



# Non-Photorealistic Computer Graphics: Modeling, Rendering, and Animation (The Morgan Kaufmann Series in Computer Graphics)

*By Thomas Strothotte, Stefan Schlechtweg*

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## **Non-Photorealistic Computer Graphics: Modeling, Rendering, and Animation (The Morgan Kaufmann Series in Computer Graphics)**

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Even as developments in photorealistic computer graphics continue to affect our work and leisure activities, practitioners and researchers are devoting more and more attention to non-photorealistic (NPR) techniques for generating images that appear to have been created by hand. These efforts benefit every field in which illustrations—thanks to their ability to clarify, emphasize, and convey very precise meanings—offer advantages over photographs. These fields include medicine, architecture, entertainment, education, geography, publishing, and visualization.

*Non-Photorealistic Computer Graphics* is the first and only resource to examine non-photorealistic efforts in depth, providing detailed accounts of the major algorithms, as well as the background information and implementation advice readers need to make headway with these increasingly important techniques.

Already, an estimated 10% of computer graphics users require some form of non-photorealism. Strothotte and Schlechtweg's important new book is designed and destined to be the standard NPR reference for this large, diverse, and growing group of professionals.

- Hard-to-find information needed by a wide range and growing number of computer graphics programmers and applications users.
- Traces NPR principles and techniques back to their origins in human vision and perception.
- Focuses on areas that stand to benefit most from advances in NPR, including medical and architectural illustration, cartography, and data visualization.
- Presents algorithms for two and three-dimensional effects, using pseudo-code where needed to clarify complex steps.
- Helps readers attain pen-and-ink, pencil-sketch, and painterly effects, in addition to other styles.
- Explores specific challenges for NPR—including "wrong" marks, deformation,

natural media, artistic technique, lighting, and dimensionality.

- Includes a series of programming projects in which readers can apply the book's concepts and algorithms.

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### **Editorial Review**

From the Back Cover

In the past decade, the field of non-photorealistic computer graphics (NPR) has developed as the product of research marked by diverse and sometimes divergent assumptions, approaches, and aims. This book is the first to offer a systematic assessment of this work, identifying and exploring the underlying principles that have given the field its cohesion. In the course of this assessment, the authors provide detailed accounts of today's major non-photorealistic algorithms, along with the background information and implementation advice you need to put them to productive use. As NPR finds new applications in a broadening array of fields, **Non-Photorealistic Computer Graphics** is destined to be the standard reference for researchers and practitioners alike. Features Traces NPR principles and techniques back to their origins in human vision and perception. Emphasizes areas that stand to benefit most from advances in NPR, including medical and architectural illustration. Presents algorithms for both 2D and 3D effects, using pseudo-code where needed. Examines the techniques behind distinct styles, including pen-and-ink, pencil sketch, and painterly effects. Explores specific challenges for NPR-including simulation of natural media, artistic techniques, deformations, illustrations, and lighting. Concludes each chapter with a set of hands-on exercises.

About the Author

**Thomas Strothotte** is professor of computer science at the University of Magdeburg (Germany), where he founded undergraduate and graduate degree programs in computational visualistics. He studied at Simon Fraser University, the University of Waterloo, and McGill University. He has held teaching and research appointments at INRIA Rocquencourt, the University of Stuttgart, Free University of Berlin, and the former IBM Scientific Center in Heidelberg.

**Stefan Schlechtweg** is assistant professor at the University of Magdeburg (Germany), where his teaching and research areas are computer graphics and interactive systems. He received his Ph.D. from the University of Magdeburg in 1999.

### **Users Review**

**From reader reviews:**

**Angela Jones:**

Do you certainly one of people who can't read pleasurable if the sentence chained from the straightway, hold on guys this particular aren't like that. This Non-Photorealistic Computer Graphics: Modeling, Rendering, and Animation (The Morgan Kaufmann Series in Computer Graphics) book is readable by you who hate the straight word style. You will find the facts here are arrange for enjoyable looking at experience without leaving perhaps decrease the knowledge that want to offer to you. The writer connected with Non-Photorealistic Computer Graphics: Modeling, Rendering, and Animation (The Morgan Kaufmann Series in Computer Graphics) content conveys the idea easily to understand by many individuals. The printed and e-book are not different in the articles but it just different available as it. So , do you nevertheless thinking

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