

PROCEEDINGS OF SPIE

***International Conference  
on Optoelectronic Information  
and Computer Engineering  
(OICE 2024)***

**Yang Yue**  
*Editor*

**25–26 May 2024**  
**ONLINE, China**

*Organized by*  
Association for Science and Engineering (China)

*Published by*  
SPIE

**Volume 13255**

Proceedings of SPIE 0277-786X, V. 13255

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](http://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 *International Conference on Optoelectronic Information and Computer Engineering (OICE 2024)*, edited by Yang Yue, Proc. of SPIE 13255, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510682504

ISBN: 9781510682511 (electronic)

Published by

**SPIE**

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time)

[SPIE.org](http://SPIE.org)

Copyright © 2024 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](http://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](http://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*

---

## OPTOELECTRONIC TECHNOLOGY

---

- 13255 02 **Pose estimation of near-infrared surgical instruments based on binocular vision** [13255-4]
- 13255 03 **Infrared radiation and smoke characteristics test of open wood fire and decalin fire**  
[13255-6]
- 13255 04 **Experimental measurements and characterising of photodiodes** [13255-15]
- 13255 05 **Land surface temperature retrieval method for measured data from unmanned aerial vehicle (UAV) mid-wave thermometry thermal imaging cameras (MWTIC)** [13255-16]
- 13255 06 **Quick measurement of multi-optical axis line-of-sight deviations** [13255-17]
- 13255 07 **A compact multimode dual-band SIW filter using slot and perturbed structure** [13255-21]
- 13255 08 **Reflection characteristics of VLF in the anisotropic ionosphere based on impedance matrix method** [13255-25]
- 13255 09 **The study of remote online upgrade method for FPGA based on CAN bus** [13255-26]
- 13255 0A **Improved YOLOv7-Tiny lightweight anti-UAV target detection algorithm** [13255-2]
- 13255 0B **Research on single event effect of silicon carbide diode induced by Californium source**  
[13255-7]
- 13255 0C **Speckle autocorrelation imaging based on the parallel amplitude-phase retrieval algorithm** [13255-8]
- 13255 0D **Study of ultraviolet spectrum measurement in outfield** [13255-9]
- 13255 0E **Heat transfer simulation of optogenetics-LED based on microchannel heat dissipation**  
[13255-12]
- 13255 0F **A ranging system based on dual-comb femtosecond laser ranging technology** [13255-19]
- 13255 0G **End-to-end resource allocation strategy based on SCA algorithm in electric power integrated networks** [13255-23]
- 13255 0H **Object density layer edge detection with adaptive anisotropy factors and multiscale fusion** [13255-24]
- 13255 0I **A lightweight neural network for online real-time non-tobacco-related material instance segmentation in multispectral video** [13255-27]

## OPTICAL COMMUNICATION

---

- 13255 OJ **Application of IR-UWB communication in underground mine environments** [13255-10]
- 13255 OK **An omnidirectional receiving system used in underwater wireless optical communication** [13255-18]
- 13255 OL **Simulation and optimization study of signal sampling for double-interface guided wave radar level gauge based on similar equivalent sampling** [13255-1]
- 13255 OM **Design of 3dB directional coupler for millimeter wave radar** [13255-3]
- 13255 ON **Research and implementation of AGV navigation method based on LiDAR synchronous positioning and map construction** [13255-13]
- 13255 OO **A millimeter wave 24-way waveguide dividing and combining integrative network** [13255-22]