

IS&T International Symposium on Electronic Imaging Science and Technology 2019

Computational Imaging XVII

Burlingame, California, USA
13-17 January 2019

Editors:

**Charles A. Bouman
Gregery T. Buzzard
Robert Stevenson**

ISBN: 978-1-7138-1336-1

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2019) by Society for Imaging Science & Technology
All rights reserved.

Printed with permission by Curran Associates, Inc. (2020)

For permission requests, please contact Society for Imaging Science & Technology
at the address below.

Society for Imaging Science & Technology
7003 Kilworth Lane
Springfield, Virginia 22151
USA

Phone: 703-642-9090

Fax: 703-642-9094

info@imaging.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

AI FOR RECONSTRUCTION AND SENSING II

| | |
|---|---|
| MULTI-TARGET TRACKING WITH AN EVENT-BASED VISION SENSOR AND A PARTIAL-UPDATE GMPHD FILTER | 1 |
| <i>B. Foster, D. Ye, C. Bouman</i> | |

MEDICAL AND SCIENTIFIC IMAGING

| | |
|--|---|
| AUTOCORRELATION-BASED, PASSIVE, NON-CONTACT, PHOTOPLETHYSMOGRAPHY: COMPUTATIONALLY-EFFICIENT, NOISE-TOLERANT, EXTRACTION OF HEART RATES FROM VIDEO | 7 |
| <i>C. Parrish, K. Donohue, H. Dietz</i> | |

| | |
|---|----|
| JOINT DENSITY MAP AND CONTINUOUS ANGULAR REFINEMENT IN CRYO-ELECTRON MICROSCOPY | 13 |
| <i>M. Zehni, L. Donati, E. Soubies, Z. Zhao, M. Do, M. Unser</i> | |

| | |
|---|----|
| DISTANCE RETRIEVAL FROM UNKNOWN VIEW TOMOGRAPHY OF 2D POINT SOURCES | 17 |
| <i>M. Zehni, S. Huang, I. Dokmanic, Z. Zhao</i> | |

IMAGE ENHANCEMENT VIA NEURAL NETWORK

| | |
|--|----|
| A COMPARATIVE STUDY ON WAVELETS AND RESIDUALS IN DEEP SUPER RESOLUTION | 21 |
| <i>R. Zhou, F. Lahoud, M. Helou, S. Susstrunk</i> | |

| | |
|--|----|
| GAN BASED IMAGE DEBLURRING USING DARK CHANNEL PRIOR..... | 27 |
| <i>S. Zhang, A. Zhen, R. Stevenson</i> | |

IN SITU 3D/4D IMAGE CAPTURE AND ANALYSIS

| | |
|--|----|
| HEIGHT ESTIMATION OF BIOMASS SORGHUM IN THE FIELD USING LIDAR..... | 32 |
| <i>M. Waliman, A. Zakhor</i> | |

| | |
|---|----|
| IN SITU WIDTH ESTIMATION OF BIOFUEL PLANT STEMS | 39 |
| <i>A. Sahiner, F. Heng, A. Balamurugan, A. Zakhor</i> | |

| | |
|---|----|
| THROUGH THE WINDSHIELD DRIVER RECOGNITION | 45 |
| <i>D. Cornett, A. Yen, G. Nayola, D. Montez, C. Johnson, S. Baird, H. Santos-Villalobos, D. Bolme</i> | |

COMPUTATIONAL IMAGING XVII INTERACTIVE POSTERS SESSION

| | |
|---|----|
| AN EFFICIENT MOTION CORRECTION METHOD FOR FREQUENCY-DOMAIN IMAGES BASED ON FAST ROBUST CORRELATION..... | 53 |
| <i>Y. Bian, S. Reeves, R. Beyers</i> | |

MEDICAL IMAGING - COMPUTATIONAL

SELF-CONTAINED, PASSIVE, NON-CONTACT, PHOTOPLETHYSMOGRAPHY: REAL-TIME EXTRACTION OF HEART RATES FROM LIVE VIEW WITHIN A CANON POWERSHOT..... 57
H. Dietz, C. Parrish, K. Donohue

EDGE-PRESERVING TOTAL VARIATION REGULARIZATION FOR DUAL-ENERGY CT IMAGES..... 63
S. Devadithya, D. Castanon

FULLY-AUTOMATIC SYNTHESIZING METHOD OF DENTAL PANORAMIC RADIOGRAPH BY USING INTERNAL CURVE OF MANDIBLE IN DENTAL VOLUMETRIC CT..... 71
S. Lee, S. Woo, C. Lee, J. Lee, J. Seo

Author Index