

# **IS&T International Symposium on Electronic Imaging Science and Technology 2020**

Imaging and Multimedia Analytics in a  
Web and Mobile World 2020

Burlingame, California, USA  
26 – 30 January 2020

## **Editors:**

**Jan P. Allebach**  
**Zhigang Fan**  
**Qian Lin**

ISBN: 978-1-7138-3820-3

**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© (2020) by Society for Imaging Science & Technology  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2021)

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](mailto: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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

A NEW TRAINING MODEL FOR OBJECT DETECTION IN AERIAL IMAGES .....	1
<i>Yang, Geng; Geng, Yu; Li, Qin; You, Jane; Cai, Mingpeng</i>	
SMALL OBJECT BIRD DETECTION IN INFRARED DRONE VIDEOS USING MASK R-CNN DEEP LEARNING .....	5
<i>Kassim, Yasmin M.; Byrne, Michael E.; Burch, Cristy; Mote, Kevin; Hardin, Jason; Larsen, David R.; Palaniappan, Kannappan</i>	
HIGH-QUALITY MULTISPECTRAL IMAGE GENERATION USING CONDITIONAL GANS .....	12
<i>Soni, Ayush; Loui, Alexander; Brown, Scott; Salvaggio, Carl</i>	
LAMBDANET: A FULLY CONVOLUTIONAL ARCHITECTURE FOR DIRECTIONAL CHANGE DETECTION .....	18
<i>Blakeslee, Bryan; Savakis, Andreas</i>	
DEEP LEARNING FOR PRINTED MOTTLE DEFECT GRADING .....	24
<i>Chen, Jianhang; Lin, Qian; Allebach, Jan P.</i>	
A LOCAL-GLOBAL AGGREGATE NETWORK FOR FACIAL LANDMARK LOCALIZATION .....	32
<i>Mao, Ruiyi; Lin, Qian; Allebach, Jan P.</i>	
THE BLESSING AND THE CURSE OF THE NOISE BEHIND FACIAL LANDMARK ANNOTATIONS .....	37
<i>Xiang, Xiaoyu; Cheng, Yang; Xu, Shaoyuan; Lin, Qian; Allebach, Jan</i>	
GUN SOURCE AND MUZZLE HEAD DETECTION .....	47
<i>Zhou, Zhong; Etinger, Isak Czeresnia; Metze, Florian; Hauptmann, Alexander; Waibel, Alexander</i>	
SEMI-SUPERVISED MULTI-TASK NETWORK FOR IMAGE AESTHETIC ASSESSMENT .....	57
<i>Xiang, Xiaoyu; Cheng, Yang; Chen, Jianhang; Lin, Qian; Allebach, Jan</i>	
EXTRA FAT: A PHOTOREALISTIC DATASET FOR 6D OBJECT POSE ESTIMATION .....	63
<i>Chen, Jianhang; Montserrat, Daniel Mas; Lin, Qian; Delp, Edward J.; Allebach, Jan P.</i>	
IDENTIFICATION OF UTILITY IMAGES ON A MOBILE DEVICE .....	69
<i>Shankar, Karthick; Lin, Qian; Allebach, Jan</i>	
PSO AND GENETIC MODELING OF DEEP FEATURES FOR ROAD PASSIBILITY ANALYSIS DURING FLOODS .....	74
<i>Said, Naina; Nayab, Aysha; Ahmad, Kashif; Ullah, Muhib; Gohar, Touqir; Al-Fuqaha, Ala</i>	
IMAGE ANALYTICS FOR FOOD SAFETY .....	79
<i>Zhao, Min; Diaz-Amaya, Susana; Deering, Amanda J.; Stanciu, Lia; Chiu, George T.-C.; Allebach, Jan P.</i>	
REAL-TIME WHITEBOARD CODING ON MOBILE DEVICES .....	87
<i>Pan, Xunyu; Crowe, Colin; Myers, Toby; Jetton, Emily</i>	

## Author Index