

# Preface

Scientific Visualization is the transformation of abstract data, derived from observation or simulation, into readily comprehensible images, and has proven to play an indispensable part of the scientific discovery process in many fields of contemporary science. Since its inception two decades ago, the techniques of Scientific Visualization have aided scientists, engineers, medical practitioners, and others in the study of a wide variety of data sets including, for example, high-performance computing simulations, measured data from scanners (CAT, MR, confocal microscopy), Internet traffic, and financial records. One of the important themes being nurtured under the aegis of Scientific Visualization is the utilization of the broad bandwidth of the human sensory system in steering and interpreting complex processes and simulations involving voluminous data sets across diverse scientific disciplines. Since vision dominates our sensory input, strong efforts have been made to bring the mathematical abstraction and modeling to our eyes through the mediation of computer graphics.

In June 2011, we organized a Dagstuhl seminar, with 54 participants, that focused on the four parts of this book. The seminar comprised talks from leaders in the field and breakout sessions on the four specific topics: Uncertainty Visualization, Multifield Visualization, Biomedical Visualization, and Scalable Visualization. This book is a culmination of the four topics with contributed chapters from the participants for each of the four parts of the book.

We would like to thank all of the authors for their thoughtful and insightful contributed chapters. We would also like to thank Catherine Waite and Lynn Brandon from Springer UK for their assistance and patience in generating this book.

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Scientific Visualization

Uncertainty, Multifield, Biomedical, and Scalable  
Visualization

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Hagen, H. (Eds.)

2014, XVII, 400 p. 117 illus., 107 illus. in color.,  
Hardcover

ISBN: 978-1-4471-6496-8