Journal of Multimedia Processing and Technologies Volume 2 Number 3 September 2011

Contents

Editorial

The Journal of Multimedia Processing and Technologies (JMPT) aims to provide a multi-disciplinary forum to present and discuss theory and research, development, architectures, networking, system support tools and applications as well as case studies of multimedia and hypermedia. It also features experimental and survey articles. It seeks to fill the gap that exists between several fields and communities such as image processing, video processing, audio analysis, information retrieval and understanding, data management and mining, security, and education.

This special issue includes extended and revised papers from the ACM SAC'11 conference, Track on Advances in Spatial and Image-based Information Systems which aims to foster interdisciplinary discussions and research in various aspects of spatial and image based information systems, since spatial and Image based information systems are increasingly at the heart of novel applications, raising new challenges in complex spatial data modeling, spatial data and image sharing, emergent geo spatial data semantics.

After a very tight review process, three original research papers were only accepted for inclusion in this special issue out of 10 candidate papers initially submitted. The acceptance rate was thus around 30% and the selected works reflect the high standards for excellence used by the many esteemed members of the reviewing board who contributed to this special issue.

The first paper entitled *"Combining Decision Fusion and Uncertainty Propagation to Improve Land Cover Change Prediction in Satellite Image Databases"* and authored by Wadii Boulila, Imed Riadh Farah, Karim Saheb Ettabaa, and Basel Solaiman, addresses interpretation of remotely sensed images which helps in predicting future trends and behaviors, allowing remotely sensed users to make proactive and knowledge-driven decisions. These decisions are useful for urban sprawl prevention, estimation of changes regarding productivity, and planting status of agricultural products, etc. However, the process of change prediction is usually characterized by several types of imperfection, such as uncertainty, imprecision, and ignorance. Fusion of several decisions about changes helps improve the change prediction process and decrease the associated imperfections. In this paper, the authors propose to use an adaptive possibility fusion approach to take into account the reliability of each change decision. This reduces the influence of unreliable information and thus enhances the relative weight of reliable information. Decisions about changes are obtained by applying previous works and represented as spatiotemporal trees. These trees are combined to obtain more accurate and complete ones. In addition, an uncertainty propagation module is developed to estimate the uncertainty in the output of the knowledge fusion module from the uncertainty in the inputs. This helps us to identify robust conclusions. The proposed approach is validated using SPOT images representing the Saint- Denis region, capital of Reunion Island. Results show good performances of the proposed approach in predicting change for the urban zone in the Saint-Denis region.

The second paper is dedicated to "*ST4SQL: A Spatio-Temporal Query Language Dealing with Granularities*", authored by Gabriele Pozzani and Carlo Combi. Here, the authors propose a spatio-temporal query language, called ST4SQL. The proposed language extends the well-known SQL syntax and the T4SQL temporal query language. The proposed query language deals with different temporal, spatial and spatio-temporal semantics. These semantics allow one to specify how the system must manage temporal and spatial dimensions for evaluating the queries. Moreover, the query language introduces new constructs for grouping data with respect to temporal and spatial dimensions. Both semantics and grouping constructs take into account and exploit data qualified with granularities.

In the last paper of this special issue, "*A Method for Identification of Moving Objects by Integrative Use of a Camera and Accelerometers*", Naoka Maruhashi, Tsutomu Terada , and Masahiko Tsukamoto propose a method for identifying and tracking moving objects with a combination of wearable acceleration sensors and image recognition techniques. Here, the method recognizes moving objects by matching the context picked up by the wearable sensors with the context inferred during the image processing. Evaluation results demonstrated the effectiveness of the proposed method.

We hope this special issue motivates researchers to take the next step beyond building models to implementing, evaluating, comparing, and extend proposed approaches. Many people helped us that this issue becomes a reality. We would first like to gratefully acknowledge and sincerely thank all the reviewers for their timely and insightful valuable comments and criticism of the manuscripts that greatly improved the quality of the final versions. Of course, thanks are due to the authors, who provided excellent articles and timely revisions.

Editor

Richard Chbeir
Bourgogne University, France
richard.chbeir@u-bourgogne.fr