## PROCEEDINGS OF SPIE

# **Computational Imaging VII**

Jonathan C. Petruccelli Chrysanthe Preza Editors

1–2 May 2023 Orlando, Florida, United States

Sponsored and Published by SPIE

Volume 12523

Proceedings of SPIE 0277-786X, V. 12523

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

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 SPIEDigitalLibrary.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 *Computational Imaging VII*, edited by Jonathan C. Petruccelli, Chrysanthe Preza, Proc. of SPIE 12523, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510661608 ISBN: 9781510661615 (electronic)

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) SPIE.org Copyright © 2023 Society of Photo-Optical Instrumentation Engineers (SPIE).

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 fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center 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.

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.



**Paper Numbering:** A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE 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

#### SESSION 1 COMPUTATIONAL IMAGING WITH MULTIDIMENSIONAL DATA

- 12523 02 Hyperspectral unmixing-based anomaly detection [12523-2]
- 12523 03 Space-division multiplexing for snapshot polarimetric imaging of tissue samples [12523-3]

#### SESSION 2 3D IMAGING AND DESIGN

- 12523 04 Design of a free-form lens for an LED illumination system using optimization of one-dimensional refracting surfaces [12523-6]
- 12523 05 All-in-focus reconstruction of a dynamic scene from multiple-multifocus captures [12523-8]

#### SESSION 3 IMAGING THROUGH COMPLEX MEDIA

- 12523 06 Digital adaptive optics with interferometric homodyne encoding for mitigating atmospheric turbulence for imaging applications [12523-11]
- 12523 07 A study of imaging in the existence of resonance with multiple scattering in isotropic homogeneous media [12523-32]

#### SESSION 4 QUANTITATIVE PHASE IMAGING

12523 08 Improving space bandwidth product of reflective digital holographic microscopy by the use of Fourier-ptychographic illumination technique [12523-15]

#### SESSION 5 DEEP LEARNING TECHNIQUES IN COMPUTATIONAL IMAGING

- 12523 09 Normalized determinant pooling layer in CNNs for multi-label classification [12523-17]
- 12523 0A Structured illumination microscope image reconstruction using unrolled physics-informed generative adversarial network (UPIGAN) [12523-18]

#### SESSION 6 COMPUTATIONAL X-RAY IMAGING

<b>SESSION 7</b>	IMAGE ENHANCEMENT WITH COMPUTATIONAL IMAGING Non-blind hardware and software deconvolution for jitter reduction [12523-24]
12523 OC	Initial investigation of mesh-based x-ray phase tomography [12523-23]
12523 OB	Dark field signal maximization in mesh-based x-ray imaging [12523-22]

#### POSTER SESSION

12523 OE Deep learning photo-acoustic microscopy with three-dimensional under sampled data reconstruction [12523-28]

#### **DIGITAL POSTER SESSION**

- 12523 OF Sampling templates guided compression reconstruction network [12523-19]
- 12523 0G Super-resolution-imaging based on circular coded aperture [12523-25]
- 12523 0H Super-resolution-imaging by synthetic aperture with incoherent illumination [12523-26]