

Contents

1	Introduction—The Best Is Yet to Come	1
	John Dill, Rae Earnshaw, David Kasik, John Vince, and Pak Chung Wong	
Part I Evolving a Vision		
2	An Illuminated Path: The Impact of the Work of Jim Thomas	9
	Chaomei Chen, Haiyan Hou, Zhigang Hu, and Shengbo Liu	
3	The Evolving Leadership Path of Visual Analytics	31
	Mike Kluse, Anthony Peurrung, and Deborah Gracio	
Part II Visual Analytics and Visualization		
4	Visual Search and Analysis in Complex Information Spaces— Approaches and Research Challenges	45
	T. von Landesberger, T. Schreck, D.W. Fellner, and J. Kohlhammer	
5	Dynamic Visual Analytics—Facing the Real-Time Challenge	69
	Florian Mansmann, Fabian Fischer, and Daniel A. Keim	
6	A Review of Uncertainty in Data Visualization	81
	Ken Brodlie, Rodolfo Allendes Osorio, and Adriano Lopes	
7	How to Draw a Graph, Revisited	111
	Peter Eades and Seok-Hee Hong	
8	Using Extruded Volumes to Visualize Time-Series Datasets	127
	Nick Schultz and Mike Bailey	
9	Event Structuring as a General Approach to Building Knowledge in Time-Based Collections	149
	William Ribarsky, Zachary Wartell, and Wenwen Dou	
10	A Visual Analytics Approach for Protein Disorder Prediction	163
	Jaegul Choo, Fuxin Li, Keehyoung Joo, and Haesun Park	

- 11 Visual Storytelling in Education Applied to Spatial-Temporal Multivariate Statistics Data 175**
Patrik Lundblad and Mikael Jern

Part III Interaction and User Interfaces

- 12 Top Ten Interaction Challenges in Extreme-Scale Visual Analytics . 197**
Pak Chung Wong, Han-Wei Shen, and Chaomei Chen
- 13 GUI 4D—The Role and the Impact of Visual, Multimedia and Multilingual User Interfaces in ICT Applications and Services for Users Coming from the Bottom of the Pyramid—First Concepts, Prototypes and Experiences 209**
G. Baduza, J.H.P. Eloff, D. Kok, J. Encarnação, C. Merz, and M. Przewloka
- 14 Emotion in Human-Computer Interaction 239**
Christian Peter and Bodo Urban
- 15 Applying Artistic Color Theories to Visualization 263**
Theresa-Marie Rhyne
- 16 e-Culture and m-Culture: The Way that Electronic, Computing and Mobile Devices are Changing the Nature of Art, Design and Culture 285**
Stuart Cunningham and Peter S. Excell

Part IV Modeling and Geometry

- 17 Shape Identification in Temporal Data Sets 305**
Machon Gregory and Ben Shneiderman
- 18 SSD-C: Smooth Signed Distance Colored Surface Reconstruction . . 323**
Fatih Calakli and Gabriel Taubin
- 19 Geometric Issues of Object Manipulation in Task Animation and Virtual Reality 339**
Daniel Thalmann
- 20 An Analytical Approach to Dynamic Skin Deformation of Character Animation 363**
L.H. You, H. Ugail, X.Y. You, and Jian J. Zhang

Part V Architecture and Displays

- 21 The New Visualization Engine— The Heterogeneous Processor Unit 377**
Jon Peddie
- 22 Smart Cloud Computing 397**
Tosiyasu L. Kunii
- 23 Visualization Surfaces 417**
Turner Whitted and Steven Drucker

Part VI Virtual Reality and Augmented Reality

24 The Development of Mobile Augmented Reality 431
Lawrence J. Rosenblum, Steven K. Feiner, Simon J. Julier,
J. Edward Swan II, and Mark A. Livingston

25 Multimodal Interfaces for Augmented Reality 449
Mark Billinghurst and Minkyung Lee

Part VII Technology Transfer

26 Knowledge Exchange, Technology Transfer and the Academy 469
Rae Earnshaw

27 Discovering and Transitioning Technology 481
John Dill and David J. Kasik

**28 Technology Transfer at IBBT-EDM: Case Study in the Computer
Graphics Domain 499**
Fabian Di Fiore, Eddy Flerackers, and Frank Van Reeth

29 Building Adoption of Visual Analytics Software 509
Nancy Chinchor, Kristin Cook, and Jean Scholtz

Author Index 531