

Workshops

November 11, 2012 ICPR2012 Workshop 1

7th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2012)

Workshop Chairs

Jenny Q. Du, Mississippi State University, USA

Eckart Michaelsen, Fraunhofer IOSB, Germany

Peijun Du, Nanjing University, China

The PRRS workshop is organized by the IAPR Technical Committee 7 (TC-7 Remote Sensing and mapping). This workshop series has established itself as an important event for scientists involved in the combined fields of pattern recognition and remote sensing. These two research fields have always overlapped, but the large volumes of remote sensing data now coming from last generation sensors require new advanced algorithms and techniques for automatic analysis. For instance, the emerging hyperspectral imaging sensors collect hundreds of co-registered images, and the resulting very high data dimensionality may impose special difficulty in traditional pattern classification problem, particularly when training samples in remote sensing applications are usually limited; with the sensor technology advance, the spatial resolution of remote sensing images becomes much finer than before, and this requires the extraction and selection of both spatial and spectral features in pattern classification.

This one-day workshop provides an ideal forum for international researchers to exchange experiences and recent advances on remote sensing applications of pattern recognition techniques. In PRRS 2012, two internationally well-known researchers are invited as keynote speakers, who will address some interesting topics on synthetic aperture radar (SAR) and hyperspectral image analysis. Sixteen oral presentations will be given in four technical sessions, including SAR image processing, hyperspectral image processing, segmentation and interpretation, applications of classification and detection.

This workshop is co-sponsored by the IEEE Geoscience and Remote Sensing Society (GRSS). Papers will be published in IEEE Xplore. A journal special issue associated with this workshop will be announced soon.

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Visual observation and analysis of animal and insect behavior 2012

Workshop Chairs

R. Fisher, University of Edinburgh, UK

J. Hallam, University of South Denmark, Denmark

B. Boom, University of Edinburgh, UK

There has been an enormous amount of research on analysis of video data of humans, but relatively little on visual analysis of other organisms. The goal of this workshop is to stimulate and bring together the current research in this area, and provide a forum for researchers to share expertise and techniques. The types of issues that this research addresses include:

- Detection of living organisms
- Organism tracking and movement analysis
- Dynamic shape analysis
- Classification of different organisms (eg. by subspecies)
- Assessment of organism behavior or behavior changes
- Size and shape assessment
- Counting
- Health monitoring

These problems can be applied to a variety of species at different sizes, such as fruit and house flies, honey bees, crickets, cockroaches and other insects, farmed and wild fish, mice and rats, commercial farm animals such as poultry, cows and horses, and wildlife monitoring, etc. One aspect that they all have in common is the use of various forms of video data.

Workshops

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Multimodal Pattern Recognition of Social Signals in Human Computer Interaction (MPRSS 2012)

Workshop Chairs

Friedhelm Schwenker, University of Ulm, Germany

Stefan Scherer, University of Southern California, USA

Louis-Philippe Morency, University of Southern California, USA

Building intelligent artificial companions capable to interact with humans in the same way humans interact with each other is a major challenge in affective computing. Such a type of interactive companion must be capable of perceiving and interpreting multimodal information about the user in order to be able to produce an appropriate response. MPRSS 2012 mainly focuses on pattern recognition and machine learning methods for the perception of the user's affective states, activities and intentions.

Workshop topics are

A. Algorithms to recognize emotions, behaviors, activities and intentions

- Facial expression recognition
- Recognition of gestures, head/body poses
- Audiovisual emotion recognition
- Analysis of bio-physiological data for emotion recognition
- Multimodal information fusion architectures
- Multi Classifier Systems and Multi View Classifiers
- Temporal fusion

B. Learning algorithms for social signal processing

- Learning from unlabeled and partially labeled data
- Learning with noisy/uncertain labels
- Deep learning architectures
- Learning of time series

C. Applications relevant to the workshop

- Companion Technologies
- Robotics
- Assistive systems

D. Benchmark data sets relevant to workshop topics

International Workshop on Depth Image Analysis (WDIA 2012)

Workshop Chairs

Xiaoyi Jiang, University of Münster, Germany

Olga Bellon, Universidade Federal do Parana, Brazil

Dmitry Goldgof, University of South Florida, USA

Takeshi Oishi, The University of Tokyo, Japan

3D depth data has turned out to be a key information source for solving a large number of challenging applications. In the past substantial advances have been demonstrated to process, analyze, and interpret depth data. Through the recent development in consumer depth cameras, in particular the low-cost Kinect, a new era of depth data analysis emerges. Affordable depth cameras are changing the landscape of computer vision and related research fields, with profound impact far beyond the consumer electronics.

The purpose of this workshop is to timely address the challenges in advanced depth acquisition techniques, processing and analyzing depth data, and solving novel and challenging applications. The workshop will bring together researchers from multiple subfields to discuss the major research problems and opportunities of the emerging depth camera revolution.

The scope of this workshop includes, but not limited to, the following areas:

- Depth acquisition techniques
- Processing of depth data
- Analysis of depth data
- Fusion of depth data with other modalities
- 3D object recognition
- 3D shape modeling and retrieval
- 3D biometrics
- Human action recognition in depth data
- 3DTV, e.g. Depth-Based Image Rendering
- Augmented reality / mixed reality
- Biomedical applications of depth data
- Other applications of depth data analysis
- Depth datasets
- Depth data visualization

The intended participants of this workshop are on the one hand researchers in pattern recognition and computer vision who work in the field of depth data processing and analysis. On the other hand, researchers with 3D vision applications are welcome to explore the potential of applying depth sensing techniques to solve challenging application problems.

The accepted papers will be made available online at the time of workshop. In addition, post-workshop proceedings with revised version of the papers (and additional papers for a broader coverage of the field) will be published as an LNCS book by Springer. A related Special Issue on Depth Image Analysis with open CFP will be published in Pattern Recognition Letters.

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International Workshop on Pattern Recognition for Healthcare Analytics (IWPRHA 2012)

Workshop Chairs

Jianying Hu, IBM T. J. Watson Research Center, USA

Faisal Farooq, Siemens Medical Solutions USA, Inc, USA

Kohichi Takeda, IBM Research, Tokyo, Japan

In today's environment, health care industry must balance between the often contradictory goals of cost reduction and improving quality of care. With growing costs and rising populations comes an inevitable paradigm shift towards accountable care where organizations are focusing on cost reduction, standardized care and quality improvement like never before. In addition, with the information overload in clinical literature coupled with the difficulty in extrapolating evidence from clinical trials to real world settings, providers find it difficult to select appropriate therapy for each patient. Thus far, health care has lagged behind other industries in improving operational performance and adopting technology-enabled process improvements. It is possible to address many of these challenges by emulating and implementing best practices in health care by analyzing large amount of available information (extensive electronic health records recording patient conditions, diagnostic tests, labs, imaging exams, genomics, proteomics, treatments, outcomes, claims, financial records, clinical guidelines and best practices etc.). This data contains tremendously valuable hidden information relevant both for clinical and non-clinical decision support. At the heart of healthcare analytics is the ability to recognize (identify, classify and discover) patterns from the plethora of information available. As such, pattern recognition plays a pivotal role in the future of healthcare, specifically in healthcare analytics. The purpose of this workshop is to bring together pattern recognition and healthcare researchers interested in healthcare analytics and applications of pattern recognition in this field. The workshop program will consist of presentations by invited speakers from both pattern recognition and healthcare and by authors of papers submitted to the workshop. In addition, there will be a panel discussion to identify important problems, applications and synergies between pattern recognition and healthcare analytics disciplines. The intended audience of the workshop includes pattern recognition researchers interested in solving healthcare analytics problems, as well as the healthcare community in general including payers, providers and researchers.

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The 5th International Workshop on Computational Forensics (IWCF 2012)

Workshop Chairs

Katrin Franke, Gjøvik University College, Norway

Mario Köppen, Kyushu Institute of Technology, Japan

Andre Årnes, Gjøvik University College, Norway

The 5th International Workshop on Computational Forensics (IWCF 2012) is a sequel of four earlier workshops in Manchester (UK), Washington D.C. (USA), Hague (Netherlands), and Tokyo (Japan).

Forensic and criminal analysis is becoming increasingly data intensive and widely distributed. All relevant devices and their digital content have to be dealt with which can amount to many terabytes of data. In addition, crime investigators and intelligence analysts urgently demand the possibility to enrich the collected evidence with information from e.g., data available on the Internet. This gives new challenges for computerized approaches that are well reflected by the presentations at this workshop.

These papers encompass a wide range of computational forensics, especially:

- Techniques for discriminating original stamps and photocopied stamps.
- Applications of data warehousing techniques to forensic data.
- Paper pulp detection based strategies for counterfeit banknotes.
- Exploiting Bayesian Networks, likelihood ratio to express strength of forensic evidences.
- An integrated platform for crime scene models that facilitates investigators and forensic experts to view, explore, and annotate crime models by a web browser.
- An algorithm for assessing the quality of latent finger print images.
- Discriminative capabilities of facial regions in images from CCTV images.
- A complete tool for forensic writer identification.
- An investigation on license plate recognition in low-resolution images.
- A detailed evaluation of techniques for large-scale document authentication processes.
- A signature verification system utilizing SURF-based features.
- Face detection relying on only information from forehead region in a face.

The organizers want to express their thanks to the members of the Program Committee for ensuring a paper selection of highest quality: Lashon B. Booker, Oscar Cordón, Patrick De Smet, Andrzej Drygajlo, Cinthia Freitas, Simson Garfinkel, Zeno Geradts, Pavel Gladyshev, Peter Gill, Robert Hayes, Anil K. Jain, Tahar Kechadi, Didier Meuwly, Brent Ostrum, Olivier Ribaux, Hiroshi Sako, Faisal Shafait, Christopher J. Solomon, Sargur N. Srihari, Kilian Stoffel, Inger Maria Sunde, Joost van Beusekom, Dirk Vandermeulen, Cor J. Veenman, Thomas Walmann, Takashi Watanabe. Many thanks also to the organizers of ICPR 2012 conference for all their generous support, advice and assistance in hosting the workshop. Last but not least: thank you to all authors who considered IWCF 2012 as a place to present their newest research results.

First International Workshop on Pattern Recognition and Crowd Analysis

Workshop Chairs

Prof. Rita Cucchiara, University of Modena and Reggio Emilia

Prof. Mubarak Shah, University of Central Florida

Prof. Stefania Bandini, University of Milano Bicocca

Prof. Dinesh Manocha, University of California Berkeley

Crowd analysis is becoming a common framework for many multi-disciplinary studies ranging from surveillance, urban environmental monitoring, structure and building simulation and architectural design, sociology and people behavioral analysis.

The video analysis of people in crowd is of straightforward importance, to understand single and social behaviors, to detect anomalies and suspicious events or objects in crowds scenes, to define first-aid and crisis support in areas where big events (stadium, sport exhibitions, concerts, large shows, political demonstrations..) are organized. Actually, until some years ago, experimental data were collected by human observations and manual data collection only, to support modeling and simulation of large crowds; these simulation are fundamental both for engineering and architectural studies of new urban environments, for crisis-management avoiding panic and dangerous situation, but also for handling design-for comfort of people leaving and walking in large populated areas.

Therefore Crowd analysis is becoming an emerging, exciting and very multidisciplinary meeting point of different research fields; in pattern recognition, after the stable results of the last years in single or group of people detection, tracking and recognition, crowd analysis is still a frontier and reliable and satisfying solutions beyond the state-of-the-art- still miss.

The PRCA workshop focuses on Pattern Recognition and analysis of Crowded scenes: crowd detection, recognition, quantification, environment analysis, large crowds analysis for people behavior understanding, crowd simulation and modeling are becoming popular topics in multidisciplinary research starting from Pattern Recognition and enlarging to computer vision, computer graphics, cellular automata simulation, artificial intelligence inference embracing other disciplines that include psychological and sociological theories of people collective behavior and people-to-people/people-to-environment patterns of interaction.

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The 3rd International Workshop on Benchmark Test Schemes for AR/MR Geometric Registration and Tracking Method (TrakMark2012)

Workshop Chairs

Gudrun Klinker, TUM, Germany
Hideo Saito, Keio University, Japan
Tobias Höllerer, UCSB, USA
Tomokazu Sato, NAIST, Japan

In the research fields of Augmented Reality (AR) and Mixed Reality (MR), tracking and registration methods are one of the most important topics. The tracking research field is highly active, and numerous methods appear on a regular basis.

Based on this background, the TrakMark working group (WG) was established 2009 as a lower branch of the Special Interest Group on Mixed Reality (SIG-MR), the Virtual Reality Society of Japan (VRSJ). The TrakMark WG aims to create a benchmark test that permits objective and accurate evaluation of the tracking methods. For this purpose, it is necessary to select evaluation items, set evaluation standards and consolidate test data. Once the foundations and the test scheme are established, it should be possible to interact with industries seeking to use AR/MR technology in practical settings. Moreover, this could help to provide a spur to researchers aiming to improve current tracking methods.

Two years ago, we had the 1st TrakMark workshop one day before ISMAR2010 (IEEE International Symposium on Mixed and Augmented Reality) in Seoul. There are about 20 participants from not only Asia but also US and Europe. Also we had a special session in ISMAR2010 and reported the activities. Last year, we had the 2nd TrakMark workshop in ISMAR2011 in Basel. There are about 50 participants. We extended the scope of the workshop from benchmarking of the tracking/registration technology to tracking/registration methods themselves in order to encourage researches improving the tracking/registration methods.

This year, we decided to hold the 3rd TrakMark workshop in conjunction with ICPR2012. Since the tracking/registration technologies deeply depend on the computer vision researches, collaborative activities with computer vision and pattern recognition research communities are very important. In addition, tracking/registration is used for not only AR/MR but also a lot of applications. Therefore this activity should be shared in more general research community.

The workshop covers a wide range of topics concerning AR/MR registration, tracking and benchmarking. Key areas include, but are not limited to:

- Comparison and evaluation of geometric registration and tracking methods
- Suggestion of new benchmarking scheme
- Vision-based camera pose estimation, camera localization
- Visual SLAM, structure from motion, camera calibration, sensor fusion
- Feature tracking, feature detection, feature description, object tracking
- Survey of tracking papers

There will be 12 regular presentations with an invited talk by Dr. Daniel Cremers (TUM). Also we are planning a panel session about the future of TrakMark activity.