysis and retrieval, and mathematical morphology. Dr. Gabbouj is the Vice-Chairman of the IEEE-EURASIP NSIP (Nonlinear Signal and Image Processing) Board. He is currently the Technical Committee Chairman of the EC COST 211quat. He served as Associate Editor of the IEEE Transactions on Image Processing, and was Guest Editor of the European Journal Signal Processing, Special Issue on Nonlinear Digital Signal Processing (August 1994). He is the Chairman of the IEEE Finland Section and past Chair of the IEEE Circuits and Systems Society, Technical Committee on Digital Signal Processing, and the IEEE SP/CAS Finland Chapter. He was also the TPC Chair of EUSIPCO 2000 and the DSP Track Chair of the 1996 IEEE ISCAS and the Program Chair of NORSIG '96. He is also member of EURASIP AdCom. Dr. Gabbouj is the Director of the International University Program in Information Technology and member of the Council of the Department of Information Technology at Tampere University of Technology. He is also the Secretary of the International Advisory Board of Tampere International Center of Signal Processing, TICSP. He is a member of Eta Kappa Nu, Phi Kappa Phi, IEEE SP and CAS societies. Dr. Gabbouj was co-recipient of the Myril B. Reed Best Paper Award from the 32nd Midwest Symposium on Circuits and Systems and co-recipient of the NORSIG 94 Best Paper Award from the 1994 Nordic Signal Processing Symposium.

Faouzi Alaya Cheikh received his B.S. degree in electrical engineering in 1992 from École Nationale d'Ingénieurs de Tunis, Tunisia. He received his M.S. degree in electrical engineering (Major in Signal Processing) from Tampere University of Technology, Finland, in 1996. Mr. Alaya Cheikh is currently a Ph.D. candidate and works as a Researcher at the Institute of Signal Processing, Tampere University of Technology, Tampere, Finland. From 1994 to 1996, he was a Research Assistant at the Institute of Signal Processing, and from 1997 he has been a Researcher with the same institute. His research interests include nonlinear signal and image processing and analysis, pattern recognition and content-based analysis and retrieval. He has been an active member in many Finnish and European research projects among them Nobless esprit, COST 211 quat, and MUVI. He served as Associate Editor of the EURASIP Journal on Applied Signal Processing, Special Issue on Image Analysis for Multimedia Interactive Services. He serves as a reviewer to several conferences and journals. He co-authored over 30 publications.

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Geoff Morrison graduated from the University of Cambridge, UK and joined the British Post Office Research Department. He worked on analogue video transmission systems, processing, and switching, mainly for videoconferencing and videotelephony services. Subsequently his research activities centered on digital video. After a six month secondment to NTT Laboratories in Japan, he was an active contributor to the CCITT group which developed Recommendation H.261. Simultaneously he led a group at BT Labs which constructed the first European real-time hardware implementation of it. His theoretical and practical knowledge of video compression contributed to MPEG-1 and MPEG-2 where he chaired the Implementation Studies Group for several years. He also participated in many European collaborative projects including COST 211bis through to the current COST 211quat which he chairs. Geoff gained his doctorate in 1997 from the University of Waseda in Tokyo following a secondment there. He is an Honorary Fellow of the University of Essex. Currently he is Senior Research Advisor in the Content and Coding Laboratory of BTexact Technologies.

EURASIP Journal on Advances in Signal Processing

Special Issue on Advances in Signal Processing for Maritime Applications

Call for Papers

The maritime domain continues to be important for our society. Significant investments continue to be made to increase our knowledge about what "happens" underwater, whether at or near the sea surface, within the water column, or at the seabed. The latest geophysical, archaeological, and oceanographical surveys deliver more accurate global knowledge at increased resolutions. Surveillance applications allow dynamic systems, such as marine mammal populations, or underwater intruder scenarios, to be accurately characterized. Underwater exploration is fundamentally reliant on the effective processing of sensor signal data. The miniaturization and power efficiency of modern microprocessor technology have facilitated applications using sophisticated and complex algorithms, for example, synthetic aperture sonar, with some algorithms utilizing underwater and satellite communications. The distributed sensing and fusion of data have become technically feasible, and the teaming of multiple autonomous sensor platforms will, in the future, provide enhanced capabilities, for example, multipass classification techniques for objects on the sea bottom. For such multiplatform applications, signal processing will also be required to provide intelligent control procedures.

All maritime applications face the same difficult operating environment: fading channels, rapidly changing environmental conditions, high noise levels at sensors, sparse coverage of the measurement area, limited reliability of communication channels, and the need for robustness and low energy consumption, just to name a few. There are obvious technical similarities in the signal processing that have been applied to different measurement equipment, and this Special Issue aims to help foster cross-fertilization between these different application areas.

This Special Issue solicits submissions from researchers and engineers working on maritime applications and developing or applying advanced signal processing techniques. Topics of interest include, but are not limited to:

- Sonar applications for surveillance and reconnaissance
- Radar applications for measuring physical parameters of the sea surface and surface objects
- Nonacoustic data processing and sensor fusion for improved target tracking and situational awareness
- Underwater imaging for automatic classification
- Signal processing for distributed sensing and networking including underwater communication
- Signal processing to enable autonomy and intelligent control

Before submission authors should carefully read over the journal's Author Guidelines, which are located at http://www.hindawi.com/journals/asp/guidelines.html. Authors should follow the EURASIP Journal on Advances in Signal Processing manuscript format described at the journal site http://www.hindawi.com/journals/asp/. Prospective authors should submit an electronic copy of their complete manuscript through the journal Manuscript Tracking System at http://mts.hindawi.com/, according to the following timetable:

Manuscript Due	July 1, 2009
First Round of Reviews	October 1, 2009
Publication Date	January 1, 2010

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