Preface

**Ioannis Pratikakis · Michela Spagnuolo ·
Theoharis Theoharis · Remco Veltkamp**

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This special issue encompasses six papers that were selected among those presented at the second Eurographics Workshop on 3D Object Retrieval (29th March 2009, Munich, Germany) and of authors who were invited to submit a revised extended version of their contribution to The Visual Computer journal.

The aim of the 3DOR workshop series is to stimulate researchers from different fields related to 3D object retrieval (computer vision, computer graphics, machine learning, human-computer interaction, semantic web) to present state-of-the-art work in the field and provide a cross-fertilization ground that will stimulate discussions on the next steps in this important research area.

The six papers collected in this special issue cover a wide spectrum of topics.

The first paper, by Reif Rustamov, presents a general framework for the generation of a whole family of shape descriptors for 3D objects represented as a surface mesh. The framework builds on the concurrent use of template surfaces and numerical descriptors that are mapped to the template.

The second paper, by Toldo et al., introduces a novel bags-of-words framework for 3D retrieval where objects are modeled in terms of their sub-parts, as words are used to index a text document.

The integration of shape and texture data for retrieval is presented in the third paper, by Kanezaki et al. The properties of the proposed features enables efficient partial matching between query data and 3D models in a database.

The fourth paper, by Bucksch et al., describes how to deal with terrestrial laser scanner capture of the 3D geometry of real world objects, such as botanic trees, where robustness is a key issue. The skeletal structure used is particularly useful for shape analysis and matching.

Retrieval of 3D articulated objects is the subject of the fifth paper, by Agathos et al., where a graph-based representation produced by mesh segmentation is presented to cope with the intra-class variability of objects.

Finally, the sixth paper by Giorgi et al., introduces a new methodology for multilevel relevance feedback, which is expected to play an important role in 3D search engines, as it helps to bridge the semantic gap between the user and the retrieval system.

Since 2008, the Eurographics Workshop on 3D Object Retrieval series has gathered enthusiasm and great interest in the research community addressed. After the third workshop in 2010 in Norrköping, Sweden, the fourth Workshop is already planned in collocation with Eurographics 2011 in Llandudno, UK. A parallel workshop will also be organized during the ACM Multimedia Conference in October 2010.

I. Pratikakis
IIT/NCSR Democritos, Athens, Greece

M. Spagnuolo (✉)
IMATI-CNR, Genova, Italy
e-mail: michaela.spagnuolo@ge.imati.cnr.it

T. Theoharis
University of Athens, Athens, Greece

R. Veltkamp
Utrecht University, Utrecht, Netherlands