

2024 IEEE/CVF Winter Conference on Applications of Computer Vision Workshops (WACVW 2024)

**Waikoloa, Hawaii, USA
1 – 6 January 2024**

Pages 1-587



**IEEE Catalog Number: CFP24B39-POD
ISBN: 979-8-3503-7071-3**

**Copyright © 2024 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:	CFP24B39-POD
ISBN (Print-On-Demand):	979-8-3503-7071-3
ISBN (Online):	979-8-3503-7028-7
ISSN:	2572-4398

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
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2024 IEEE/CVF Winter Conference on Applications of Computer Vision Workshops (WACVW) **WACVW 2024**

Table of Contents

Message from the General and Program Chairs	xxii
Organizing Committee	xxiii
Sponsors	xxiv

Computer Vision with Small Data: A Focus on Infants and Endangered Animals

NORPPA: NOvel Ringed Seal Re-Identification by Pelage Pattern Aggregation 1 <i>Ekaterina Nepovinnikh (Lappeenranta-Lahti University of Technology LUT, Finland), Tuomas Eerola (Lappeenranta-Lahti University of Technology LUT, Finland), Heikki Kälviäinen (Lappeenranta-Lahti University of Technology LUT, Finland), and Ilia Chelak (University of Helsinki, Finland)</i>	1
Multiple Toddler Tracking in Indoor Videos 11 <i>Somaieh Amraee (Northeastern University; Roux Institute at Northeastern University, USA), Bishoy Galoaa (Northeastern University, USA), Matthew Goodwin (Northeastern University, USA), Elaheh Hatamimajoumerd (Northeastern University; Roux Institute at Northeastern University, USA), and Sarah Ostadabbas (Northeastern University, USA)</i>	11
Challenges in Video-Based Infant Action Recognition: A Critical Examination of the State of the Art 21 <i>Elaheh Hatamimajoumerd (Northeastern University, USA), Pooria Daneshvar Kakhaki (Northeastern University, USA), Xiaofei Huang (Northeastern University, USA), Lingfei Luan (University of Minnesota, USA), Somaieh Amraee (Northeastern University, USA), and Sarah Ostadabbas (Northeastern University, USA)</i>	21

KABR: In-Situ Dataset for Kenyan Animal Behavior Recognition From Drone Videos	31
<i>Maksim Kholiavchenko (Rensselaer Polytechnic Institute), Jenna Kline (The Ohio State Univeristy), Michelle Ramirez (The Ohio State Univeristy), Sam Stevens (The Ohio State Univeristy), Alec Sheets (The Ohio State Univeristy), Reshma Babu (The Ohio State Univeristy), Namrata Banerji (The Ohio State Univeristy), Elizabeth Campolongo (The Ohio State Univeristy), Matthew Thompson (The Ohio State Univeristy), Nina Van Tiel (ETH Zurich), Jackson Miliko (Mpala Research Centre), Eduardo Bessa (University of Brasilia), Isla Duporge (Princeton University), Tanya Berger-Wolf (The Ohio State Univeristy), Daniel Rubenstein (Princeton University), and Charles Stewart (Rensselaer Polytechnic Institute)</i>	
The Hitchhiker's Guide to Endangered Species Pose Estimation	41
<i>Jakub Straka (University of West Bohemia), Marek Hruz (University of West Bohemia), and Lukas Picek (University of West Bohemia; INRIA)</i>	
Efficient Domain Adaptation via Generative Prior for 3D Infant Pose Estimation	51
<i>Zhuoran Zhou (University of Washington), Zhongyu Jiang (University of Washington), Wenhao Chai (University of Washington), Cheng-Yen Yang (University of Washington), Lei Li (University of Copenhagen), and Jenq-Neng Hwang (University of Washington)</i>	
Dynamic Gaussian Splatting From Markerless Motion Capture Reconstruct Infants Movements	60
<i>R. James Cotton (Northwestern University) and Colleen Peyton (Northwestern University)</i>	
Neural Texture Puppeteer: A Framework for Neural Geometry and Texture Rendering of Articulated Shapes, Enabling Re-Identification at Interactive Speed	69
<i>Urs Waldmann (University of Konstanz, Germany), Ole Johannsen (University of Konstanz, Germany), and Bastian Goldluecke (University of Konstanz, Germany)</i>	
Learning Part Segmentation From Synthetic Animals	80
<i>Jiawei Peng (Johns Hopkins University), Ju He (Johns Hopkins University), Prakhar Kaushik (Johns Hopkins University), Zihao Xiao (Johns Hopkins University), Jiteng Mu (UC San Diego), and Alan Yuille (Johns Hopkins University)</i>	
DigiDogs: Single-View 3D Pose Estimation of Dogs Using Synthetic Training Data	92
<i>Moira Shooter (University of Surrey, UK), Charles Malleon (University of Surrey, UK), and Adrian Hilton (University of Surrey, UK)</i>	

Real-World Surveillance: Applications and Challenges

EarlyBird: Early-Fusion for Multi-View Tracking in the Bird's Eye View	102
<i>Torben Teepe (Technical University of Munich), Philipp Wolters (Technical University of Munich), Johannes Gilg (Technical University of Munich), Fabian Herzog (Technical University of Munich), and Gerhard Rigoll (Technical University of Munich)</i>	

Accenture-MM1: A Multimodal Person Recognition Dataset	112
<i>Kyle O'Brien (Accenture Federal Services), Michelle Rybak (Accenture Federal Services), Jiong Huang (Accenture Federal Services), Adam Stevens (Accenture Federal Services), Madeline Fredriksz (Accenture Federal Services), Michael Chaberski (Accenture Federal Services), Danielle Russell (Accenture Federal Services), Lindsey Castin (Accenture Federal Services), Michelle Jou (Accenture Federal Services), Nishant Gurrupadi (Accenture Federal Services), and Marc Bosch (Accenture Federal Services)</i>	
LiDAR-Assisted 3D Human Detection for Video Surveillance	123
<i>Miquel Romero Blanch (Universitat de Barcelona and Computer, Vision Center), Zenjie Li (Milestone Systems), Sergio Escalera (Universitat de Barcelona and Computer, Vision Center; Aalborg Universitet), and Kamal Nasrollahi (Milestone Systems; Aalborg Universitet)</i>	
A Multi-Head Approach with Shuffled Segments for Weakly-Supervised Video Anomaly Detection....	132
<i>Salem AlMarri (Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), UAE), Muhammad Zaigham Zaheer (Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), UAE), and Karthik Nandakumar (Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), UAE)</i>	
GEFF: Improving Any Clothes-Changing Person ReID Model Using Gallery Enrichment With Face Features	143
<i>Daniel Arkushin (The Hebrew University of Jerusalem), Bar Cohen (Reichman University), Shmuel Peleg (The Hebrew University of Jerusalem), and Ohad Fried (Reichman University)</i>	
Person Fall Detection Using Weakly Supervised Methods	154
<i>Kjartan Madsen (University of Copenhagen; Milestone Systems), Zenjie Li (Milestone Systems), Francois Lauze (University of Copenhagen), and Kamal Nasrollahi (Milestone Systems; Aalborg Universitet)</i>	
Iterative Scale-Up ExpansionIoU and Deep Features Association for Multi-Object Tracking in Sports	163
<i>Hsiang-Wei Huang (University of Washington), Cheng-Yen Yang (University of Washington), Jiacheng Sun (University of Washington), Pyong-Kun Kim (Electronics and Telecommunications Research Institute), Kwang-Ju Kim (Electronics and Telecommunications Research Institute), Kyoungoh Lee (Electronics and Telecommunications Research Institute), Chung-I Huang (National Center for High-Performance Computing), and Jenq-Neng Hwang (University of Washington)</i>	
Temporal 3D Shape Modeling for Video-Based Cloth-Changing Person Re-Identification	173
<i>Vuong D. Nguyen (University of Houston), Pranav Mantini (University of Houston), and Shishir K. Shah (University of Houston)</i>	
HOD: New Harmful Object Detection Benchmarks for Robust Surveillance	183
<i>Eunyeong Ha (Yonsei University, MODULABS), Heemook Kim (Inha University), and Dongbin Na (POSTECH)</i>	

Swin on Axes: Extending Swin Transformers to Quadtree Image Representations	193
<i>Marc Oliu (Aalborg Universitet; Milestone Systems), Kamal Nasrollahi (Aalborg Universitet; Milestone Systems), Sergio Escalera (Aalborg Universitet; Universitat de Barcelona and Computer Vision Center), and Thomas B. Moeslund (Aalborg Universitet)</i>	
Unsupervised 3D Skeleton-Based Action Recognition Using Cross-Attention With Conditioned Generation Capabilities	202
<i>David J. Lerch (Fraunhofer IOSB), Zeyun Zhong (Fraunhofer IOSB; Karlsruhe Institute of Technology), Manuel Martin (Fraunhofer IOSB), Michael Voit (Fraunhofer IOSB), and Jürgen Beyerer (Fraunhofer IOSB; Karlsruhe Institute of Technology)</i>	
Overlooked Video Classification in Weakly Supervised Video Anomaly Detection	212
<i>Weijun Tan (LinkSprite Technologies, USA; Jovision-Deepcam Research, China), Qi Yao (Jovision-Deepcam Research, China), and Jingfeng Liu (Jovision-Deepcam Research, China)</i>	
Enhancing Self-Supervised Monocular Depth Estimation via Piece-Wise Pose Estimation and Geometric Constraints	221
<i>Pranjay Shyam (Faurecia IRYStec Inc., Canada), Alexandre Okon (Faurecia IRYStec Inc., Canada), and HyunJin Yoo (Faurecia IRYStec Inc., Canada)</i>	
Investigation of UAV Detection in Images With Complex Backgrounds and Rainy Artifacts	232
<i>Adnan Munir (King Fahd University of Petroleum and Minerals, Saudi Arabia), Abdul Jabbar Siddiqui (King Fahd University of Petroleum and Minerals, Saudi Arabia), and Saeed Anwar (King Fahd University of Petroleum and Minerals, Saudi Arabia)</i>	
Spatio-Temporal Activity Detection via Joint Optimization of Spatial and Temporal Localization	242
<i>Atiqur Rahman (University of Ottawa, Canada) and Robert Laganière (University of Ottawa, Canada)</i>	
Identifying Loitering Behavior With Trajectory Analysis	251
<i>Johnny Núñez (Universitat de Barcelona and Computer Vision Center), Zenjie Li (Milestone Systems), Sergio Escalera (Universitat de Barcelona and Computer Vision Center; Aalborg Universitet), and Kamal Nasrollahi (Milestone Systems; Aalborg Universitet)</i>	
Unsupervised Person Re-Identification in Aerial Imagery	260
<i>Khadija Khaldi (University of Houston), Vuong D. Nguyen (University of Houston), Pranav Mantini (University of Houston), and Shishir Shah (University of Houston)</i>	
FedFSLAR: A Federated Learning Framework for Few-Shot Action Recognition	270
<i>Nguyen Anh Tu (Nazarbayev University, Kazakhstan), Assanali Abu (Nazarbayev University, Kazakhstan), Nartay Aikyn (Nazarbayev University, Kazakhstan), Nursultan Makhanov (Nazarbayev University, Kazakhstan), Min-Ho Lee (Nazarbayev University, Kazakhstan), Khiem Le-Huy (VinUniversity, Viet Nam), and Kok-Seng Wong (VinUniversity, Viet Nam)</i>	
Filter-Pruning of Lightweight Face Detectors Using a Geometric Median Criterion	280
<i>Konstantinos Gkrispanis (CERTH-ITI, Greece), Nikolaos Gkalelis (CERTH-ITI, Greece), and Vasileios Mezaris (CERTH-ITI, Greece)</i>	

Evaluating Supervision Levels Trade-Offs for Infrared-Based People Counting	290
<i>David Latortue (LIVIA, Dept. of Systems Engineering, Canada), Moetez Kdayem (LIVIA, Dept. of Systems Engineering, Canada), Fidel A. Guerrero Peña (LIVIA, Dept. of Systems Engineering, Canada), Eric Granger (LIVIA, Dept. of Systems Engineering, Canada), and Marco Pedersoli (LIVIA, Dept. of Systems Engineering, Canada)</i>	
Enhancing Skeleton-Based Action Recognition in Real-World Scenarios Through Realistic Data Augmentation	300
<i>Mickael Cormier (Fraunhofer IOSB; Karlsruhe Institute of Technology; Fraunhofer Center for Machine Learning), Yannik Schmid (Fraunhofer IOSB), and Jürgen Beyerer (Fraunhofer IOSB; Karlsruhe Institute of Technology; Fraunhofer Center for Machine Learning)</i>	
Security Fence Inspection at Airports Using Object Detection	310
<i>Nils Friederich (Karlsruhe Institute of Technology, Institute for Automation and Applied Informatics), Andreas Specker (Fraunhofer IOSB; Fraunhofer Center for Machine Learning), and Jürgen Beyerer (Fraunhofer IOSB; Karlsruhe Institute of Technology, Institute for Anthropomatics and Robotics; Fraunhofer Center for Machine Learning)</i>	
TextAug: Test Time Text Augmentation for Multimodal Person Re-Identification	320
<i>Mulham Fawakherji (Fogsphere, UK), Eduard Vazquez (Fogsphere, UK), Pasquale Giampa (Fogsphere, UK), and Binod Bhattarai (University of Aberdeen, UK)</i>	
Knowledge-Distillation-Based Label Smoothing for Fine-Grained Open-Set Vehicle Recognition....	330
<i>Stefan Wolf (Vision and Fusion Lab (IES), Karlsruhe Institute of Technology; Fraunhofer IOSB, Germany), Dennis Loran (Vision and Fusion Lab (IES), Karlsruhe Institute of Technology; Fraunhofer IOSB, Germany), and Jürgen Beyerer (Vision and Fusion Lab (IES), Karlsruhe Institute of Technology; Fraunhofer IOSB; Fraunhofer Center for Machine Learning, Germany)</i>	
Aerial View 3D Human Pose Estimation Using Double Vector Quantized-Variational AutoEncoders	341
<i>Juheon Hwang (Yonsei University, South Korea) and Jiwoo Kang (Sookmyung Women’s University, South Korea)</i>	
C2T-Net: Channel-Aware Cross-Fused Transformer-Style Networks for Pedestrian Attribute Recognition	351
<i>Doanh C. Bui (Korea University, Republic of Korea), Thinh V. Le (Vietnam National University, Vietnam), and Ba Hung Ngo (Chonnam National University, Republic of Korea)</i>	

UPAR Challenge 2024: Pedestrian Attribute Recognition and Attribute-Based Person Retrieval – Dataset, Design, and Results	359
<i>Mickael Cormier (Fraunhofer IOSB; Karlsruhe Institute of Technology; Fraunhofer Center for Machine Learning, Germany), Andreas Specker (Fraunhofer IOSB; Karlsruhe Institute of Technology; Fraunhofer Center for Machine Learning, Germany), Julio C. S. Jacques Junior (University of Barcelona; Computer Vision Center, Spain), Lennart Moritz (Karlsruhe Institute of Technology, Germany), Jürgen Metzler (Karlsruhe Institute of Technology; Fraunhofer Center for Machine Learning, Germany), Thomas B. Moeslund (Aalborg University, Denmark), Kamal Nasrollahi (Aalborg University; Milestone Systems, Germany), Sergio Escalera (Computer Vision Center; University of Barcelona, Spain; Aalborg University, Denmark), and Jürgen Beyerer (Fraunhofer IOSB; Karlsruhe Institute of Technology; Fraunhofer Center for Machine Learning, Germany)</i>	

Image/Video/Audio Quality in Computer Vision and Generative AI

Noise-Free Audio Signal Processing in Noisy Environment: A Hardware and Algorithm Solution..	368
<i>Yarong Feng (Customer Experience and Business Trends, Amazon.com), Zongyi Liu (Customer Experience and Business Trends, Amazon.com), Shunyan Luo (Customer Experience and Business Trends, Amazon.com), Yuan Ling (Customer Experience and Business Trends, Amazon.com), Shujing Dong (Customer Experience and Business Trends, Amazon.com), Shuyi Wang (Customer Experience and Business Trends, Amazon.com), and Bruce Ferry (Customer Experience and Business Trends, Amazon.com)</i>	
A Diffusion-Based Method for Multi-Turn Compositional Image Generation	374
<i>Chao Wang (Toronto AI Lab, LG Electronics)</i>	
Enhancing Surveillance Camera FOV Quality via Semantic Line Detection and Classification With Deep Hough Transform	385
<i>Andrew Freeman (University of North Carolina at Chapel Hill), Wenjing Shi (AWS), and Bin Hwang (AWS)</i>	
Perceptual Synchronization Scoring of Dubbed Content Using Phoneme-Viseme Agreement	392
<i>Honey Gupta (Amazon Prime Video)</i>	
AutoCaCoNet: Automatic Cartoon Colorization Network Using Self-Attention GAN, Segmentation, and Color Correction	403
<i>Seungpeel Lee (Sungkyunkwan University; Sahoipyounghon Publishing Co., Inc., Korea) and Eunil Park (Sungkyunkwan University; Teach Company, Korea)</i>	
RealPixVSR: Pixel-Level Visual Representation Informed Super-Resolution of Real-World Videos	412
<i>Tony Nokap Park (SK Telecom, Korea), Yunho Jeon (Hanbat National University, Korea), and Taeyoung Na (SK Telecom, Korea)</i>	
Impact of Blur and Resolution on Demographic Disparities in 1-to-Many Facial Identification	422
<i>Aman Bhatta (University of Notre Dame), Gabriella Pangelinan (Florida Institute of Technology), Michael C. King (Florida Institute of Technology), and Kevin W. Bowyer (University of Notre Dame)</i>	

DeepLIR: Attention-Based Approach for Mask-Based Lensless Image Reconstruction	431
<i>Arpan Poudel (University of Arkansas) and Ukash Nakarmi (University of Arkansas)</i>	
Consolidating Separate Degradations Model via Weights Fusion and Distillation	440
<i>Dinesh Daultani (Tokyo Institute of Technology, Japan) and Hugo Larochelle (Mila, Université de Montréal, Canada)</i>	
A Lightweight Generalizable Evaluation and Enhancement Framework for Generative Models and Generated Samples	450
<i>Ganning Zhao (University of Southern California, USA), Vasileios Magoulanitis (University of Southern California, USA), Suyu You (DEVCOM Army Research Laboratory, USA), and C.-C. Jay Kuo (University of Southern California, USA)</i>	
Super Efficient Neural Network for Compression Artifacts Reduction and Super Resolution	460
<i>Wen Ma (Amazon Lab126), Qiuwen Lou (Amazon Lab126), Arman Kazemi (Amazon Lab126), Julian Faraone (Amazon Lab126), and Tariq Afzal (Amazon Lab126)</i>	
HIDRO-VQA: High Dynamic Range Oracle for Video Quality Assessment	469
<i>Shreshth Saini (The University of Texas at Austin), Avinab Saha (The University of Texas at Austin), and Alan C. Bovik (The University of Texas at Austin)</i>	
Generating Point Cloud Augmentations via Class-Conditioned Diffusion Model	480
<i>Gulshan Sharma (Indian Institute of Technology Ropar, India), Chetan Gupta (Emerging Technologies and Innovation Lab, Yamaha Motor Solutions, India), Aastha Agarwal (Emerging Technologies and Innovation Lab, Yamaha Motor Solutions, India), Lalit Sharma (Emerging Technologies and Innovation Lab, Yamaha Motor Solutions, India), and Abhinav Dhall (Indian Institute of Technology Ropar, India; Monash University, Australia)</i>	
Inflation With Diffusion: Efficient Temporal Adaptation for Text-to-Video Super-Resolution	489
<i>Xin Yuan (University of Chicago), Jinoo Baek (Google), Keyang Xu (Google), Omer Tov (Google), and Hongliang Fei (Google)</i>	
How Does Contrastive Learning Organize Images?	497
<i>Yunzhe Zhang (Zhejiang University of Technology), Yao Lu (n/a), and Qi Xuan (n/a)</i>	

Pretraining

SLVP: Self-Supervised Language-Video Pre-Training for Referring Video Object Segmentation	507
<i>Jie Mei (University of Washington), AJ Piergiovanni (Google Research, Brain Team), Jenq-Neng Hwang (University of Washington), and Wei Li (Google Research, Brain Team)</i>	
COMEDIAN: Self-Supervised Learning and Knowledge Distillation for Action Spotting Using Transformers	518
<i>Julien Denize (Université Paris-Saclay; Normandie Univ., INSA Rouen, LITIS, France), Mykola Liashuha (Université Paris-Saclay, France), Jaonary Rabarisoa (Université Paris-Saclay, France), Astrid Orcesi (Université Paris-Saclay, France), and Romain Hérault (Normandie Univ., UNICAEN, ENSICAEN, CNRS, GREYC, France)</i>	

E-ViLM : Efficient Video-Language Model via Masked Video Modeling with Semantic Vector-Quantized Tokenizer	529
<i>Jacob Zhiyuan Fang (Amazon), Skyler Zheng (Amazon), Vasu Sharma (Meta), and Robinson Piramuthu (Amazon)</i>	
Zero-Shot Edge Detection With SCESAME: Spectral Clustering-Based Ensemble for Segment Anything Model Estimation	541
<i>Hiroaki Yamagiwa (Kyoto University; Rist Inc.), Yusuke Takase (Kyoto University), Hiroyuki Kambe (Rist Inc.), and Ryosuke Nakamoto (Kyoto University; Rist Inc.)</i>	
Metric Learning for 3D Point Clouds Using Optimal Transport	552
<i>Siddharth Katageri (International Institute of Information Technology, India), Srinjay Sarkar (International Institute of Information Technology, India), and Charu Sharma (International Institute of Information Technology, India)</i>	
Evaluating Pretrained Models for Deployable Lifelong Learning	561
<i>Kiran Lekkala (University of Southern California), Eshan Bhargava (University of Southern California), and Laurent Itti (University of Southern California)</i>	
Labeling Indoor Scenes With Fusion of Out-of-the-Box Perception Models	570
<i>Yimeng Li (George Mason University), Navid Rajabi (George Mason University), Sulabh Shrestha (George Mason University), Reza Alimoor (Drake University), and Jana Košecká (kosecka@gmu.edu)</i>	
Does the Fairness of Your Pre-Training Hold Up? Examining the Influence of Pre-Training Techniques on Skin Tone Bias in Skin Lesion Classification	580
<i>Pratinav Seth (Manipal Institute of Technology, Manipal Academy of Higher Education, India) and Abhilash K. Pai (Manipal Institute of Technology, Manipal Academy of Higher Education, India)</i>	
RDIR: Capturing Temporally-Invariant Representations of Multiple Objects in Videos	588
<i>Piotr Zieliński (Wrocław University of Science and Technology) and Tomasz Kajdanowicz (Wrocław University of Science and Technology)</i>	
Semi-Supervised Cross-Spectral Face Recognition With Small Datasets	598
<i>Anirudh Nanduri (University of Maryland) and Rama Chellappa (Johns Hopkins University)</i>	
Source-Free Domain Adaptation for RGB-D Semantic Segmentation With Vision Transformers	607
<i>Giulia Rizzoli (University of Padova, Italy), Donald Shenaj (University of Padova, Italy), and Pietro Zanuttigh (University of Padova, Italy)</i>	
Cross-Modal Contrastive Learning With Asymmetric Co-Attention Network for Video Moment Retrieval	617
<i>Love Panta (IOE, Pulchowk Campus; Wiseyak Solutions Pvt. Ltd.), Prashant Shrestha (IOE, Pulchowk Campus), Brabeem Sapkota (IOE, Pulchowk Campus), Amrita Bhattarai (IOE, Pulchowk Campus), Suresh Manandhar (Wiseyak Solutions Pvt. Ltd.), and Anand Kumar Sah (IOE, Pulchowk Campus)</i>	
Self-Supervised Pre-Training for Semantic Segmentation in an Indoor Scene	625
<i>Sulabh Shrestha (George Mason University), Yimeng Li (George Mason University), and Jana Košecká (George Mason University)</i>	

A Unified Framework for Cropland Field Boundary Detection and Segmentation	636
<i>Rodrigo Fill Rangel (Seedz, Brazil), Vitor Nascimento Lourenço (Gaivota), Lucas Volochen Oldoni (Seedz), Ana Flavia Carrara Bonamigo (Seedz, Brazil), Wallas Santos (Gaivota), Bruno Silva Oliveira (Seedz, Brazil), and Mateus Neves Barreto (Seedz, Brazil)</i>	

Smart Computing and Internet of Things Design

Designing a Secure and Scalable Service Model Using Blockchain and MQTT for IoT Devices	645
<i>Tse-Chuan Hsu (Soochow University, Taiwan) and Han-Sheng Lu (Soochow University, Taiwan)</i>	
Image Detection of Rare Orthopedic Diseases Based on Explainable AI	654
<i>Qi-Xiang Zhang (Providence University, Taiwan), Shun-Ping Wang (Taichung Veterans General Hospital, Taiwan), Yu-Wei Chan (Providence University, Taiwan), and Chih-Hung Chang (Providence University, Taiwan)</i>	
Consumer Evaluation Using Machine Learning for the Predictive Analysis of Consumer Purchase Indicators	660
<i>BaoFu Tang (Longyan University, China), Dong-Meau Chang (Lingnan Normal University, China), and Junjie Yang (Lingnan Normal University, China)</i>	
MLP Kernel-Based To Predict the Optimal Conditions of Transglutaminase on Protein Polymerization	666
<i>Zengyan Peng (Lingnan Normal University, China), Shiang-Liang Chen (National Chiayi University, Taiwan), Miao-Hsin Hsu (National Chiayi University, Taiwan), Dong-Meau Chang (Lingnan Normal University, China), and Chun-Chi Chen (National Chiayi University, Taiwan)</i>	
Semi-Supervised SPO Tree Classifier Based on the DPC Framework	671
<i>Zhou Liang (Lingnan Normal University, China), Liqiong Lu (Lingnan Normal University, China), Junjie Yang (Lingnan Normal University, China), Weiming Hong (Lingnan Normal University, China), and Dong-Meau Chang (Lingnan Normal University, China)</i>	
Security and Privacy Concerns in Information Usability	679
<i>Liang-Chih Yang (National Taipei University)</i>	
Towards On-Device Learning on the Edge: Ways To Select Neurons To Update Under a Budget Constraint	685
<i>Aël Quélenec (LTCI, Télécom Paris, Institut Polytechnique de Paris, France), Enzo Tartaglione (LTCI, Télécom Paris, Institut Polytechnique de Paris, France), Pavlo Mozharovskiy (LTCI, Télécom Paris, Institut Polytechnique de Paris, France), and Van-Tam Nguyen (LTCI, Télécom Paris, Institut Polytechnique de Paris, France)</i>	
An Effective Deep Neural Network in Edge Computing Enabled Internet of Things for Plant Diseases Monitoring	695
<i>Yao-Hong Tsai (Hsuan Chuang University, Taiwan) and Tse-Chuan Hsu (Soochow University, Taiwan)</i>	

Colour Creation Muse (CCM): Focusing on Primary Colours for An Imagination Based Creativity Generation	700
<i>Chong Zeng (University of Leicester, UK; Longyan University, China), Hongji Yang (University of Leicester, UK), Zhongxi Lu (University of Leicester, UK), Xiaofei Zhao (Tiangong University, China), and Zhiying Xiu (Jilin Jianzhu University, China)</i>	
The Optimized CIELAB Colour Model for All-Analog Photoelectronic High Speed Vision-Task Chip (ACCEL) by Creative Computing Approach	708
<i>Yinwei Liu (University of Leicester, UK) and Yuchen Jiang (Renmin University of China, China)</i>	

Vision-Based Structural Inspections in Civil Engineering

Dacl-Challenge: Semantic Segmentation During Visual Bridge Inspections	716
<i>Johannes Flotzinger (University of the Bundeswehr Munich, Germany), Philipp J. Rösch (University of the Bundeswehr Munich, Germany), Christian Benz (Bauhaus-Universität Weimar, Germany), Muneer Ahmad (NetApp, Germany), Murat Cankaya (University of the Bundeswehr Munich, Germany), Helmut Mayer (University of the Bundeswehr Munich, Germany), Volker Rodehorst (Bauhaus-Universität Weimar, Germany), Norbert Oswald (University of the Bundeswehr Munich, Germany), and Thomas Braml (University of the Bundeswehr Munich, Germany)</i>	

Physical Retail AI

Peak Period Demand Forecasting With Proxy Data: GNN-Enhanced Meta-Learning	726
<i>Zexing Xu (University of Illinois Urbana-Champaign), Linjun Zhang (Rutgers University), Sitan Yang (Forecasting Science, Amazon), and Nan Jiang (Purdue University)</i>	
PMTL: A Progressive Multi-Level Training Framework for Retail Taxonomy Classification	736
<i>Gaurab Bhattacharya (Tata Consultancy Services, India), Gaurav Sharma (Tata Consultancy Services, India), Kallol Chatterjee (Tata Consultancy Services, India), Chakrapani Chakrapani (Tata Consultancy Services, India), Bagya Lakshmi V (Tata Consultancy Services, India), Jayavardhana Gubbi (Tata Consultancy Services, India), Arpan Pal (Tata Consultancy Services, India), and Ramachandran Rajagopalan (Tata Consultancy Services, India)</i>	
Self-Supervised Human-Object Interaction of Complex Scenes With Context-Aware Mixing: Towards In-Store Consumer Behavior Analysis	744
<i>Takashi Kikuchi (Fujitsu Research, Japan) and Shun Takeuchi (Fujitsu Research, Japan)</i>	

Complex-Valued Deep Learning and SARFish Challenge

The SARFish Dataset and Challenge	752
<i>Connor Luckett (Defence Science and Technology Group, Australia), Benjamin McCarthy (Defence Science and Technology Group, Australia), Tri-Tan Cao (Defence Science and Technology Group, Australia), and Antonio Robles-Kelly (Defence Science and Technology Group, Australia)</i>	

3D Geometry Generation for Scientific Computing

Proceedings of the Workshop on 3D Geometry Generation for Scientific Computing	762
<i>Marissa Ramirez de Chanlatte (UC Berkeley), Phil Colella (Lawrence Berkeley National Lab), Trevor Darrell (UC Berkeley), Alexandra Katherine Carlson (University of Michigan - Ann Arbor), Peter H. N. de With (Eindhoven University of Technology), Huayu Deng (Shanghai Jiao Tong University), Shanyan Guan (Shanghai Jiao Tong University), James Hays (Georgia Institute of Technology), Tim Houben (Eindhoven University of Technology), Thomas Huisman (ASML), Nikita Jaipuria (Ford Motor Company), Hans Johansen (Lawrence Berkeley National Lab), Shuja Khalid (University of Toronto), Akshay Krishnan (Georgia Institute of Technology), Chuming Li (University of Sydney), Maxim Pisarenco (ASML), Amit Raj (Google), Frank Rudzicz (Dalhousie University), Tim J. Schoonbeek (Eindhoven University of Technology), Sandhya Sridhar (Georgia Institute of Technology), Nathan Tseng (Ford Motor Company), Fons van der Sommen (Eindhoven University of Technology), Chen Wang (University of Pennsylvania), Yunbo Wang (Shanghai Jiao Tong University), Tong Wu (Amazon), Xiaokang Yang (Shanghai Jiao Tong University), Jiawei Yao (University of Washington), Derek Young (UC Davis), and Xianling Zhang (Ford Greenfield Labs)</i>	

Computer Vision for Earth Observation Applications

CNet: A Novel Seabed Coral Reef Image Segmentation Approach Based on Deep Learning	767
<i>Hanqi Zhang (WHU), Ming Li (WHU, ETH Zurich), Jiageng Zhong (WHU), and Jiangying Qin (WHU)</i>	
GAST: Geometry-Aware Structure Transformer	776
<i>Maxim Khomiakov (Technical University of Denmark; Otovo AS), Michael Riis Andersen (Technical University of Denmark), and Jes Frellsen (Technical University of Denmark)</i>	
Modernized Training of U-Net for Aerial Semantic Segmentation	785
<i>Jakub Straka (Department of Cybernetics, Czech Republic) and Ivan Gruber (Department of Cybernetics and New Technologies for the Information Society, Czech Republic)</i>	
TinyWT: A Large-Scale Wind Turbine Dataset of Satellite Images for Tiny Object Detection	794
<i>Mingye Zhu (USTC; Ping An Technology, China), Zhicheng Yang (PAII Inc., USA), Hang Zhou (Alchemy Insight, USA), Chen Du (PAII Inc., USA), Andy Wong (PAII Inc., USA), Yibing Wei (PAII Inc.; University of Wisconsin - Madison, USA), Zhuo Deng (Ping An Technology; Tsinghua SIGS, China), Mei Han (PAII Inc., USA), and Jui-Hsin Lai (PAII Inc., USA)</i>	

Maritime Computer Vision

Sea You Later: Metadata-Guided Long-Term Re-Identification for UAV-Based Multi-Object Tracking	805
<i>Cheng-Yen Yang (University of Washington, USA), Hsiang-Wei Huang (University of Washington, USA), Zhongyu Jiang (University of Washington, USA), Heng-Cheng Kuo (National Taiwan University, Taiwan), Jie Mei (University of Washington, USA), Chung-I Huang (National Center for High-performance Computing, Taiwan), and Jenq-Neng Hwang (University of Washington, USA)</i>	
ReIDTracker Sea: Multi-Object Tracking in Maritime Computer Vision	813
<i>Kaer Huang (Lenovo Research), Weituo Chong (Fudan University), Hui Yang (Lenovo Research), Kanokphan Lertniphonphan (Lenovo Research), Jun Xie (Lenovo Research), and Feng Chen (Lenovo Research)</i>	
SafeSea: Synthetic Data Generation for Adverse & Low Probability Maritime Conditions	821
<i>Martin Tran (Queensland University of Technology, Australia), Jordan Shipard (Queensland University of Technology, Australia), Hermawan Mulyono (Sentient Vision Systems, Australia), Arnold Wiliem (Queensland University of Technology; Sentient Vision Systems, Australia), and Clinton Fookes (Queensland University of Technology, Australia)</i>	
An Automated Method for the Creation of Oriented Bounding Boxes in Remote Sensing Ship Detection Datasets	830
<i>Giorgos Savathrakis (Institute of Computer Science, FORTH; University of Crete) and Antonis Argyros (Institute of Computer Science, FORTH; University of Crete)</i>	
SeaDSC: A Video-Based Unsupervised Method for Dynamic Scene Change Detection in Unmanned Surface Vehicles	840
<i>Linh Trinh (University of Antwerp-imec, Belgium), Ali Anwar (University of Antwerp-imec, Belgium), and Siegfried Mercelis (University of Antwerp-imec, Belgium)</i>	
Active Learning Strategy Using Contrastive Learning and K-Means for Aquatic Invasive Species Recognition	848
<i>Shaif Chowdhury (Baylor University, USA), Greg Hamerly (Baylor University, USA), and Monica McGarrity (Texas Parks and Wildlife Department, USA)</i>	
Image and AIS Data Fusion Technique for Maritime Computer Vision Applications	859
<i>Emre Gülsoylu (University of Hamburg), Paul Koch (Fraunhofer CML), Mert Yıldız (Fraunhofer CML), Manfred Constapel (Fraunhofer CML), and André Peter Kelm (University of Hamburg)</i>	

Benjamin Kiefer (University of Tuebingen), Lojze Žust (University of Ljubljana), Matej Kristan (University of Ljubljana), Janez Perš (University of Ljubljana), Matija Teršek (Luxonis), Arnold Wiliem (Sentient Vision Systems; Queensland University of Technology), Martin Messmer (University of Tuebingen), Cheng-Yen Yang (University of Washington), Hsiang-Wei Huang (University of Washington), Zhongyu Jiang (University of Washington), Heng-Cheng Kuo (University of Washington), Jie Mei (University of Washington), Jenq-Neng Hwang (University of Washington), Daniel Stadler (Fraunhofer IOSB; Fraunhofer Center for Machine Learning), Lars Sommer (Fraunhofer IOSB; Fraunhofer Center for Machine Learning), Kaer Huang (Lenovo Research), Aiguo Zheng (Lenovo), Weituo Chong (Fudan University), Kanokphan Lertnipphonphan (Lenovo Research), Jun Xie (Lenovo Research), Feng Chen (Lenovo Research), Jian Li (Lenovo), Zhepeng Wang (Lenovo Research), Luca Zedda (University of Cagliari), Andrea Loddo (University of Cagliari), Cecilia Di Ruberto (University of Cagliari), Tuan-Anh Vu (The Hong Kong University of Science and Technology), Hai Nguyen-Truong (The Hong Kong University of Science and Technology), Tan-Sang Ha (The Hong Kong University of Science and Technology), Quan-Dung Pham (The Hong Kong University of Science and Technology), Sai-Kit Yeung (The Hong Kong University of Science and Technology), Yuan Feng (Dalian Maritime University), Nguyen Thanh Thien (University of Information Technology), Lixin Tian (Dalian Maritime University), Sheng-Yao Kuan (University of Washington), Yuan-Hao Ho (University of Washington), Angel Bueno Rodriguez (German Aerospace Center), Borja Carrillo-Perez (German Aerospace Center), Alexander Klein (German Aerospace Center), Antje Alex (German Aerospace Center), Yannik Steiniger (German Aerospace Center), Felix Sattler (German Aerospace Center), Edgardo Solano-Carrillo (German Aerospace Center), Matej Fabijanić (University of Zagreb), Magdalena Šimunec (University of Zagreb), Nadir Kapetanović (University of Zagreb), Andreas Michel (Fraunhofer IOSB), Wolfgang Gross (Fraunhofer IOSB), and Martin Weinmann (Karlsruhe Institute of Technology)

Face Recognition Challenge in the Era of Synthetic Data

FRCSyn Challenge at WACV 2024: Face Recognition Challenge in the Era of Synthetic Data 892

Pietro Melzi (Universidad Autonoma de Madrid, Spain), Ruben Tolosana (Universidad Autonoma de Madrid, Spain), Ruben Vera-Rodriguez (Universidad Autonoma de Madrid, Spain), Minchul Kim (Michigan State University, US), Christian Rathgeb (Hochschule Darmstadt, Germany), Xiaoming Liu (Michigan State University, US), Ioan DeAndres-Tame (Universidad Autonoma de Madrid, Spain), Aythami Morales (Universidad Autonoma de Madrid, Spain), Julian Fierrez (Universidad Autonoma de Madrid, Spain), Javier Ortega-Garcia (Universidad Autonoma de Madrid, Spain), Weisong Zhao (IIE, CAS; School of Cyber Security, UCAS, China), Xiangyu Zhu (MAIS, CASIA; School of Artificial Intelligence, UCAS, China), Zheyu Yan (MAIS, CASIA, China), Xiao-Yu Zhang (IIE, CAS; School of Cyber Security, UCAS, China), Jinlin Wu (CAIR, HKISI, CAS, China), Zhen Lei (MAIS, CASIA; School of Artificial Intelligence, UCAS; CAIR, HKISI, CAS, China), Suvidha Tripathi (LENS, Inc., USA), Mahak Kothari (LENS, Inc., USA), Haider Zama (LENS, Inc., USA), Debayan Deb (LENS, Inc., USA), Bernardo Biesseck (Federal University of Paraná; Federal Institute of Mato Grosso, Brazil), Pedro Vidal (Federal University of Paraná, Curitiba, PR, Brazil), Roger Granada (unico - idTech, Brazil), Guilherme Fickel (unico - idTech, Brazil), Gustavo Führ (unico - idTech, Brazil), David Menotti (Federal University of Paraná, Curitiba, PR, Brazil), Alexander Unnerovik (Idiap Research Institute; Ecole Polytechnique Fédérale de Lausanne, Switzerland), Anjith George (Idiap Research Institute, Switzerland), Christophe Ecabert (Idiap Research Institute, Switzerland), Hatef Otroschi Shahreza (Idiap Research Institute; Ecole Polytechnique Fédérale de Lausanne, Switzerland), Parsa Rahimi (Idiap Research Institute; Ecole Polytechnique Fédérale de Lausanne, Switzerland), Sébastien Marcel (Idiap Research Institute; Université de Lausanne, Switzerland), Ioannis Sarridis (Centre for Research and Technology Hellas, Greece), Christos Koutlis (Centre for Research and Technology Hellas, Greece), Georgia Baltso (Centre for Research and Technology Hellas, Greece), Symeon Papadopoulos (Centre for Research and Technology Hellas, Greece), Christos Diou (Harokopio University of Athens, Greece), Nicolò Di Domenico (University of Bologna, Cesena Campus, Italy), Guido Borghi (University of Bologna, Cesena Campus, Italy), Lorenzo Pellegrini (University of Bologna, Cesena Campus, Italy), Enrique Mas-Candela (Facephi, Spain), Angela Sánchez-Pérez (Facephi, Spain), Andrea Atzori (University of Cagliari, Italy), Fadi Boutros (Fraunhofer IGD; TU Darmstadt, Germany), Naser Damer (Fraunhofer IGD; TU Darmstadt, Germany), Gianni Fenu (University of Cagliari, Italy), and Mirko Marras (University of Cagliari, Italy)

Large Language and Vision Models for Autonomous Driving

Drive As You Speak: Enabling Human-Like Interaction With Large Language Models in Autonomous Vehicles 902

Can Cui (Purdue University, USA), Yunsheng Ma (Purdue University, USA), Xu Cao (PediaMed.AI Lab, China), Wenqian Ye (PediaMed.AI Lab, China; University of Virginia, USA), and Ziran Wang (Purdue University, USA)

Drive Like a Human: Rethinking Autonomous Driving With Large Language Models 910

Daocheng Fu (Shanghai AI Lab), Xin Li (Shanghai AI Lab; East China Normal University), Licheng Wen (Shanghai AI Lab), Min Dou (Shanghai AI Lab), Pinlong Cai (Shanghai AI Lab), Botian Shi (Shanghai AI Lab), and Yu Qiao (Shanghai AI Lab)

A Safer Vision-Based Autonomous Planning System for Quadrotor UAVs With Dynamic Obstacle Trajectory Prediction and Its Application With LLMs	920
<i>Jiageng Zhong (Wuhan University), Ming Li (Wuhan University; ETH Zürich), Yinliang Chen (Wuhan University), Zihang Wei (WFLS), Fan Yang (HUST), and Haoran Shen (Wuhan University)</i>	
NuScenes-MQA: Integrated Evaluation of Captions and QA for Autonomous Driving Datasets Using Markup Annotations	930
<i>Yuichi Inoue (Turing Inc.), Yuki Yada (Turing Inc.), Kotaro Tanahashi (Turing Inc.), and Yu Yamaguchi (Turing Inc.)</i>	
LIP-Loc: LiDAR Image Pretraining for Cross-Modal Localization	939
<i>Sai Shubodh Puligilla (Robotics Research Center, KCIS, IIIT Hyderabad), Mohammad Omama (University of Texas at Austin), Husain Zaidi (Microsoft), Udit Singh Parihar (Robotics Research Center, KCIS, IIIT Hyderabad), and Madhava Krishna (Robotics Research Center, KCIS, IIIT Hyderabad)</i>	
Latency Driven Spatially Sparse Optimization for Multi-Branch CNNs for Semantic Segmentation	949
<i>Georgios Zampokas (Imperial College London, UK; Information Technologies Institute, Centre for Research and Technology Hellas, Greece), Christos-Savvas Bouganis (Imperial College London, UK), and Dimitrios Tzovaras (Information Technologies Institute, Centre for Research and Technology Hellas, Greece)</i>	
A Survey on Multimodal Large Language Models for Autonomous Driving	958
<i>Can Cui (Purdue University, USA), Yunsheng Ma (Purdue University, USA), Xu Cao (University of Illinois Urbana-Champaign, USA; PediaMed AI, China), Wenqian Ye (University of Virginia, USA; PediaMed AI, China), Yang Zhou (New York University, USA), Kaizhao Liang (SambaNova Systems, Inc, USA), Jintai Chen (University of Illinois Urbana-Champaign, USA), Juanwu Lu (Purdue University, USA), Zichong Yang (Purdue University, USA), Kuei-Da Liao (Objective, Inc, USA), Tianren Gao (SambaNova Systems, Inc, USA), Erlong Li (Tencent T Lab, China), Kun Tang (Tencent T Lab, China), Zhipeng Cao (Tencent T Lab, China), Tong Zhou (Tencent T Lab, China), Ao Liu (Tencent T Lab, China), Xinrui Yan (Tencent T Lab, China), Shuqi Mei (Tencent T Lab, China), Jianguo Cao (PediaMed AI, China), Ziran Wang (Purdue University, USA), and Chao Zheng (Tencent T Lab, China)</i>	
VLAAD: Vision and Language Assistant for Autonomous Driving	980
<i>SungYeon Park (Seoul National University), MinJae Lee (Seoul National University), JiHyuk Kang (Seoul National University), Hahyeon Choi (Seoul National University), Yoonah Park (Seoul National University), Juhwan Cho (Seoul National University), Adam Lee (University of California), and DongKyu Kim (Seoul National University)</i>	
Human-Centric Autonomous SystemsWith LLMs for User Command Reasoning	988
<i>Yi Yang (KTH Royal Institute of Technology; Scania AB), Qingwen Zhang (KTH Royal Institute of Technology), Ci Li (KTH Royal Institute of Technology), Daniel Simões Marta (KTH Royal Institute of Technology), Nazre Batool (Scania AB), and John Folkesson (KTH Royal Institute of Technology)</i>	

Automated Spatial and Temporal Anomaly Detection

An Exploratory Study on Human-Centric Video Anomaly Detection Through Variational Autoencoders and Trajectory Prediction	995
<i>Ghazal Alinezhad Noghre (University of North Carolina at Charlotte, USA), Armin Danesh Pazho (University of North Carolina at Charlotte, USA), and Hamed Tabkhi (University of North Carolina at Charlotte, USA)</i>	
K-NNN: Nearest Neighbors of Neighbors for Anomaly Detection	1005
<i>Ori Nizan (Technion—Israel Institute of Technology) and Ayellet Tal (Technion—Israel Institute of Technology)</i>	

Manipulation, Adversarial and Presentation Attacks In Biometrics

Forensic Iris Image Synthesis	1015
<i>Rasel Ahmed Bhuiyan (University of Notre Dame, USA) and Adam Czajka (University of Notre Dame, USA)</i>	
Deepfake Detection by Exploiting Surface Anomalies: The SurFake Approach	1024
<i>Andrea Ciamarra (University of Florence; Universitas Mercatorum, Italy), Roberto Caldelli (CNIT; Universitas Mercatorum, Italy), Federico Becattini (University of Siena, Italy), Lorenzo Seidenari (University of Florence, Italy), and Alberto Del Bimbo (University of Florence, Italy)</i>	
Does Capture Background Influence the Accuracy of the Deep Learning Based Fingerprint Presentation Attack Detection Techniques?	1034
<i>Hailin Li (Norwegian University of Science and Technology (NTNU), Norway) and Raghavendra Ramachandra (Norwegian University of Science and Technology (NTNU), Norway)</i>	
Fused Classification for Differential Face Morphing Detection	1043
<i>Iurii Medvedev (University of Coimbra, Portugal), Joana Alves Pimenta (University of Coimbra, Portugal), and Nuno Gonçaves (Portuguese Mint and Official Printing Office (INCM), Portugal)</i>	
On the Vulnerability of Deepfake Detectors to Attacks Generated by Denoising Diffusion Models	1051
<i>Marija Ivanovska (University of Ljubljana, Slovenia) and Vitomir Štruc (University of Ljubljana, Slovenia)</i>	
Semi-Supervised Deep Domain Adaptation for Deepfake Detection	1061
<i>Shamim Seraj (Florida State University), Ankita Singh (Florida State University), and Shayok Chakraborty (Florida State University)</i>	
Alpha-Wolves and Alpha-Mammals: Exploring Dictionary Attacks on Iris Recognition Systems ..	1072
<i>Sudipta Banerjee (New York University), Anubhav Jain (New York University), Zehua Jiang (New York University), Nasir Memon (New York University), Julian Togelius (New York University), and Arun Ross (Michigan State University)</i>	
Investigating Weight-Perturbed Deep Neural Networks With Application in Iris Presentation Attack Detection	1082
<i>Renu Sharma (Michigan State University), Redwan Sony (Michigan State University), and Arun Ross (Michigan State University)</i>	

Iris Presentation Attack: Assessing the Impact of Combining Vanadium Dioxide Films With Artificial Eyes	1092
<i>Darshika Jauhari (Michigan State University), Renu Sharma (Michigan State University), Cunjian Chen (Michigan State University), Nelson Sepulveda (Michigan State University), and Arun Ross (Michigan State University)</i>	

Vision-Based Understanding for Low-Resource Languages

Enhancement of Bengali OCR by Specialized Models and Advanced Techniques for Diverse Document Types	1102
<i>AKM Shahariar Azad Rabby (Apurba Technologies, Bangladesh; The University of Alabama at Birmingham, USA), Hasmot Ali (Apurba Technologies, Bangladesh), Majedul Islam (Apurba Technologies, Bangladesh), Sheikh Abujar (The University of Alabama at Birmingham, USA), and Fuad Rahman (Apurba Technologies, USA)</i>	
Fog-Resilient Bangla Car Plate Recognition Using Dark Channel Prior and YOLO	1110
<i>Hamim Ibne Nasim (BRAC University, Bangladesh), Fateha Jannat Printia (BRAC University, Bangladesh), Mahamudul Hasan Himel (BRAC University, Bangladesh), Rubaba Rashid (BRAC University, Bangladesh), Iffat Jahan Chowdhury (BRAC University, Bangladesh), Joyanta Jyoti Mondal (University of Alabama at Birmingham, USA), Farhadul Islam (BRAC University, Bangladesh), and Jannatun Noor (BRAC University, Bangladesh)</i>	
Fingerspelling PoseNet: Enhancing Fingerspelling Translation With Pose-Based Transformer Models	1120
<i>Pooya Fayyazsanavi (George Mason University), Negar Nejatishahidin (George Mason University), and Jana Košecká (George Mason University)</i>	
Facial Hair Area in Face Recognition Across Demographics: Small Size, Big Effect	1131
<i>Haiyu Wu (University of Notre Dame), Sicong Tian (Indiana University South Bend), Aman Bhatta (University of Notre Dame), Kağan Öztürk (University of Notre Dame), Karl Ricanek (University of North Carolina Wilmington), and Kevin W. Bowyer (University of Notre Dame)</i>	

Demographic Variations in Performance of Biometric Algorithms

Enhancing Soft Biometric Face Template Privacy With Mutual Information-Based Image Attacks.	1141
<i>Zohra Rezgui (University of Twente, The Netherlands), Nicola Strisciuglio (University of Twente, The Netherlands), and Raymond Veldhuis (University of Twente, The Netherlands; Norwegian University of Science and Technology, Norway)</i>	
Mitigating Demographic Bias in Face Recognition via Regularized Score Calibration	1150
<i>Ketan Kotwal (Idiap Research Institute, Switzerland) and Sébastien Marcel (Idiap Research Institute; University of Lausanne, Switzerland)</i>	
WhoWore It Best? And Who Paid Less? Effects of Privacy-Preserving Techniques Across Demographics	1160
<i>Xavier Merino (Florida Institute of Technology, USA) and Michael King (Florida Institute of Technology, USA)</i>	

The CHROMA-FIT Dataset: Characterizing Human Ranges of Melanin for Increased
Tone-Awareness 1170
*Gabriella Pangelinan (Florida Institute of Technology, USA), Xavier
Merino (Florida Institute of Technology, USA), Samuel Langborgh
(Florida Institute of Technology, USA), Kushal Vangara (Florida
Institute of Technology, USA), Joyce Annan (Florida Institute of
Technology, USA), Audison Beaubrun (Florida Institute of Technology,
USA), Troy Weekes (Florida Institute of Technology, USA), and Michael
C. King (Florida Institute of Technology, USA)*

Author Index