PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 11406

, "Front Matter: Volume 11406," Proc. SPIE 11406, Infrared Imaging Systems: Design, Analysis, Modeling, and Testing XXXI, 1140601 (2 June 2020); doi: 10.1117/12.2572633

Event: SPIE Defense + Commercial Sensing, 2020, Online Only

PROCEEDINGS OF SPIE

Infrared Imaging Systems: Design, Analysis, Modeling, and Testing XXXI

**Gerald C. Holst
David P. Haefner**
Editors

**27 April – 8 May 2020
Online Only, United States**

Sponsored and Published by
SPIE

Volume 11406

Proceedings of SPIE 0277-786X, V. 11406

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Infrared Imaging Systems: Design, Analysis, Modeling, and Testing XXXI, edited by
Gerald C. Holst, David P. Haefner, Proc. of SPIE Vol. 11406, 1140601 · © 2020 SPIE
CCC code: 0277-786X/20/\$21 · doi: 10.1117/12.2572633

Proc. of SPIE Vol. 11406 1140601-1

The papers 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. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is 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 these proceedings:

Author(s), "Title of Paper," in *Infrared Imaging Systems: Design, Analysis, Modeling, and Testing XXXI*, edited by Gerald C. Holst, David P. Haefner, Proceedings of SPIE Vol. 11406 (SPIE, Bellingham, WA, 2020) Seven-digit Article CID Number.

ISSN: 0277-786X
ISSN: 1996-756X (electronic)

ISBN: 9781510635890
ISBN: 9781510635906 (electronic)

Published 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
Copyright © 2020, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$21.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/20/\$21.00.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.

SPIE. DIGITAL LIBRARY
SPIDigitalLibrary.org

Paper Numbering: *Proceedings of SPIE* follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article at the time of 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 and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

SIMULATION I

- 11406 06 **Automated simulation-generated EO/IR image library for artificial intelligence applications (Invited Paper)** [11406-9]
- 11406 08 **Imager assessment by classification of geometric primitives** [11406-11]

SIMULATION II

- 11406 09 **Simulation of laser speckle patterns generated by random rough surfaces** [11406-14]
- 11406 0A **Artificial intelligence supported material design for tailored image transformations** [11406-15]

MODELING I

- 11406 0C **Improved formulas for CSNR with an example** [11406-17]
- 11406 0D **Spatial misregistration in hyperspectral cameras: lab characterization and errors in real-world images** [11406-19]

MODELING III

- 11406 0I **Determinations of detector optical reflections** [11406-28]