

PROCEEDINGS OF SPIE

***MIPPR 2017: Parallel Processing of
Images and Optimization
Techniques; and Medical Imaging***

**Hong Sun
Henri Maître
Bruce Hirsch**
Editors

**28–29 October 2017
Xiangyang, China**

Organized by
Huazhong University of Science and Technology (China)
Hubei University of Arts and Sciences (China)

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

Published by
SPIE

Volume 10610

Proceedings of SPIE 0277-786X, V. 10610

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 2017: Parallel Processing of Images and Optimization Techniques; and Medical Imaging*, edited by Hong Sun, Henri Maitre, Bruce Hirsch, Proceedings of SPIE Vol. 10610 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510617230

ISBN: 9781510617247 (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 © 2018, 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 \$18.00 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/18/\$18.00.

Printed in the United States of America Vm7 i ffUb '5gg: WJUH g' bWZi bXYf`JW bgY Zc: a 'GD-9.

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

- v *Authors*
- vii *Symposium Committee*
- xi *Introduction*

PARALLEL PROCESSING OF IMAGES AND OPTIMIZATION

- 10610 02 **A fast method for single image haze removal based on multiscale dark channel prior** [10610-102]
- 10610 03 **A GPU-based mipmapping method for water surface visualization** [10610-104]
- 10610 04 **Hardware-efficient implementation of digital FIR filter using fast first-order moment algorithm** [10610-106]
- 10610 05 **Simulation and analysis of traffic flow based on cellular automaton** [10610-107]
- 10610 06 **A novel configurable VLSI architecture design of window-based image processing method** [10610-111]
- 10610 07 **Novel structures for Discrete Hartley Transform based on first-order moments** [10610-112]
- 10610 08 **Route constraints model based on polychromatic sets** [10610-113]
- 10610 09 **Analysis of parameter estimation and optimization application of ant colony algorithm in vehicle routing problem** [10610-115]

MEDICAL IMAGING

- 10610 0A **A threshold-based fixed predictor for JPEG-LS image compression** [10610-2]
- 10610 0B **A block-based JPEG-LS compression technique with lossless region of interest** [10610-3]
- 10610 0C **Sparse representations via learned dictionaries for x-ray angiogram image denoising** [10610-4]
- 10610 0D **Research on segmentation based on multi-atlas in brain MR image** [10610-5]
- 10610 0E **Application of deep learning in the identification of TAO** [10610-6]