

# **2023 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA 2023)**

**Gammarth, Tunisia  
12 June 2023**



**IEEE Catalog Number: CFP23CVA-POD  
ISBN: 979-8-3503-3637-5**

**Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP23CVA-POD
ISBN (Print-On-Demand):	979-8-3503-3637-5
ISBN (Online):	979-8-3503-3636-8
ISSN:	2377-9314

**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  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

## TABLE OF CONTENTS

Automatic Synthesis of Admissible Functions for Variational Learning.....	1
<i>Paul O'Leary, Dimitar Ninevski, Anika Terbuch</i>	
Incremental Instance Segmentation for Cluttered Baggage Threat Detection.....	7
<i>Ammara Nasim, Divya Velayudhan, Abdelfatah Hassan Ahmed, Taimur Hassan, Samet Akcay, Muhammad Usman Akram, Naoufel Werghi</i>	
Immersive Hand Instructions in AR – Insights for Asynchronous Remote Collaboration on Spatio-Temporal Manual Tasks.....	13
<i>Anjela Mayer, Augustin Rungeard, Jean-Rémy Chardonnet, Polina Häfner, Jivka Ovtcharova</i>	
Detection Transformer Framework for Recognition of Heavily Occluded Suspicious Objects.....	19
<i>Abdelfatah Ahmed, Mohamad Alansari, Khaled Alnuaimi, Divya Velayudhan, Taimur Hassan, Naoufel Werghi</i>	
The Classification and Detection of Cyanosis Images on Lightly and Darkly Pigmented Individual Human Skins Applying Simple CNN and Fine-Tuned VGG16 Models in TensorFlow's Keras API.....	25
<i>Lukoki Mpova, Thokozani Calvin Shongwe, Ali Hasan</i>	
Tree-Based Optimization for Image-To-Image Translation with Imbalanced Datasets on the Edge.....	31
<i>Pasquale Coscia, Angelo Genovese, Vincenzo Piuri, Francesco Rundo, Fabio Scotti</i>	
Exploiting Gas Pipelines as an Unconventional Communication Channel.....	37
<i>Paolo Caruso, Salvatore Dello Iacono, Vincenzo Paciello</i>	
Contrastive Learning Driven Self-Supervised Framework for Segmentation of Biomarker of Diabetic Macular Edema.....	43
<i>Hina Raja, Taimur Hassan, Bilal Hassan, Naoufel Werghi, Hira Raja, Siamak Yousefi</i>	
Methods for Predictive Performance Improvement of Deep Learning Systems for Aerial Building Roof Detection with Multispectral Images.....	49
<i>A. Churi, D. B. Megherbi</i>	
Iris Reflection Segmentation from Ocular Images Acquired in Uncontrolled and Uncooperative Conditions.....	55
<i>Ruggero Donida Labati, Vincenzo Piuri, Francesco Rundo, Fabio Scotti</i>	
Opinion Mining of Tourists' Sentiments: Towards a Comprehensive Service Improvement of Tourism Industry.....	61
<i>Mulualem Bitew Anley, Girma Sisay Negashe, Asemrie Yemata Ayalew</i>	

### Author Index