
Contents

Part I Meshes for Visualization

Adaptive Contouring with Quadratic Tetrahedra

*Benjamin F. Gregorski, David F. Wiley, Henry R. Childs, Bernd Hamann,
Kenneth I. Joy* 3

On the Convexification of Unstructured Grids from a Scientific Visualization Perspective

João L.D. Comba, Joseph S.B. Mitchell, Cláudio T. Silva 17

Brain Mapping Using Topology Graphs Obtained by Surface Segmentation

*Fabien Vivodtzev, Lars Linsen,
Bernd Hamann, Kenneth I. Joy, Bruno A. Olshausen* 35

Computing and Displaying Intermolecular Negative Volume for Docking

Chang Ha Lee, Amitabh Varshney 49

Optimized Bounding Polyhedra for GPU-Based Distance Transform

Ronald Peikert, Christian Sigg 65

Generating, Representing and Querying Level-Of-Detail Tetrahedral Meshes

Leila De Floriani, Emanuele Danovaro 79

Split 'N Fit: Adaptive Fitting of Scattered Point Cloud Data

Gregory M. Nielson, Hans Hagen, Kun Lee, Adam Huang 97

Part II Volume Visualization and Medical Visualization

Ray Casting with Programmable Graphics Hardware

Manfred Weiler, Martin Kraus, Stefan Guthe, Thomas Ertl, Wolfgang Straßer . . . 115

Volume Exploration Made Easy Using Feature Maps

Klaus Mueller, Sarang Lakare, Arie Kaufman 131

Fantastic Voyage of the Virtual Colon

Arie Kaufman, Sarang Lakare 149

Volume Denoising for Visualizing Refraction

David Rodgman, Min Chen 163

**Emphasizing Isosurface Embeddings
in Direct Volume Rendering**

Shigeo Takahashi, Yuriko Takeshima, Issei Fujishiro, Gregory M. Nielson 185

**Diagnostic Relevant Visualization
of Vascular Structures**

*Armin Kanitsar, Dominik Fleischmann, Rainer Wegenkittl, Meister Eduard
Gröller* 207

Part III Vector Field Visualization

**Clifford Convolution and Pattern Matching
on Irregular Grids**

Julia Ebling, Gerik Scheuermann 231

**Fast and Robust Extraction
of Separation Line Features**

Xavier Tricoche, Christoph Garth, Gerik Scheuermann 249

**Fast Vortex Axis Calculation Using Vortex Features
and Identification Algorithms**

Markus Rütten, Hans-Georg Pagendarm 265

Topological Features in Vector Fields

Thomas Wischgoll, Joerg Meyer 287

Part IV Visualization Systems

Generalizing Focus+Context Visualization

Helwig Hauser 305

Rule-based Morphing Techniques for Interactive Clothing Catalogs <i>Achim Ebert, Ingo Ginkel, Hans Hagen</i>	329
A Practical System for Constrained Interactive Walkthroughs of Arbitrarily Complex Scenes <i>Lining Yang, Roger Crawfis</i>	345
Component Based Visualisation of DIET Applications <i>Rolf Hendrik van Lengen, Paul Marrow, Thies Bähr, Hans Hagen, Erwin Bonsma, Cefn Hoile</i>	367
Facilitating the Visual Analysis of Large-Scale Unsteady Computational Fluid Dynamics Simulations <i>Kelly Gaither, David S. Ebert</i>	385
Evolving Dataflow Visualization Environments to Grid Computing <i>Ken Brodlie, Sally Mason, Martin Thompson, Mark Walkley and Jason Wood</i> . .	395
Earthquake Visualization Using Large-scale Ground Motion and Structural Response Simulations <i>Joerg Meyer, Thomas Wischgoll</i>	409
Author Index	433