

| | |
|-------------------------|---|
| 1. Record Nr. | UNINA9910450786503321 |
| Autore | Dorsey J (Julie) |
| Titolo | Digital modeling of material appearance [[electronic resource] /] / Julie Dorsey, Holly Rushmeier, Francois Sillion |
| Pubbl/distr/stampa | Amsterdam ; Boston, : Morgan Kaufmann/Elsevier, c2008 |
| ISBN | 1-281-10000-5 9786611100001 0-08-055671-X |
| Edizione | [1st edition] |
| Descrizione fisica | 1 online resource (329 p.) |
| Collana | The Morgan Kaufmann series in computer graphics |
| Altri autori (Persone) | RushmeierHolly E SillionFrancois X |
| Disciplina | 006.6 |
| Soggetti | Computer graphics Visualization Image processing - Digital techniques Electronic books. |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references (p. 277-302) and index. |
| Nota di contenuto | Front Cover; Digital Modeling of Material Appearance; Copyright Page; Table of Contents; Acknowledgments; Chapter 1. Introduction; Chapter 2. Background; 2.1 Light; 2.2 Human Perception and Judgments; 2.3 Image Synthesis; 2.4 Summary and Further Reading; Chapter 3. Observation and Classification; 3.1 A Tour of Materials; 3.2 Examples of Modeling Classes of Materials; Chapter 4. Mathematical Terms; 4.1 Energy as a Function of Time, Position, and Direction; 4.2 Radiance; 4.3 Reflectance and BRDF; Chapter 5. General Material Models; 5.1 Reflection and Refraction from a Smooth Surface 5.2 Empirical Models 5.3 Analytical First Principles Models; 5.4 Simulation from First Principles; 5.5 Spectral Effects; 5.6 Other Effects; 5.7 Scattering in Volumes; 5.8 Spatial Variations; Chapter 6. Specialized Material Models; 6.1 Natural Organic Materials; 6.2 Natural: Inorganic; 6.3 Materials in Manufactured Goods; Chapter 7. Measurement; 7.1 Traditional Measurement; 7.2 Image-Based BRDF Measurements of Sample Materials; 7.3 Measurement of Existing Objects; 7.4 Simultaneous Shape and Reflectance Capture; 7.5 Small-Scale |

Geometric Structures; 7.6 Alternative Representations
7.7 Subsurface Scattering and Volumetric Media
7.8 Additional Dimensions; Chapter 8. Aging and Weathering; 8.1 Weathering Taxonomy; 8.2 Simulation of Weathering Effects; 8.3 Replication of Aged Appearance; 8.4 Capture, Analysis, and Transfer of Effects; Chapter 9. Specifying and Encoding Appearance Descriptions; 9.1 Practical Techniques for Appearance Specification; 9.2 Encoding Local Appearance Attributes; 9.3 Association of Material and Shape; Chapter 10. Rendering Appearance; 10.1 An Overview of Image Creation Techniques; 10.2 Simulating Global Illumination; 10.3 Rendering Local Appearance
10.4 Color and Tone
10.5 Precomputed Rendering Elements; Bibliography; Index

Sommario/riassunto

Computer graphics systems are capable of generating stunningly realistic images of objects that have never physically existed. In order for computers to create these accurately detailed images, digital models of appearance must include robust data to give viewers a credible visual impression of the depicted materials. In particular, digital models demonstrating the nuances of how materials interact with light are essential to this capability. This is the first comprehensive work on the digital modeling of material appearance: it explains how models from physics and engineering are comb
