PROCEEDINGS OF SPIE

International Conference on Computer Vision and Pattern Analysis (ICCPA 2021)

Ruimin Hu Yang Yue Editors

19–21 November 2021 Hangzhou, China

Organized by Hangzhou Institute of Technology of Xidian University (China) School of Cyber Engineering of Xidian University (China)

Sponsored by AEIC Academic Exchange Information Center (China)

Published by SPIE

Volume 12158

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 *International Conference on Computer Vision and Pattern Analysis (ICCPA 2021)*, edited by Ruimin Hu, Yang Yue, Proc. of SPIE 12158, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510651920

ISBN: 9781510651937 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2022 Society of Photo-Optical Instrumentation Engineers (SPIE).

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 fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center 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.

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.



Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE 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

COMPUTER VISION AND IMAGE ANALYSIS AND PROCESSING

12158 02	Study on rocky desertification change in Xichou County based on Landsat remote sensing data [12158-1]
12158 03	Comprehensive indices and methods for estimating the quality of the depth generalization in chart cartography [12158-48]
12158 04	Research on land use classification with high resolution remote sensing images based on optimal segmentation [12158-47]
12158 05	Research on application of image ranging technology in geotechnical test [12158-32]
12158 06	Visual analysis of image features in CT reconstruction based on convolutional neural network [12158-14]
12158 07	The study of L2 mispronunciation detection based on Mandarin landmarks [12158-7]
12158 08	Improved Yolo v3 via feature map design and anchor box design [12158-26]
12158 09	LGA-GAN: landmarks guided attentive generative adversarial network for facial expression manipulation [12158-19]
12158 0A	Cross-scale feature extraction module for efficient RGBD images semantic segmentation [12158-16]
12158 OB	Multi-stage network for single image demoireing [12158-12]
12158 OC	Quality assessment of satellite remote sensing of sea-surface temperature [12158-10]
12158 OD	Research on underwater image registration method based on MSRCR and SIFT [12158-11]
12158 OE	Research on music evolution characteristics analysis based on factor analysis and Euclidean distance [12158-39]
12158 OF	Research on music influence evaluation based on fuzzy comprehensive evaluation and principal component analysis $[12158-41]$
	COMPUTER TECHNOLOGY AND HUMAN-COMPUTER INTERACTION DESIGN
12158 0G	A thermal drift correction method for laboratory nano CT based on outlier elimination [12158-15]

12158 OH	Agricultural pest detection algorithm based on improved faster RCNN [12158-8]
12158 01	Research on power cable identification and distance measuring based on laser structured light [12158-30]
12158 OJ	The research of license plate recognition algorithm based on improved YOLOV3 [12158-29]
12158 OK	Performance analysis and comparison of RIS-assisted communication system and relaying system [12158-43]
12158 OL	Elevation transfer of offshore islands based on GNSS leveling fitting method [12158-49]
12158 OM	Geophysical exploration technology and its application research [12158-46]
12158 ON	Study on the impact of prefabricated building cost system based on Vensim PLE [12158-24]
12158 00	Research on optimal procurement and transshipment scheme based on greedy algorithm and dynamic combinatorial programming [12158-42]
12158 OP	Anomaly detection algorithm based on deep autoencoder ensembles [12158-38]
12158 0Q	Mechanical mould design based on computer aided technology [12158-33]
12158 OR	Analysis of full-body motion capture system design based on ultra-wide band technology [12158-36]
12158 OS	Application of vehicle detection with YOLOv3 in road surveillance video [12158-23]
12158 OT	Generative adversarial networks [12158-28]
	BIG DATA MODELING AND INTELLIGENT MODEL RECOGNITION
12158 OU	Research on international shipping logistics based on big data exchange system [12158-2]
12158 0V	Based on big data analysis to evaluate the effect of farmers' participation in the farmland protection compensation [12158-3]
12158 OW	Study on seepage analysis model controlled by rainfall [12158-22]
12158 0X	Management of construction cost of large-span steel structure project based on variable-two-dimensional cloud model [12158-25]
12158 0Y	Full life cycle building energy consumption detection method based on digital twin technology [12158-37]

12158 OZ	Research on factors of building operation energy consumption in Beijing [12158-21]
12158 10	Application and research of building information modeling computation [12158-34]
12158 11	Power system terminal continuous trust evaluation model based on fine-grained data flow analysis [12158-17]
12158 12	3D shape modeling based on low-dimension data [12158-6]
12158 13	Two-level iteration method for multi-task learning with task-isolated labels [12158-9]
12158 14	Study on model simulation design based on open CASCADE platform [12158-40]
12158 15	Combinative improvement of adaptable prediction using half-model based methods [12158-20]
12158 16	Research on real-time facial landmark detection model that can deal with occlusion [12158-35]
12158 17	Point Cloud registration based on iterative closest point [12158-4]
12158 18	Construction and optimization of ecological network using MSPA in Zhengzhou, China [12158-5]
12158 19	Research on optimal ordering decision of ordering and transportation based on analytic hierarchy process and optimal objective programming [12158-45]
12158 1A	Study on the selection of optimal reaction conditions for ethanol coupling to C4 olefins based on analytic hierarchy process and Bayesian network [12158-44]