

PROCEEDINGS OF SPIE

Hyperspectral Imaging and Applications II

Nick J. Barnett
Aoife A. Gowen
Haida Liang
Editors

6–7 December 2022
Birmingham, United Kingdom

Sponsored by
SPIE

Cooperating Organisations
Fraunhofer UK Research Limited (United Kingdom)
Innovate UK KTN (United Kingdom)
Photonics Leadership Group (United Kingdom)
Photonics 21 (United Kingdom)
Censis (United Kingdom)
Technology Association of Laser Users (United Kingdom)
Future Photonics Hub (United Kingdom)

Published by
SPIE

Volume 12338

Proceedings of SPIE 0277-786X, V. 12338

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 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 *Hyperspectral Imaging and Applications II*, edited by Nick J. Barnett, Aoife A. Gowen, Haida Liang, Proc. of SPIE 12338, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510657489

ISBN: 9781510657496 (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.

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

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

v *Conference Committee*

SESSION 1 NEW TECHNOLOGY, STANDARDISATION AND CALIBRATION

- 12338 02 **Calibrating a snapshot mosaic hyperspectral imaging system suitable for static and aerial applications (Invited Paper)** [12338-1]
- 12338 06 **Compact high-speed snapshot multispectral imagers in the VIS/NIR (460 to 960 nm) and SWIR range (1.1 to 1.65 μ m) and its potential in a diverse range of applications** [12338-19]

SESSION 2 HYPERSPECTRAL IMAGING APPLICATIONS

- 12338 07 **Development of the HySpex hyperspectral drill core scanner: case study on exploration core from the Au-rich LaRonde-Penna volcanogenic massive sulfide deposit, Quebec, Canada (Invited Paper)** [12338-5]
- 12338 08 **Application of hyperspectral imaging for cocoa bean grading with machine learning approaches (Invited Paper)** [12338-6]
- 12338 09 **Hyperspectral imaging analysis of corrosion products on metals in the UV range** [12338-7]
- 12338 0A **Assessing damage to wind turbine blades to support autonomous inspection** [12338-8]
- 12338 0B **Hyperspectral imaging through partially transparent media** [12338-9]

SESSION 3 MEDICAL APPLICATIONS

- 12338 0E **AI-based segmentation of intraoperative glioblastoma hyperspectral images** [12338-12]
- 12338 0F **Hyperspectral imaging acquisition set-up for medical applications** [12338-13]

SESSION 4 REMOTE SENSING/EARTH OBSERVATIONS

- 12338 0G **HYPERNOR project: high-resolution hyperspectral camera for microsatellites (Invited Paper)** [12338-14]
- 12338 0H **Complex-valued neural network for hyperspectral single image super resolution** [12338-15]