

Preface

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This special issue of *The Visual Computer* contains extended versions of six papers originally presented at the 23rd edition of the SIBGRAPI Conference on Graphics, Patterns, and Images. This has become a reference event in the areas of Computer Graphics, Pattern Recognition, and Computer Vision, traditionally bringing together researchers not only from the Americas, but also from the rest of the world. These six works were selected from a pool of 50 quality papers presented at the conference. The first paper, by Francisco Pinto and Carla Freitas, proposes a technique for illustrative rendering of volume datasets featuring a new front-to-back fragment composition equation which takes into account sample importance measures, thus making it possible to exert control over the visibility of user-selected features. The second paper is authored by Mario Liziér, Marcelo F. Siqueira, Joel Daniels, Claudio T. Silva, and Luis G. Nonato. It uses a template-based approach to generate quadrilateral meshes for images, aided by a smoothing step using optimization techniques. The third paper is a joint work of researchers Thomas Lewiner, Clarissa Mar-

ques, João Paixão, Scarlett de Botton, Allyson Cabral, Renata Nascimento, Vinícius Mello, Adelailson Peixoto, Dimas Martinez, and Thales Vieira. It describes a music visualization system where sound frequencies are mapped into mesh harmonics. Users can select desired effects using an animated gallery interface where variations are created by genetic algorithms. The fourth work is authored by Guilherme Oliveira, Rafael Torchelsen, João Comba, Marcelo Walter, and Rui Bastos. It consists of an approach that uses geodesic distance fields defined from multiple sources at different locations over a model surface to place, advect, and combine procedural visual effects over complex surfaces. Next, Luiz H. Figueiredo and Eric Jardim propose a hybrid method using CPU and GPU for real time computation of apparent ridges, that is, expressive lines defined over meshes and used for nonphotorealistic rendering. Finally, the last paper, by Waldemar Celes and Frederico Abraham, revisit the apparently trivial problem of rendering wireframes. They demonstrate how to use textures to efficiently produce high-quality antialiased wireframe renderings of meshes.

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