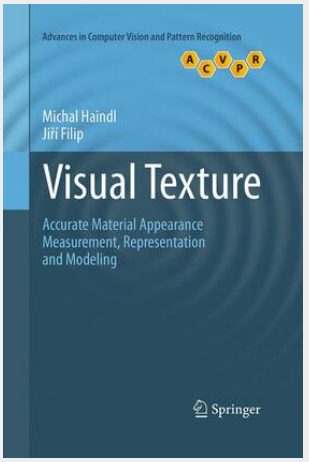
Filip / Haindl

Visual Texture

Accurate Material Appearance Measurement, Representation and Modeling



This book surveys the state of the art in multidimensional, physically-correct visual texture modeling. Features: reviews the entire process of texture synthesis, including material appearance representation, measurement, analysis, compression, modeling, editing, visualization, and perceptual evaluation; explains the derivation of the most common representations of visual texture, discussing their properties, advantages, and limitations; describes a range of techniques for the measurement of visual texture, including BRDF, SVBRDF, BTF and BSSRDF; investigates the visualization of textural information, from texture mapping and mip-mapping to illumination- and view-dependent data interpolation; examines techniques for perceptual validation and analysis, covering both standard pixel-wise similarity measures and also methods of visual psychophysics; reviews the applications of visual textures, from visual scene analysis in medical applications, to high-quality visualizations in the automotive industry.

Although the field of texture processing is now well-established, research in this area remains predominantly restricted to texture analysis and simple and approximate static textures. This comprehensive text/reference presents a survey of the state of the art in multidimensional, physically-correct visual texture modeling. Starting from basic principles and building upon the fundamentals to the latest advanced methods, the book brings together research from computer vision, pattern recognition, computer graphics, virtual and augmented reality. The text assumes a graduate-level understanding of statistics and probability theory, and a knowledge of basic computer graphics principles, but is accessible to newcomers to the field. Topics and features: reviews the entire process of texture synthesis, including material appearance representation, measurement, analysis, compression, modeling, editing, visualization, and perceptual evaluation; explains the derivation of the most common representations of visual texture, discussing their properties, advantages, and limitations; describes a range of techniques for the measurement of visual texture, including BRDF, SVBRDF, BTF and BSSRDF; investigates the visualization of textural information, from texture mapping and mip-mapping to illumination- and view-dependent data interpolation; examines techniques for perceptual validation and analysis, covering both standard pixel-wise similarity measures and also methods of visual psychophysics; reviews the applications of visual textures, from visual scene analysis in image processing and medical applications, to high-quality visualizations for cultural heritage and the automotive industry. Researchers, lecturers, students and practitioners will all find this book an invaluable reference on the rapidly developing new field of texture modeling.

106,99 €
99,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781447169154
Medium: Buch
ISBN: 978-1-4471-6915-4
Verlag: Springer
Erscheinungstermin: 23.08.2016
Sprache(n): Englisch
Auflage: Softcover Nachdruck of the original 1. Auflage 2013
Serie: Advances in Computer Vision and Pattern Recognition
Produktform: Kartoniert
Gewicht: 5378 g
Seiten: 284
Format (B x H): 155 x 235 mm

Kundenservice Fachmedien Otto Schmidt
Neumannstraße 10, 40235 Düsseldorf | kundenservice@fachmedien.de | 0800 000-1637 (Inland)