

2024 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA 2024)

**Xi'an, China
14-16 June 2024**



**IEEE Catalog Number: CFP24CVA-POD
ISBN: 979-8-3503-2300-9**

**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: | CFP24CVA-POD |
| ISBN (Print-On-Demand): | 979-8-3503-2300-9 |
| ISBN (Online): | 979-8-3503-2299-6 |
| 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
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

| | |
|--|----|
| Robust Estimation of Sparse EEG Source Based on Laplacian Distribution | 1 |
| <i>Yuzuo Liu, Peiyang Li, Ziyi Wang, Xiaohui Gao, Chengcheng Tang, Yin Tian</i> | |
| A Novel Hierarchical Training Architecture for Siamese Sequential Network-LSTM Based Fault Kinship Recognition for the Microexpression of Indonesian Faces | 6 |
| <i>Ike Fibriani, Eko Mulyanto Yuniarno, Rony Mardiyanto, Mauridhi Hery Purnomo</i> | |
| Video-Based Deception Detection Using Wrapper-Based Feature Selection | 12 |
| <i>Yanfeng Li, Jincheng Bian, Rencheng Song</i> | |
| Feature Extraction Method of Rolling Bearing Fault Based on VMD Optimized by Enhanced SSA and Envelope Analysis | 17 |
| <i>Jiahao Cao, Xiaodong Zhang, Runsheng Yin, Zhichun Ma</i> | |
| Wheezing Feature Classification Using ANFIS for Asthma Diagnosis | 22 |
| <i>Rohmah Hidayah, Ardyono Priyadi, Eko Mulyanto Yuniarno, Mauridhi Hery Purnomo</i> | |
| Hand Orientation Detection Based on Disparity Maps from Stereo Imagery | 28 |
| <i>Dion Setiawan, Eko Mulyanto Yuniarno, Mauridhi Hery Purnomo</i> | |
| A Preliminary Exploration of Magnetic Resonance Coupled Human Body Communication in Out-To-In Body Transmission for Leadless Pacemakers | 34 |
| <i>Shuang Yang, Ziliang Wei, Lina Chen, Hanyue Liu, Sio Hang Pun, Mang I Vai, Yueming Gao</i> | |
| Volumetric Hippocampus Segmentation Using 3D U-Net Based on Transfer Learning | 39 |
| <i>Ramadhan Sanyoto Sugiharso Widodo, I Ketut Eddy Purnama, Reza Fuad Rachmadi</i> | |
| DGONN: Depthwise Dynamic Graph Overparameterized Neural Network for 3D Point Cloud Object Recognition | 45 |
| <i>Oddy Virgantara Putra, Ardyono Priyadi, Kohichi Ogata, Eko Mulyanto Yuniarno, Mauridhi Hery Purnomo</i> | |
| An Enhanced Algorithm of Bald Eagle Search for Mobile Robot Path Planning | 51 |
| <i>Guowei Tang, Xiaodong Zhang, Pengfei Hou, Xinyu Yang</i> | |
| MindLDM: Reconstruct Visual Stimuli from fMRI Using Latent Diffusion Model | 56 |
| <i>Junhao Guo, Chanlin Yi, Fali Li, Peng Xu, Yin Tian</i> | |
| A Novel Robust Sparse Granger Causality Inference Method and Its Application in MI EEG | 62 |
| <i>Pengcheng Zhu, Cunbo Li, Peiyang Li, Fali Li, Dezhong Yao, Peng Xu</i> | |
| Heterogeneity Characterization of Psychiatric Diseases Based on Common Orthogonal Basis Extraction | 68 |
| <i>Guangying Wang, Lin Jiang, Shilai Zhang, Dezhong Yao, Peng Xu, Fali Li</i> | |
| Dynamic Causal Modeling of P300 Processing in Schizophrenia | 73 |
| <i>Shilai Zhang, Lin Jiang, Guangying Wang, Dezhong Yao, Peng Xu, Fali Li</i> | |
| A Single Camera Based Automatic Movement Assessment System to Rehabilitation Exercise Therapy | 78 |
| <i>Shuoheng Yang, Xiaodong Li, Zhuoman Xu, Yunli Fan, Yong Hu</i> | |

| | |
|---|-----|
| Development of Surface Electromyography-Based Motion Intention Recognition for Human-machine Interface | 83 |
| <i>Tinghan Xu, Shichen Qi, Yuanhao Liang, Yong Hu</i> | |
| Deep Learning Based Automatic DTI Analysis for Cervical Myelopathy | 87 |
| <i>Ningbo Fei, Xiao-Song Hu, Junpeng Li, Tinghan Xu, Guang-Sheng Li, Yong Hu</i> | |
| A Hybrid CNN-Transformer Approach for Continuous Fine Finger Motion Decoding from sEMG Signals | 92 |
| <i>Zihan Weng, Xiabing Zhang, Yufeng Mou, Chanlin Yi, Fali Li, Pouya Bashivan, Peng Xu</i> | |
| The Response Mechanism of the Brain Under Different Intervals of Audio-Visual Stimuli..... | 98 |
| <i>Liang Zhao, Jie Wang, Lu Wang, Xingwei An</i> | |
| A Novel Lightweight Convolutional Neural Network for EEG-Based Miniature-Event-Related Potentials | 102 |
| <i>Chang Liu, Wenxiao Zhong, Yang Di, Liang Zhao, Xingwei An</i> | |
| ORCA: An Ensemble Deep Learning Framework for Automatic Detection and Deformity Assessment for Lower-Limb Radiographs of Skeletal Dysplasia | 106 |
| <i>Peikai Chen, Xinlin Zhou, Haihua Cai, Janus Wong, Yong Hu, Michael Kai-Tsun To</i> | |
| Minimal Preprocessing of ECG Signals for Deep Learning-Based Biometric Systems..... | 111 |
| <i>Zofia Mizgalewicz, Christian R. Cuenca, Massimo W. Rivolta, Ruggero Donida Labati, Fabio Scotti, Vincenzo Piuri, Roberto Sassi</i> | |
| Application of CNN Classifier for Somatosensory ERP-Based Brain-Computer Interface | 116 |
| <i>Junlin Wang, Xingyu Lu, Ningbo Fei, Xiaodong Li, Yong Hu</i> | |
| Four Hours Duration Acts as the Safety Threshold for Driving Fatigue Management..... | 122 |
| <i>Ting Li, Peishuai Liu, Linzhe Jiang, Yuan Gao, Renbiao Wu</i> | |
| Artificial Intelligence and Natural Language Processing for Quality Control and Management | 128 |
| <i>Haiyan Sally Xie, Sai Ram Gandla, Mangolika Bhattacharya, Pranshoo Solanki, Dingnan Zheng</i> | |
| DFCNetCNN: An Interpretable Spatiotemporal Convolutional Model Based on Dynamic Functional Connectivity | 134 |
| <i>Xiao Fan, Jingyuan Li, Hailin Huang, Yufei Dong, Guanya Li, Wenchao Zhang, Hu Yang, Wenfang Sun, Yi Zhang</i> | |
| Perceptual Feedback Through Multisensory Fusion in Hand Function Rehabilitation by a Machine Learning Approach | 140 |
| <i>Dehao Duanmu, Tinghan Xu, Xiaodong Li, Xiang Cao, Wei Huang, Yong Hu</i> | |
| Multi-Channel Electroencephalogram Detection System Compatible with Transcranial Magnetic Stimulation | 145 |
| <i>Hui Xiong, Yajun Di, Jinzhen Liu, Xiangqian Meng, Sen Shang, Shuaiqi Chang</i> | |
| Non-Contact Heart Rate Estimation from Photoplethysmography Using EEMD and Convolution-Transformer Network | 151 |
| <i>Kehong Liu, Shuo Wu, Tianhuan Li, Shuiping Gou, Xinlin Wang, Zhang Guo</i> | |
| Detecting Continuous High-Frequency Oscillations in Intracranial EEG from Patients with Epilepsy | 157 |
| <i>Chunsheng Li, Enzhi Xia</i> | |

| | |
|---|-----|
| A Novel End-To-End Framework to Image Cortical Networks from EEG | 162 |
| <i>Wanjun Chen, Junpu Wang, Chanlin Yi, Fali Li, Peng Xu</i> | |
| Strain Signal-Based Fault Diagnosis Method for the Planet Gear in Planetary Gearboxes..... | 168 |
| <i>Hang Niu, Zihou Wang, Yongjie Zhai</i> | |
| Distance Estimation in Physical Test Based on Key Frame Localization and Salient Target Discrimination..... | 173 |
| <i>Yijie Zhu, Ruimin Li, Shengjie Gou, Haomin Liu, Xinyi Liu, Shuiping Gou, Weibin Li</i> | |
| A Method for Improving the Sensitivity Based on Adaptive Compensation in MPI..... | 179 |
| <i>Yunpeng Gao, Ning He, Dawei Ge, Zhonghao Zhang, Yihan Wang, Shouping Zhu</i> | |
| State Estimation in Power System Under Deterministic False Data Injection Attack Using Minimization of Nuclear Norm and ℓ_1 Norm with Noiseless Constraint Substitution | 184 |
| <i>Bamrung Tausiesakul, Krissada Asavaskulkiet, Chuttchaval Jeraputra, Ittiphong Leevongwat, Thamvarit Singhavilai, Supun Tiptipakorn</i> | |
| Automatically Select the Training Loss Based on the Data Distribution for Talking Head Synthesis | 190 |
| <i>Wan Ding, Yucheng Wu, Tianyu Wang, Dongyan Huang, Chunjiang Fu</i> | |
| Deep Neural Networks for Assessing the Legal Age from Panoramic Dental X-Ray Images | 196 |
| <i>Antonio José Aragón Molina, Danilo De Angelis, Ruggero Donida Labati, Fabio Scotti, Vincenzo Piuri</i> | |
| Examining the Task Capabilities of Solid-State Self-Reconfigurable Modular Robots | 202 |
| <i>John M. O'Fallon, Dalila B. Megherbi</i> | |
| The Impact of Transient and Stable Patterns of Functional Connectivity in Emotion Recognition | 208 |
| <i>Yinghao Huang, Xucheng Liu, Ye Li, Chio-In Jeong, Yong Hu, Feng Wan</i> | |
| Cellular Data Generator Based Siamese Container Marking Anomaly Detection Network..... | 214 |
| <i>Wenfeng Pan, Zhihao Long, Xinru Li, Gaoyang Li, Tangrong Huang, Yanyang Liang, Yikui Zhai</i> | |

Author Index