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Measuring, Modeling, and Reproducing Material Appearance 2015

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Editors

9–10 February 2015
San Francisco, California, United States

Sponsored by
IS&T—The Society for Imaging Science and Technology
SPIE

Cosponsored by
Océ Print Logic Technologies (Netherlands)
Canon (United States)

Published by
SPIE

Volume 9398

Measuring, Modeling, and Reproducing Material Appearance 2015, edited by Maria V. Ortiz Segovia, Philipp Urban, Francisco H. Imai, Proc. of SPIE-IS&T Vol. 9398, 939801 · © 2015 SPIE-IS&T · CCC code: 0277-786X/15/$18 · doi: 10.1117/12.2193203

The papers included in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. The papers published in these proceedings reflect the work and thoughts of the authors and are published herein as submitted. The publishers are not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from this book:
Author(s), "Title of Paper," in *Measuring, Modeling, and Reproducing Material Appearance 2015*, edited by Maria V. Ortiz Segovia, Philipp Urban, Francisco H. Imai, Proceedings of SPIE-IS&T Electronic Imaging, SPIE Vol. 9398, Article CID Number (2015)

ISSN: 0277-786X
ISBN: 9781628414882

Copublished by
SPIE
P.O. Box 10, Bellingham, Washington 98227-0010 USA
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445
SPIE.org
and
IS&T—The Society for Imaging Science and Technology
7003 Kilworth Lane, Springfield, Virginia, 22151 USA
Telephone +1 703 642 9090 (Eastern Time) · Fax +1 703 642 9094
imaging.org

Printed in the United States of America.

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print. Papers are published as they are submitted and meet publication criteria. A unique citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

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Introduction

The rapid and continuous development of rendering devices, such as displays and printers, offers interesting challenges related to how materials are understood. Over the years, researchers from different disciplines have studied the interaction of incident light with the texture and surface geometry of a given object, as well as the optical properties of distinct materials. Thanks to those efforts, we have been able to render with high accuracy 2.5D and 3D objects and scenes. But given the day-to-day technological improvements of materials and devices, along with the advances in the areas of visual and tactile perception, modeling how light interacts with materials, and techniques for measuring material properties, the field of material appearance is in constant evolution. This conference offers the possibility to share research results and establish new collaborations among academic and industrial researchers from these related fields.

The main topics encountered on the papers of this document correspond to any of the following categories:

- **Methods for measuring material properties**: measurement of Bidirectional Reflectance Distribution Functions (BRDF), Bidirectional Texture Functions (BTF), and Bidirectional Surface Scattering Reflectance Distribution Function (BSSRDF); estimation of material difference perception; evaluation of metallic coatings/inks; measurement of glossiness; estimation of texture perception; and data acquisition methods for different types of materials.
- **Models for distinct characteristics of materials**: modeling of Bidirectional Reflectance Distribution Functions (BRDF), Bidirectional Texture Functions (BTF), and Bidirectional Surface Scattering Reflectance Distribution Function (BSSRDF); modeling material difference perception; appearance modeling of glossiness and texture; modeling of varnish and special effects inks; and soft-proofing methods for 2.5D and 3D printing
- **Material reproduction aspects**: quality evaluation of 2.5D and 3D soft- and hard-copy reproductions (display and printing); estimation of effects of environmental aspects in material perception (lighting, observers' position, printing media); estimation of sensory input (visual, touch, audio) effect in material perception; evaluation of aesthetic aspects of 2.5D and 3D soft- and hard-copy reproductions (display and printing); saliency of 2.5D and 3D soft- and hard-copy reproductions (display and printing); imaging and perception of metallic and effect coatings/inks; saliency, quality, and aesthetics in appearance reproduction; and spectral reproduction

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