

PROCEEDINGS OF SPIE

***Third International Conference
on Computer Technology,
Information Engineering, and
Electron Materials (CTIEEM 2023)***

Atsushi Inoue
Editor

17–19 November 2023
Zhengzhou, China

Organized by
Rai University (India) • Xidian University (China) • State Grid Chongqing Electric Power Company
Chongqing Electric Power Research Institute (China)

Sponsored by
AEIC Academic Exchange Information Centre (China)

Published by
SPIE

Volume 12987

Proceedings of SPIE 0277-786X, V. 12987

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 *Third International Conference on Computer Technology, Information Engineering, and Electron Materials (CTIEEM 2023)*, edited by Atsushi Inoue, Proc. of SPIE 12987, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510672925

ISBN: 9781510672932 (electronic)

Published by

SPIE

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

Telephone +1 360 676 3290 (Pacific Time)

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. 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*

NETWORK PLATFORM MODELING AND INFORMATION PROCESSING

- 12987 02 **Computation offloading strategy for UAV-assisted fog computing emergency communication system based on deep reinforcement learning** [12987-9]
- 12987 03 **Design of 12-bit 4 MS/s SAR ADC based on 40nm process** [12987-8]
- 12987 04 **Human activity recognition with a multibranch network based on CNN and LSTM** [12987-2]
- 12987 05 **Automated alarm method for abnormal data in power grid reports based on Paxos algorithm** [12987-34]
- 12987 06 **Realization and application of continuous adjustment method for ion thruster thrust** [12987-20]
- 12987 07 **Research on fast acoustic location algorithm and error analysis based on five-element four-sided cone array** [12987-5]
- 12987 08 **Docker-based satellite network simulation platform** [12987-13]
- 12987 09 **An ensemble learning approach for webshell detection** [12987-17]
- 12987 0A **A Stuxnet-style malware propagation modeling study based on Tesla autonomous vehicles** [12987-4]
- 12987 0B **Radar emitter recognition method based on kernel extreme learning machine optimized by sparrow search algorithm** [12987-21]
- 12987 0C **Analyzing fusion plasma diagnostic images based on computer vision and deep learning** [12987-27]
- 12987 0D **Research on trust mechanism in wireless sensor networks** [12987-14]
- 12987 0E **YOLOv7-based attention and improved feature fusion small object detection algorithm** [12987-38]

INTEGRATED ELECTRICAL APPLIANCE SIMULATION AND INTELLIGENT CONTROL

- 12987 OF **Research on control of single-phase photovoltaic energy storage grid-connected inverter** [12987-10]
- 12987 OG **A civil unmanned aircraft intelligent control system based on multisource sensor** [12987-3]
- 12987 OH **Construction of quantitative prediction model of metal mineral resources based on big data mining** [12987-26]
- 12987 OI **An active electromagnetic detection method for underwater metal targets** [12987-23]
- 12987 OJ **A low quiescent current high PSRR LDO circuit** [12987-11]
- 12987 OK **Particle swarm optimization method for substation location of airport surrounding power grid considering civil aviation clearance limit surface** [12987-28]
- 12987 OL **Research on distributed PV network terminal identification technology based on device fingerprint generation** [12987-32]
- 12987 OM **Investigation of two-layer aluminum cold plate for high-power RF linear chip array cooling** [12987-18]
- 12987 ON **Design of low-offset constant transconductance rail-to-rail operational amplifier** [12987-36]
- 12987 OO **Attitude balance control of cube with actuator saturation** [12987-35]
- 12987 OP **Preparation and characterization properties of pentacene thin film transistors pre and post optimization of dielectric surface** [12987-7]
- 12987 OQ **Design of a new dual-band microstrip patch antenna** [12987-6]
- 12987 OR **Flexible and conductive polyvinyl alcohol/Ti₃C₂T_x composite film with excellent electromagnetic interference shielding performance** [12987-22]