PROCEEDINGS OF SPIE

Global Intelligence Industry Conference (GIIC 2018)

Yueguang Lv Editor

22**-**24, May 2018 Beijing, China

Organized by Division of Information and Electronic Engineering of CAE (China) Chinese Society for Optical Engineering (China) Beijing Economic Technological Development Area (China)

Sponsored by Chinese Academy of Engineering (China)

Published by SPIE

Volume 10835

Proceedings of SPIE 0277-786X, V. 10835

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 SPIEDigitalLibrary.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 *Global Intelligence Industry Conference (GIIC 2018)*, edited by Yueguang Lv, Proceedings of SPIE Vol. 10835 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

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

ISBN: 9781510622999 ISBN: 9781510623002 (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 5 ggc WJUhY gž €Wži bXY f ``JWY bgY Zfca GD-9.

Publication of record for individual papers is online in the SPIE Digital Library.



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 *Authors*
- ix Conference Committee
- xi Introduction

ARTIFICIAL INTELLIGENCE

10835 02	Research and application of predictive function control based on adjustment coefficient [10835-1]
10835 03	Contour detection using an improved holistically nested edge detection network [10835-2]
10835 04	Biometric method to improve super resolution structure on AI and deep learning [10835-40]
10835 06	Single-sample learning method and a type of brain activation function [10835-55]
10835 07	Human action recognition using Kinect multimodal information [10835-66]
10835 08	A survey of the application of deep learning in computer vision [10835-68]
10835 09	Fault diagnosis for automotive assembly based on optical coordinate data and machine learning [10835-69]
10835 0A	Violence detection based on three-stream convolutional networks [10835-72]
10835 OB	Automatic human hallmark recognition based on visual words [10835-75]
	INTELLIGENT MANUFACTURING
10835 OC	Automatic measurement technology for equipment assembly accuracy of spacecraft AIT process [10835-3]
10835 0D	Automatic measurement method of large scale satellite antenna in planar near-field test [10835-5]
10835 OE	Research on aircraft digital shape measurement data fusion method [10835-6]

10835 OF	An error correction model based on neural network for laser displacement sensor [10835-23]
10835 0G	Detection v-defect in 20° wedge by laser ultrasound technique [10835-33]
10835 OH	Rotationally asymmetric figure measurement of optical flat using rotational shear phase measuring deflectometry [10835-38]
10835 01	A novel automated approach for noise detection in interference fringes pattern images using feature learning [10835-56]
10835 OJ	Vision system measuring remote target based on unmanned aerial vehicle [10835-57]
10835 OK	Schlieren visualization of leaky guided waves in a liquid immersion plate [10835-60]
10835 OL	Delay time calculations for testing transverse defects of cylindrical surface artefacts with phased array ultrasonic [10835-63]
10835 OM	Research on accelerated durability test of photovoltaic hollow modules [10835-64]

INTELLIGENT UNMANNED SYSTEMS

10835 ON	UAV-based application for electromagnetic compatibility testing [10835-7]
10835 OO	Bathymetric data processing based on denoising autoencoder Wasserstein generative adversarial network [10835-9]
10835 OP	Multi-sensor and multi-target task allocation method based on improved firefly algorithm [10835-11]
10835 OQ	Unmanned optical warning system for drones [10835-12]
10835 OR	Free space propagation loss simulation analysis of aeronautical radio navigation station [10835-14]
10835 OS	Research of image compression influence on SAR ATR based on an efficient CNN architecture [10835-17]
10835 OT	Keyframe-based stereo visual-inertial SLAM using nonlinear optimization [10835-19]
10835 OU	A brain computer interface control system based on cloud platform for Minitype UAVs [10835-20]
10835 OV	Variable structure guidance with auto-generated impact angle constraint based on fuzzy strategy [10835-21]
10835 OX	Research on the unmanned intelligent monitoring platform of geographical conditions [10835-24]

10835 OY	Influence of intelligent unmanned system on the development of intelligent measuring
	[10835-25]

- 10835 0Z An overview of SLAM [10835-26]
- 10835 10 A MEMS random error analysis method fused with genetic algorithm [10835-27]
- 10835 11 Research on recognition and tracking technology for a fully autonomous and agile response anti LLS-target system [10835-28]
- 10835 12 A new approach for SAR baseband Doppler centroid estimation [10835-29]
- 10835 13 An improved phase gradient autofocus approach for stripmap SAR imaging [10835-30]
- 10835 14 Research on the modeling method of UAV swarm operation in cyberspace [10835-31]
- 10835 15 Optimization simulation of aeromagnetic detection based on COMSOL multiphysics [10835-32]
- 10835 16 Ground vehicles cooperative task area allocation for survivability improvement [10835-35]
- 10835 17 Mission oriented self-organizing network methodology of UAV [10835-39]
- 10835 19 Simulation-based analysis of bounding box localization algorithm for wireless sensor network [10835-43]
- 10835 1A Research on intelligent target recognition technology for integrated reconnaissance/strike UAV [10835-44]
- 10835 1B Research and implementation of SAR simulator based on adaptive synchronization technology [10835-45]
- 10835 1C Research of adaptive error correction for multi-channel SAR receiver [10835-47]
- 10835 1D A fast Doppler beam sharpening approach based on short time FFT [10835-50]
- 10835 1E A high-resolution ground moving target imaging method based on motion compensation [10835-51]
- 10835 1F Fast and high-accuracy systematic calibration of inertial devices based on IMU off-axis transposition [10835-52]
- 10835 1G Research on the fast calibration method of MEMS gyroscope [10835-53]
- 10835 1H Research on servitization based on UAV avionics system [10835-58]
- 10835 11 First experimental results of the C band SAR and ground support system [10835-59]

- 10835 1J Target feature enhancement of SAR image based on discrete shearlet transform [10835-61]
- 10835 1K Research on the key technologies of unmanned cluster to sea combat [10835-62]
- 10835 1L Operation method of electronic warfare UAV [10835-65]
- 10835 1M The UAV safety control based on cognition guidance [10835-67]
- 10835 1N Summary of key technologies of combat intelligent unmanned aerial vehicle [10835-73]
- 10835 10 The development of counter-unmanned aerial vehicle technologies [10835-74]
- 10835 1P Internal polyhedron configuration energy self-sufficient system for sphere mobile platform [10835-77]
- 10835 1Q Research on key technologies of simulated training system for large ground control station of UAS [10835-78]
- 10835 1S The Multi-UAV cooperative target tracking simulation system [10835-80]