



## Preface

The Shape Modeling International (SMI) conference series was started by Tosiyasu L. Kunii and was initially hosted in Japan (1997 and 1999). Its objective was to provide an international forum for discussing new theories, techniques and applications of shape modeling, i.e. the set of computational techniques for modeling and processing digital representations of shapes and their properties.

In 2001, SMI merged with the Eurographics/ACM SIGGRAPH Workshop on implicit surfaces and became a regular annual event alternating among Asia, Europe and America. SMI was hosted in Italy (2001), Canada (2002), South Korea (2003), Italy (2004), USA (2005), Japan (2006), France (2007), USA (2008) and China (2009).

In 2010, the Shape Modeling International conference is organized by the French Engineering school of the *Arts et Métiers ParisTech* and by the *Laboratory of Systems and Information Sciences (LSIS)*. SMI'10 is dedicated to the memory of Pierre Bézier, a former student of the Arts et Métiers ParisTech, with a special exhibition at SMI'10. He who would have been 100 years old in 2010 ! Moreover, during the conference, the “Pierre Bézier 2010” Best Paper Award will be awarded to the best paper.

SMI'10 is supported (in-cooperation status) by the Eurographics Association and ACM SIGGRAPH, and is run in technical co-sponsorship with the IEEE and the IEEE Visualization and Graphics Technical Committee. The SMI'10 proceedings are split in two publications: one is the special issue of the journal *Computers and Graphics* (Elsevier) containing full papers, and the other includes the SMI Proceedings published by the Conference Publishing Services (CPS) of the IEEE Computer Society, containing full papers and extended abstracts.

SMI'10 received 56 submissions from more than 13 countries including Austria, Canada, China, Czech Republic, France, Germany, Hong-Kong, Israel, Italy, Singapore, The Netherlands, UK and USA. This year, according to the recommendations of the PC members and the extra reviewers, the special issue of *Computers and Graphics* contains 10 high quality papers (acceptance rate 17.8%) and the SMI Proceedings contains 18 full papers (acceptance rate 32.1%) and 14 extended abstracts. We would like to thank the 94 PC members and the external reviewers for their hard work during review process: on average, each paper was examined by four reviewers and underwent a two-stage review process.

SMI'10 will host three invited talks of renowned experts: Marie-Paule Cani (INP-Grenoble, France), Konrad Polthier (Institute of Mathematics at FU Berlin, Germany) and Ariel Shamir (Efi Arazi school of Computer Science, Israel).

The SMI chairs wish to acknowledge the energetic support of Joaquim Jorge, Editor-in-Chief of *Computers & Graphics*, and the local organizing committee: Lionel Roucoules (Arts et Métiers ParisTech / LSIS), Elodie Dane (Arts et Métiers ParisTech), Friederike Weider (ARTS), Michèle Richard (Arts et Métiers ParisTech / LSIS), Benoît Vincent (ARTS), Adrienne Spannagel (ARTS), Marc Daniel (Université de la Méditerranée / LSIS), Rémy Bulot (Université Paul Cézanne / LSIS), Gilles Gesquière (Université de Provence / LSIS) and Romain Raffin (Université de Provence / LSIS). We really thank Aldo Bassano, Anthony Canadas, Lison Casanova, Nicolas Doumenc, Sylvain Gonzales and Julie Laforge and other student volunteers from the Arts et Métiers ParisTech for their hard work in making this event a real success.

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**Jean-Philippe Pernot** is Associate Professor at the Laboratory of Information Sciences and Systems (LSIS) of the Ecole Nationale Supérieure des Arts et Métiers, Aix-en-Provence, France. He received his Ph.D. degrees in mechanical engineering from both the Institut National Polytechnique of Grenoble (INPG, France) and the Università degli Studi di Genova (Italy) in 2004. His Ph.D. has been awarded by the INPG in 2005. His main research interests include geometric modeling, free form feature modeling, Finite Element mesh modification, polyhedral simplification, deformation techniques and use of images for geometric models processing.



**Jarek Rossignac**, born in Poland, grew up in France. He received a Ph.D. in EE from the University of Rochester, NY, in 1985. Between 1985 and 1996, he worked at the IBM T.J. Watson Research Center, where he served as Senior Research Manager and as Visualization Strategist. In 1996, he joined the Georgia Institute of Technology, where he served as Director of the GVV Center and is a Professor in the College of Computing. His research focuses on the design, simplification, compression and visualization of highly complex 3D shapes, structures and animations. He is a member of the ACM and a Fellow of the Eurographics Association. He authored 21 patents and over 120 articles, for which he received 13 Awards. He created the ACM Solid Modeling Symposia series; chaired 20 conferences and program committees; and served on the Editorial Boards of 7 professional journals and on 60 Technical Program committees. He is the Editor-in-Chief of the *Graphical Models* journal.



**Michela Spagnuolo** is Senior Researcher at CNR-IMATI and leader of the research unit on “Advanced Techniques for the analysis and synthesis of 3D Shapes” of the CNR project on Multimodal and Multidimensional content and Media. She authored more than 130 reviewed papers in scientific journals and international conferences, edited a book on 3D shape analysis and was guest-editor of several special issues of international journals. She is programme chair of the EG workshop on 3D Object Retrieval '10. She is Associate Editor of Computers and Graphics and The Visual Computer, and member of the steering committee of SMI. Her current interests include shape analysis techniques, shape similarity and matching and computational topology.



**Bianca Falcidieno** is a Research Director of the National Research Council (CNR) of Italy, responsible for the Genova Branch of the CNR National Institute of Applied Mathematics and Information Technology (CNR IMATI-GE) and the President of the Research Area for the CNR in Genova. She has been leading and coordinating research at international level in advanced and interdisciplinary fields (such as computational mathematics, computer graphics, multidimensional media and knowledge technologies), strongly interacting with outstanding industrial and social application fields: from industrial design to geographic information systems, from manufacturing to semantic web. She is presently taking part in more than ten European and Italian research projects and she has been the coordinator of the FP6 Network of Excellence AIM@SHAPE, aiming at representing and processing knowledge related to multi-dimensional media. Since 2008, she is the coordinator of the FP7 Coordination Action FOCUS K3D, whose main aim is to promote the adoption of best practices for the use of semantics in 3D content modeling and processing. She is the author of more than 200 scientific refereed papers and books. She is currently editor-in-chief of the International Journal Shape Modeling. For the 80th CNR anniversary, Bianca Falcidieno was included in the 12 top-level researcher women in the CNR history.



**Philippe Veron** is Professor at Arts et Métiers ParisTech engineering school in Aix-en-Provence, France and member of the Information and Systems Science Laboratory (LSIS, CNRS unit n°6168). Currently, he is also head of the Research and Training Department of Design and Production Engineering, Risk Management and Decision Making. His main research interests are on the development of geometric modeling approaches in the context of a multi-view and integrated design environment. A particular interest is also shown towards multi-site collaborative design product approaches.