

2022 5th International Conference on Artificial Intelligence for Industries (AI4I 2022)

**Laguna Hills, California, USA
19-21 September 2022**



**IEEE Catalog Number: CFP22O61-POD
ISBN: 978-1-6654-5962-4**

**Copyright © 2022 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:	CFP22O61-POD
ISBN (Print-On-Demand):	978-1-6654-5962-4
ISBN (Online):	978-1-6654-5961-7
ISSN:	2770-470X

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

2022 5th International Conference on Artificial Intelligence for Industries (AI4I) **AI4I 2022**

Table of Contents

Message from the AI4I 2022 General Co-Chairs	viii
Message from the AI4I 2022 Program Co-Chairs	x

Machine Learning and Recommender Systems

Detection of Almond Leaf Scorch with Artificial Intelligence for the Agriculture Industry	1
<i>Alberto C. Cruz (California State Univ., USA), Stephanie Magana (California State Univ., USA), Davide Greco (Univ. of Salento, Lecce), Luigi De Bellis (Univ. of Salento, Lecce), and Andrea Luvisi (Univ. of Salento, Lecce)</i>	
A Scalable Recommendation System Approach for a Companies - Seniors Matching	5
<i>Kévin Cédric Guyard (University of Geneva, Switzerland) and Michel Deriaz (HEG Genève, HES-SO, Switzerland)</i>	
New Perspectives on Recommender Systems for Industries	10
<i>Mouzhi Ge (Faculty of European Campus Rottal-Inn, Deggendorf Institute of Technology, Germany), Giovanni Pilato (Institute for High Performance Computing and Networking, National Research Council of Italy, Italy), Fabio Persia (University of L'Aquila, Italy), and Daniela D'Auria (Free University of Bozen-Bolzano, Italy)</i>	
Learning Causal Graphs in Manufacturing Domains Using Structural Equation Models	14
<i>Maximilian Kertel (BMW Group, Germany), Stefan Harmeling (TU Dortmund University, Germany), and Markus Pauly (TU Dortmund University, Germany)</i>	
Graph Neural Network Models for Chemical Compound Activeness Prediction For COVID-19 Drugs Discovery Using Lipinski's Descriptors	20
<i>Medard Edmund Mswahili (Chungbuk National University, South Korea), Junha Hwang (Chungbuk National University, South Korea), Young-Seob Jeong (Chungbuk National University, South Korea), and Youngjin Kim (Frugal Solution, South Korea)</i>	
Towards AI Platforms for Stationary Retail	22
<i>Tim Schopf (Technical University of Munich, Germany), Kilian Dresse (Technical University of Munich, Germany), and Florian Matthes (Technical University of Munich, Germany)</i>	

Deep Learning and Computer Vision

Recurrence Sorting Method for Improved Accuracy of Unconstrained Fast-Moving Vehicle License Plate Recognition System	23
<i>Abu Anas Ibn Samad (Sigmind.ai Bangladesh, Bangladesh) and Towneda Akhter (Bangladesh University of Professionals, Bangladesh)</i>	
Real Time Analysis on Bus Passenger for Unmanned Door Operation Using Overhead Fisheye Cameras	27
<i>Masayuki Yamazaki (Toyota Motor Corporation, Japan), Kei Tsuji (Sigfoss Corporation, Japan), and Eigo Mori (Sigfoss Corporation, Japan)</i>	
Channel Pruning in Quantization-Aware Training: An Adaptive Projection-Gradient Descent-Shrinkage-Splitting Method	31
<i>Zhijian Li (University of California, USA) and Jack Xin (University of California, USA)</i>	
Post-Fault Power Grid Voltage Prediction via 1D-CNN with Spatial Coupling	35
<i>Carson Hu (University of California, USA), Guang Lin (Purdue University, USA), Bao Wang (University of Utah, USA), Meng Yue (Brookhaven National Laboratory, USA), and Jack Xin (University of California, USA)</i>	

Deep Learning and Applications

Key Elements to Contextualize AI-Driven Condition Monitoring Systems Towards Their Risk-Based Evaluation	38
<i>Mehdi Dadfarnia (National Institute of Standards & Technology, USA) and Michael Sharp (National Institute of Standards & Technology, USA)</i>	
Evaluation of Different Deep Learning Approaches for EEG Classification	42
<i>Bastian Scharnagl (University of Applied Sciences Hof, Germany) and Christian Groth (University of Applied Sciences Hof, Germany)</i>	
Autonomous Load Carrier Approaching Based on Deep Reinforcement Learning with Compressed Visual Information	48
<i>Simon Hadwiger (University of Wuppertal, Germany) and Tobias Meisen (University of Wuppertal, Germany)</i>	
Language Model for Statistics Domain	54
<i>Young-Seob Jeong (Chungbuk National University, South Korea), EunJin Kim (Chungbuk National University, South Korea), JunHa Hwang (Chungbuk National University, South Korea), Medard E. Mswahili (Chungbuk National University, South Korea), and YoungJin Kim (Frugal Solution, South Korea)</i>	

Applications

Efficient DER Voltage Control Using Ensemble Deep Reinforcement Learning	55
<i>James Obert (Sandia National Laboratories, USA), Rodrigo D. Trevizan (Sandia National Laboratories, USA), and Adrian Chavez (Sandia National Laboratories, USA)</i>	
Enhancing Zero-Shot Many to Many Voice Conversion via Self-Attention VAE with Structurally Regularized Layers	59
<i>Ziang Long (University of California, USA), Yunling Zheng (University of California, USA), Meng Yu (Tencent AI Lab, Tencent at Bellevue, USA), and Jack Xin (University of California, USA)</i>	
Virtual Commissioning Simulation as OpenAI Gym - A Reinforcement Learning Environment for Control Systems	64
<i>Florian Jaensch (University of Stuttgart, Germany), Lars Klingel (University of Stuttgart, Germany), and Alexander Verl (University of Stuttgart, Germany)</i>	
Explainable Artificial Intelligence for a High Dimensional Condition Monitoring Application Using the SHAP Method	68
<i>Raphael Wallsberger (Hochschule für Technik und Wirtschaft Berlin, Germany), Tim Dieter Eberhardt (Hochschule für Technik und Wirtschaft Berlin, Germany), Paul-Albert Bartlau (Hochschule für Technik und Wirtschaft Berlin, Germany), Maurice Lucas Dörnte (Hochschule für Technik und Wirtschaft Berlin, Germany), Tim Lukas Schröter (Hochschule für Technik und Wirtschaft Berlin, Germany), and Stephan Matzka (Hochschule für Technik und Wirtschaft Berlin, Germany)</i>	
Utilization of Data Augmentation Techniques to Enhance Learning with Sparse Datasets	73
<i>Richard Yarnell (University of Central Florida, Orlando), Daniel Brignac (University of Central Florida, Orlando), Yanjie Fu (University of Central Florida, Orlando), and Ronald F. DeMara (University of Central Florida, Orlando)</i>	

AIK12 Track - Plenary

AI and K-12 Forum	74
<i>Ganesh Mani (Carnegie Mellon University, Pittsburgh, USA), Jim Bologna (Windward School, Los Angeles, USA), and Phillip C.-Y. Sheu (University of California, Irvine, USA)</i>	
Author Index	77