Guest Editor’s Introduction: Special Section on the Eurographics Symposium on Parallel Graphics and Visualization (EGPGV)

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This special section on Parallel Graphics and Visualization features extended versions of three selected papers from the Eurographics Symposium on Parallel Graphics and Visualization (EGPGV) in 2009. EGPGV 2009 was held in Munich, Germany, from 29-30 March 2009. It was the ninth event of this successful series of symposia, and was colocated with the Eurographics Annual Conference, which took place from 30 March to 3 April 2009. More information on EGPGV and its supporting Eurographics Working Group on Parallel Graphics can be found at http://www.egpgv.org.

EGPGV 2009 received 27 full paper submissions, which were reviewed by an International Program Committee with 23 members and by the three editors of the symposium proceedings (the symposium chair and the two paper cochairs). Each submission received three or more reviews, culminating with a final program that contained 14 papers, for an acceptance rate just short of 52 percent. Accepted papers for EGPGV 2009 covered a healthy range of topics from the fields of both computer graphics and visualization. The topics included simulation, global illumination, rendering, visualization, and general purpose computing on graphics processing units (GPUs), covering a wide variety of parallel computing platforms ranging from multicore to grid computing.

Based on the reviewers’ comments and scoring as well as the quality of the oral presentations at EGPGV 2009, a committee that consisted of the proceedings editors and additional members selected three papers to be invited for submission to this special section of the IEEE Transactions on Visualization and Computer Graphics (TVCG). The authors extended their papers to include new additional material. The extended paper then underwent a full journal review process, including multiple cycles of editing and reviewing.

The paper “GPU-Based Multilevel Clustering” by Iurie Chiosa and Andreas Kolb addresses the problem of mesh and data clustering. They present an efficient parallel algorithm for multilevel clustering, specifically designed for fast execution on GPUs. They demonstrate that their clustering method is useful for mesh clustering and general data clustering alike.

“Parallel Iteration to the Radiative Transport in Inhomogeneous Media with Bootstrapping” by László Szirmay-Kalos, Gábor Liktor, Tamás Umenhoffer, Balázs Tóth, Shree Kumar, and Glenn Lupton presents a method to solve the radiative transport equation in inhomogeneous participating media. The proposed solution involves running a multiple-scattering solver in parallel on the GPU or across different nodes in a cluster.

“Efficient Rasterization for Outdoor Radio Wave Propagation” by Arne Schmitz, Tobias Rick, Thomas Karol, Torsten Kuhlen, and Leif Kobbelt considers the problem of simulating and propagating radio waves, which is more complex than the analogous light transport problem due to the fact that waves bend around corners because of diffraction. In this work, the authors present a parallel beam tracing solution to this problem.

We would like to thank all members of the International Program Committee of EGPGV 2009, the external reviewers for EGPGV 2009, and the reviewers for the extended papers for TVCG for their help. We would also like to take this opportunity to thank Kurt Debattista for his great work as symposium chair and his support and help during the reviewing process of EGPGV 2009, as well as all of the people from the University of Warwick who designed and hosted the symposium Web pages. Finally, we thank the local organizers of the Eurographics Conference, Rüdiger Westermann and Joachim Georgii, who were very supportive of local arrangements for EGPGV 2009.

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Joaõ Combã received the BSc degree in computer science from the Federal University of Rio Grande do Sul, Brazil, the MSc degree in computer science from the Federal University of Rio de Janeiro (UFRJ), Brazil, and the PhD degree in computer science from Stanford University under the supervision of Leonidas J. Guibas. Dr Comba is currently an associate professor in the Graphics Group at the “Instituto de Informática” of the Federal University at Rio Grande do Sul (UFRGS), Brazil. His main research interests are in visualization, computer graphics, spatial data structures, graphics hardware, and high performance computing. He is a member of ACM SIGGRAPH and the IEEE Computer Society.

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