

Volume 26, Number 2, April 2002

ISSN 0097-8493

# COMPUTERS & GRAPHICS

An international journal of systems  
& applications in computer graphics

Algorithms and techniques for interaction,  
multimedia, modelling and visualization

**EDITOR-IN-CHIEF: J. L. Encarnaçã**



Ref: BT PF 160102/09      Df: 31146406  
COMPUTERS & GRAPHICS  
01.04.02 Vol. 26 No. 2  
0097-8493      22304673      17.06.02  
EDITIONS CHIHAB  
ZI. LOT B5  
B.P.744 REGHAIA  
GG ALGER  
ALGERIE

*In this issue the special topic is*

**VISUALIZATION OF VERY LARGE DATASETS**

*Guest Editors: Ronald Peikert, David Ebert and Jean M. Favre*



PERGAMON

## Computers & Graphics, Vol. 26, No. 2, 2002

### Contents (Cont'd)

Manuel N. Gamito and F. Kenton Musgrave	291	An accurate model of wave refraction over shallow water
P.-L. Lesage and M. Visvalingam	309	Towards sketch-based exploration of terrain
Ramón Mollá Vayá and Roberto Vivó Hernando	329	Fixed-point digital differential analyser with antialiasing (FDDAA)
Sang C. Park and Hayong Shin	341	Polygonal chain intersection
Alex Brusi, Mateu Sbert, Philippe Bekaert, Robert Tobler and Werner Purgathofer	351	Optimal ray shooting in Monte Carlo radiosity
Frank Graf	355	Providing security for eLearning
Terry W. Gintz	367	<i>Chaos and Graphics</i> Artist's statement CQUATS — a non-distributive quad algebra for 3D renderings of Mandelbrot and Julia sets
Ning Chen, X.L. Zhu and K.W. Chung	371	$M$ and $J$ sets from Newton's transformation of the transcendental mapping $F(z)=e^{z^w+c}$ with <b>vcps</b>
	385	Announcements
	389	Past/Future Issues

### On-line Articles Status Information System

Authors of articles which are currently in production at Elsevier can obtain the following information on the status of their article:



- general production status (in preparation, in proof, in issue)
- data of publication and offprints dispatch data
- issue, volume and page number

For more information, please refer to: <http://www.elsevier.com/oasis/introdoc.htm>.

**CONTENTS**  
**Direct**

This journal is part of **ContentsDirect**, the *free* alerting service which sends tables of contents by e-mail for Elsevier Science books and journals. You can register for **ContentsDirect** online at: [www.elsevier.com/locate/contentsdirect](http://www.elsevier.com/locate/contentsdirect)

ISSN 0097-8493



PERGAMON

---

# computers & graphics

An International Journal

Website: <http://www.elsevier.com/locate/cag/>

---

Contents

Vol. 26, No. 2, 2002

*In this issue the special topic is*  
VISUALIZATION OF VERY LARGE DATASETS

Guest Editors: Ronald Peikert, David Ebert and Jean M. Favre

- |  |     |  |
|--|-----|--|
| <b>Ronald Peikert, David S. Ebert</b><br>and <b>Jean M. Favre</b>                                  | 207 | <i>Data Visualization</i><br>Guest editors' introduction   |
| <b>Zhiyan Liu, Adam Finkelstein</b><br>and <b>Kai Li</b>   | 209 | <i>Visualization of Very Large Datasets</i><br>Improving progressive view-dependent isosurface propagation |
| <b>Thomas Gerstner</b>   | 219 | Multiresolution extraction and rendering of transparent isosurfaces  |
| <b>Jiří Hladůvka</b> and <b>Eduard Gröller</b>   | 229 | Smallest second-order derivatives for efficient volume-data representation                                 |
| <b>Suzana Djurcilov, Kwansik Kim,</b><br><b>Pierre Lermusiaux</b> and<br><b>Alex Pang</b>          | 239 | Visualizing scalar volumetric data with uncertainty  |
| <b>X. Tricoche, T. Wischgoll,</b><br><b>G. Scheuermann</b> and <b>H. Hagen</b>                     | 249 | Topology tracking for the visualization of time-dependent two-dimensional flows                            |
| <b>Chris Harding, Ioannis</b><br><b>A. Kakadiaris, John F. Casey</b><br>and <b>R. Bowen Loftin</b> | 259 | A multi-sensory system for the investigation of geoscientific data   |
| <b>Moonja Jeong, Gi Ok Kim</b> and<br><b>Seong-A Kim</b>   | 271 | <i>Technical Section</i><br>Dynamics of Newton's method for solving some equations                         |
| <b>Gian Paolo Lorenzetto,</b><br><b>Amitava Datta</b> and<br><b>Richard C. Thomas</b>              | 281 | A fast trapezoidation technique for planar polygons  |

(continued)

---

Indexed in GMT Abstr, Cam Sci Abstr, Comput Cont, Curr Cont,<sup>®</sup> Research Alert<sup>®</sup>,  
Curr Cont/CompuMath, Curr Cont/Eng Tech & Applied Sci, Curr Cont SCISEARCH<sup>®</sup> Data,  
Eng Ind, Ergon Abstr, Info Sci, Abstr, INSPEC Data, PIRA, SSSA/CISA/ECA/ISMEC

ISSN 0097-8493

TYPESET BY MACMILLAN INDIA LTD., BANGALORE-25  
PRINTED IN GREAT BRITAIN BY POLESTAR WHEATONS LTD, EXETER

371



PERGAMON



0097-8493(200204)26:2:1-2