International Workshop on Environmental Multimedia Retrieval 2014 (EMR 2014)

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Workshop Title - **International Workshop on Environmental Multimedia Retrieval 2014 (EMR 2014)**
In Conjunction with ACM Conference on Multimedia Retrieval (ICMR) 2014.

1. MOTIVATION

The rapid advancements of digital technologies, as well as the progress and wide availability of digital cameras and sensors have resulted in a great increase of multimedia data production worldwide. This is also the case for multimedia data that describe the state of the environment, which include huge amounts of data streams from model systems, dedicated stations and amateur sensors, as well as visual environmental information, such as heatmaps and forest satellite images. In parallel, the success of citizen sciences and social networking tools has fostered the emergence of large and structured communities of nature observers (e.g. e-bird, xeno-canto, Tela Botanica, etc.), who started to produce outstanding collections of biodiversity multimedia records. Citizens have become increasingly aware of the important role that environmental data (e.g. weather forecast, air quality, life species distributions) play on health issues (e.g. allergies), as well as to a variety of other human activities (e.g. agriculture, trip planning). In addition, such data are very important for environmental issues and phenomena, such as the greenhouse effect, the global warming and the climate change.

Therefore, there is an increasing need for the development of advanced techniques for analyzing, interpreting and aggregating environmental data provided in multimedia formats. This will allow for the generation of reliable measurements, as well as for the development of personalised applications that will take into account the state of the environment and the personal health conditions and preferences. In addition, we will be able to produce more accurate and timely knowledge of other living species, which is essential for a sustainable development of humanity and for biodiversity conservation.

Despite the fact that a large number of multimedia analysis techniques has been developed specifically for extracting events and behaviours in human-cantered and general purpose applications, such as sports, movies, surveillance, relatively little attention has been paid to the analysis, retrieval and interpretation of environmental information from multimedia content. Only very recent projects such as PESCaDO[1], Pl@ntNet[2] and PASODOBLE[3] have dealt with developing innovative services that take into account environmental information and investigated the extraction, fusion and semantic interpretation of the environmental information encoded in multimedia format such as weather, air quality, pollen forecasts or citizen's multimedia records. In this context, recent works in multimedia analysis of environmental data deal with heatmap analysis for forecast data extraction, plant identification, underwater visual data analysis and monitoring of the atmosphere.

The significance and the importance of the analysis and retrieval of environmental multimedia data is also revealed by the recent interest of the multimedia retrieval and environmental communities, which is reflected by the recently organised workshops (International workshop on Multimedia Analysis on Ecological Data in ACM Multimedia 2012 and 2013) and special sessions (Special Session on Image Processing and Pattern Recognition for Ecological Applications in ICIP 2013).

2. AIMS OF THE WORKSHOP

The recent advancements in digital technologies allow for the generation of large amounts of multimodal environmental data such as meteorological and air quality measurements, as well as nature observations. Since the monitoring and interpretation of environmental information is critical both for human activities (e.g. agriculture) and for the sustainability of the planet (e.g. global warming), it is of great interest to research and develop techniques for the analysis, understanding and retrieval of environmental multimedia.

The goal of EMR workshop is threefold. First, the workshop aims at presenting and reporting on the most recent methods for the extraction, processing, interpretation, retrieval, fusion and visualization of environmental information encoded in multimedia data with particular attention to personalised services. Second, it aims at bringing together practitioners and researchers, both from multimedia and environmental domain, to share ideas and experiences in designing and implementing novel multimedia analysis techniques and tools for environmental applications.

[1] http://www.pescado-project.eu/
[2] http://plantnet-project.org/
[3] http://www.myair.eu/

Third, the workshop aims at evaluating the maturity and efficiency of the multimedia analysis and processing techniques for realistic applications in the environmental domain.

3. WORKSHOP THEMES

Research topics of interest for this special issue include, but are not limited to:

- Analysis and Processing of Environmental Multimedia
- Environmental Multimedia Indexing and Retrieval
- Computer Vision for Environmental Video and Image Processing
- Plant and Animals Identification
- Multimedia Processing for Pollution Monitoring
- Multimedia Analysis for Weather Phenomena and Natural Disasters Understanding
- Participatory and Social Environmental Media Analysis
- Discovery of Environmental Multimedia Information in the web
- Content Extraction from Environmental Multimedia Data
- Personalised Services based on Environmental Information.
- Fusion of Multimedia Environmental Information
- Summarization of Environmental Information
- Interfaces, Presentation and Visualization tools for Environmental Data
- Semantic Web Approaches for Environmental Data

4. WORKSHOP ORGANIZERS

Stefanos Vrochidis (stefanos@iti.gr)

Centre for Research and Technology Hellas, Information Technologies Institute

Dr. Stefanos Vrochidis received the Diploma degree in Electrical Engineering from Aristotle University of Thessaloniki, Greece, the MSc degree in Radio Frequency Communication Systems from University of Southampton and the PhD degree in Electronic Engineering from Queen Mary University of London. Currently, he is a Researcher with the Information Technologies Institute. His research interests include semantic multimedia analysis, indexing and retrieval, search engine and human interactions as well as environmental and security applications. Dr. Vrochidis has successfully participated in many European and National projects such as PESCaDO and PEOPLE (as subcontractor) dealing with analysis and retrieval of environmental multimedia information. Currently Dr. Vrochidis is the Scientific Manager and Deputy Coordinator of FP7 STREP MULTISENSOR. He has been involved as a co-author in more than forty five related scientific journal, conference and book chapter publications. Dr. Vrochidis has served as a reviewer in international Journals such as Ecology Informatics, Multimedia Tools and Applications and as Technical program committee and reviewer in well reputed conferences and workshops such as ACM International Workshop on Multimedia Analysis for Ecological Data (MAED), European Conference on Information Retrieval (ECIR), ACM International Conference on Multimedia Retrieval (ICMR) and IEEE International Conference on Image Processing (ICIP).

Kostas Karatzas (kkara@eng.auth.gr)

Aristotle University of Thessaloniki

Assoc. Professor Kostas Karatzas, Dr.-Eng. holds a Diploma and a Doctor degree in Mechanical Engineering, and leads the Informatics Systems and Applications Group at the Dept. of Mechanical Engineering, where he teaches Informatics, Environmental Informatics and Environmental Impact Assessment. He is also teaching/has taught in various EU universities in MSc and seminar level, while he has been a visiting professor for the Finnish Meteorological Institute (FMI). Dr. Karatzas research work focuses mainly in informatics applications and environmental informatics, urban environment management and information systems, environmental (& multimedia) data analysis and forecasting with the aid of computational intelligence methods and mathematical models, multimedia information content tools, and participatory environmental sensing. Dr. Karatzas has participated in more than 30 European R&D projects, is Member of the International Scientific Advisory Board (SAB) of CLEEN's Measurement, Monitoring and Environmental Efficiency Assessment (MMEA) research programme, a member of the International Environmental Modelling and Software Society (iEMSs) Board of Directors, and an Associate Member of the OGC. He has authored approx 200 scientific papers, has been a member of the scientific committee of the many Environmental Informatics and Computational Intelligence conferences, and has/is supervising a number of PhD and MSc thesis in the area of Environmental Informatics-environmental information analysis and modelling.

Ari Karppinen (Ari.Karppinen@fmi.fi)

Finnish Meteorological Institute (FMI)

Adj. Prof. Ari Karppinen has received his degree of Doctor of Technology in Applied Physics at the Helsinki University of Technology in 2001 and was appointed as Adjunct Professor (Docent) in Physics at the University of Helsinki in 2004. His MSc thesis (1987) dealt with the description and application of a system for calculating radiation doses due to long range transport of radioactive releases and his Licentiates's thesis (1998) studied the effective choice of NOx – emission control measures. His doctor's thesis (2001) dealt with the meteorological pre-processing and atmospheric dispersion modelling of urban air quality and applications in the Helsinki metropolitan area. He has worked as a research scientist at the Finnish Meteorological Institute (FMI) since 1984. His expertise is on mathematical modelling, atmospheric physics and chemistry; particularly the evaluation of urban air quality and exposure and the dispersion of pollution from traffic. He is currently leading a research group (20 researchers) on Atmospheric Dispersion Modelling. The research group is working on 16 internationally funded (EU, ESA, ESF) and 10 nationally funded research and networking projects. The key areas of research involve modelling of urban air quality and exposure, regional and long-range transport of pollutants, accidents involving hazardous and radioactive materials and integration of meteorological models and measurements with the air quality modelling systems. He is the author of more than 270 scientific publications; 61 of these in refereed international journals. He has been working in 19 EU-funded projects, including vice-coordinator position in EU project MARQUIS and scientific and technical coordination of recently finished EU/PESCaDO project.

Alexis Joly (alexis.joly@inria.fr)
INRIA

Alexis Joly is a permanent researcher at INRIA (France), working on big multimedia data analysis and image retrieval challenges. He received his Ph. degree in Computer Science in 2005 in the context of a collaboration with the French Audiovisual Institute (INA). He is co-inventor of the INA-Signature technology, which was the first real-world application enabling content-based video copy detection (2006). In 2007 and 2008, he co-organised CIVR and TRECVID video copy detection evaluation campaigns (NIST). He was involved in the steering board of numerous European and French projects related to audio-visual archives, web user generated contents or biodiversity multimedia data (MUSCLE NoE, VITALAS IP, GLOCAL IP, CHORUS+ CA). He is currently the scientific co-chair of the Pl@ntNet initiative, which released in 2013 a popular image-based iPhone application for the identification of plants. Since 2011, he has been co-organiser of ImageCLEF evaluation campaign through the coordination of the plant retrieval task. He is now the main coordinator of a new lab run within CLEF forum and dedicated to Life Media retrieval (LifeCLEF). He regularly serves on numerous scientific program committees in international journals (PAMI, Trans. on Multimedia, etc.) and conferences (ACM Multimedia, ICMR, CLEF, CBMI, ICME, etc.). He is member of the organizing committee of ACM MM 2013 to be hold in Barcelona.

5. PROGRAM COMMITTEE

The program committee of EMR 2014 consisted of the following high profile scientists and researchers.

- Concetto Spampinato (University of Catania, Italy)
- Ioannis Kompatsiaris (Information Technologies Institute/CERTH, Greece)
- Leo Wanner (UPF, Spain)
- Berrin Yanikoglu (Sabanci University, Turkey)
- Marco Rospocher (FBK, Italy)
- Jaako Kukkonen (FMI, Finland)
- Alexandra Branzan Albu (Un. of Victoria, Canada)
- Herve Goeau (INRIA, France)
- Juergen Mossgraber (Fraunhofer, Germany)
- Arjen De Vries (CWI, Netherlands)
- Vasileios Mezaris (Information Technologies Institute/CERTH, Greece)
- John Lee (University of Edinburgh, UK)
- Ioannis Patras (Queen Mary, University of London, UK)
- Anastasia Moumtzidou (Information Technologies Institute/CERTH, Greece)
- Allan Hanbury (Vienna Un. of Technology, Austria)
- Thomas Rose (Fraunhofer, Germany)
- Stephane Marchand-Maillet (University of Geneva, Switzerland)
- Kevin McGuiness (Dublin City University, Ireland)
- Mikko Kolehmainen (University Of Eastern Finland, Finland)
- Herve Glotin (Institut Universitaire de France, France)
- Urszula Markowska Kaczmar (Wroclaw University of Technology, Poland)
- Markus Stocker (University Of Eastern Finland, Finland)