

PROCEEDINGS OF SPIE

MIPPR 2019: Remote Sensing Image Processing, Geographic Information Systems, and Other Applications

**Zhiguo Cao
Jie Ma
Zhong Chen
Yu Shi**
Editors

**2–3 November 2019
Wuhan, China**

Organized by
Huazhong University of Science and Technology (China)
National Key Laboratory of Science and Technology on Multi-spectral Information Processing
(China)
Wuhan Institute of Technology (China)

Sponsored by
National Key Laboratory of Science and Technology on Multi-spectral Information Processing
(China)
Huazhong University of Science and Technology (China)
Wuhan Institute of Technology (China)
Automation Association of Hubei (China)

Published by
SPIE

Volume 11432

Proceedings of SPIE 0277-786X, V. 11432

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 *MIPPR 2019: Remote Sensing Image Processing, Geographic Information Systems, and Other Applications*, edited by Zhiguo Cao, Jie Ma, Zhong Chen, Yu Shi, Proceedings of SPIE Vol. 11432 (SPIE, Bellingham, WA, 2020) Seven-digit Article CID Number.

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

ISBN: 9781510636415
ISBN: 9781510636422 (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

vii	<i>Authors</i>
ix	<i>Symposium Committees</i>
xiii	<i>Introduction</i>

REMOTE SENSING IMAGE PROCESSING AND GEOGRAPHIC INFORMATION SYSTEMS

11432 02	Graph fusion based hyperspectral image classification [11432-3]
11432 03	Adaptive locality preserving projection for hyperspectral image classification [11432-4]
11432 04	Analysis of land cover change in Shiyang River Basin of Qilian Mountains [11432-5]
11432 05	Comparison of four sand-dust intensity quantitative identification method based on Himawari-8 [11432-6]
11432 06	Comparison of five sand-dust distribution quantitative identification method based on Himawari-8 [11432-7]
11432 07	Multiscale DEM generation on basis of singular value decomposition [11432-10]
11432 08	Accurate bounding box for ship detection on remote sensing images with complex background [11432-11]
11432 09	An adaptive local contrast enhancement method for low visibility aerial image [11432-16]
11432 0A	Application analysis and prospect of deep learning in remote sensing image classification [11432-17]
11432 0B	Assimilation of HJ-LAI into the WOFOST model for estimating regional rice yield [11432-18]
11432 0C	A blockchain based approach to the sharing of pet healthcare data [11432-20]
11432 0D	Hierarchical attention networks for hyperspectral image classification [11432-22]
11432 0E	Transfer learning for hyperspectral image classification using convolutional neural network [11432-23]
11432 0F	Dimensionality reduction of hyperspectral images based on subspace combination clustering and adaptive band selection [11432-26]

- 11432 OG **Discussion on the surface rupture in the south segment of the Minjiang fault inferred from remote sensing images** [11432-27]
- 11432 OH **Research and implementation of plug-in maize planting area extraction tool** [11432-28]
- 11432 OI **A novel model for edge aware sea-land segmentation** [11432-30]
- 11432 OJ **Semantic segmentation of very high resolution remote sensing images with residual logic deep fully convolutional networks** [11432-31]
- 11432 OK **Multi-scale oriented object detection in aerial images based on convolutional neural networks with global attention** [11432-32]
- 11432 OL **Anchor points prediction for target detection in remote sensing images** [11432-33]
- 11432 OM **Real-time pedestrian video segmentation using memory network** [11432-35]
- 11432 ON **Object-based loss function in segmented neural networks** [11432-37]

APPLICATIONS

- 11432 OO **Determination and elimination of fiber cable fault points** [11432-102]
- 11432 OP **Troubleshooting of DS6-K5B computer interlocking system** [11432-103]
- 11432 OQ **Generating satisfactory terrain by terrain maker generative adversarial nets** [11432-106]
- 11432 OR **Analysis and treatment of circuit faults of S700K electric switch machine** [11432-107]
- 11432 OS **Application and research of soft-switch technology in Wuhan metro communication system** [11432-108]
- 11432 OT **Design and implementation of intelligent assessment system for S700K switch transaction devices in rail transit** [11432-111]
- 11432 OU **A novel dynamic test method of asphalt concrete permeability based on machine vision** [11432-114]
- 11432 OV **A measurement method of curved glass thickness based on 3D laser vision** [11432-116]
- 11432 OW **Orbit optimization of spacecraft for remote sensing of Qinghai-Tibet plateau** [11432-118]
- 11432 OX **Measurement of gear size parameters based on Hough transform circle segmentation** [11432-120]
- 11432 OY **Marine biological monitoring and managing system based on Java technology** [11432-121]

- 11432 0Z **Three-dimensional measurement method for thickness of LED tape coating based on linear array spectral confocal** [11432-123]
- 11432 10 **Method for quantifying crop residue burning in the Yangtze River delta based on MODIS fire products** [11432-126]
- 11432 11 **The application of space targets polarization detection and recognition** [11432-129]
- 11432 12 **Emergency monitoring and post-disaster reconstruction monitoring in the tornado disaster in Yancheng, Jiangsu** [11432-131]
- 11432 13 **Smoke detection in infrared images based on superpixel segmentation** [11432-132]
- 11432 14 **A real-time noise suppression method for target image on unmanned underwater vehicle platform** [11432-133]
- 11432 15 **Underwater image dehazing and color correction algorithm based on scene depth estimation** [11432-134]
- 11432 16 **An improved identification method for hollowing instrument** [11432-136]
- 11432 17 **Rapid path planning for unmanned surface vessels** [11432-139]
- 11432 18 **Design of smart home control system based on infrared and cloud platform** [11432-141]
- 11432 19 **Comparison of bare soil extraction methods in black soil zone for AHSI/GF-5 remote sensing data** [11432-142]
- 11432 1A **Study on sophisticated vegetation classification for AHSI/GF-5 remote sensing data** [11432-143]
- 11432 1B **Study on the comprehensive statistical analysis framework of regional geography and national conditions** [11432-144]
- 11432 1D **Prediction of the propagation effect of emergencies microblog** [11432-148]
- 11432 1E **Daily maintenance and fault handling of UPS signal power supply system in Wuhan metro** [11432-149]
- 11432 1F **Comparative study on colorimetric characterization of LCD based on polynomial** [11432-150]
- 11432 1H **Spectral distortion correction of photon-counting-detector based on neural network** [11432-155]
- 11432 1I **An intelligent garbage classifier based on deep learning models** [11432-158]
- 11432 1J **Restoration of haze-free images using generative adversarial network** [11432-159]

- 11432 1K **3D target detection of Geiger mode APD array lidar image** [11432-160]
- 11432 1L **An image encryption method based on logistic chaotic mapping and DNA coding** [11432-161]
- 11432 1M **Group detection assisted by density map** [11432-162]
- 11432 1N **Outdoor cycle three-dimensional intelligent parking lot system** [11432-164]
- 11432 1O **Research on intelligent logistics AGV control system based on PLC** [11432-165]