

2021 3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications (HORA 2021)

**Ankara, Turkey
11 – 13 June 2021**



**IEEE Catalog Number: CFP21X32-POD
ISBN: 978-1-6654-1165-3**

**Copyright © 2021 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:	CFP21X32-POD
ISBN (Print-On-Demand):	978-1-6654-1165-3
ISBN (Online):	978-1-6654-4058-5

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



3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications

Table of Contents

Application of Hierarchical Cluster Analysis in The Machine Learning.....	1
All-optical Half-adder based on multilayer structure with second-order nonlinearity effects.....	4
Detailed Investigation and Comparison of Various Binarization Algorithms for Hashing	9
ECG Classification Performing Feature Extraction Automatically Using a Hybrid CNN-SVM Algorithm.....	14
A simulation-based analysis for a transverse guidance for highly automated driving functions.....	19
Robust Model Predictive Control for Autonomous Lane-Changing	25
Development of single-Axis Wheel Speed Sensor HiL Test Bench for Vehicle Velocity Control.....	31
Design and implementation of a photovoltaic system for self-sufficient energy supply of mobile Robots	36
Customer Churn Prediction for Business Intelligence Using Machine Learning	41
Gesture-Controlled Robotic Arm Utilizing OpenCV	48
A Significant Fallacy of Built-in Correlation Functions in Recommender Systems	54
An Enhanced Slime Mould Algorithm for Function Optimization	58
An Efficient FOPID Controller Design for Vehicle Cruise Control System Using HHO Algorithm	63
Impact of Considering Wind Power Uncertainty on Transmission Expansion Planning	68
Cloud DATA LAKE: The new trend of data storage	73
Development of Bioinspired Robotic Pectoral Fin Structure Using Radial Scissor Mechanism	81
Nickel-Titanium SMA Springs Actuated Bioinspired Soft Robot for Pipeline Inspections.....	85
Neural Network Based Android Malware Detection with Different IP Coding Methods	90
An overview of challenges for data dissemination and routing protocols in VANETs.....	96
Integrity and Authentications for service security in vehicular ad hoc networks (VANETs): A Review	102
IMMBA – An Integrative Model for Mobile Banking Adoption: The Case of Saudi Arabia.....	109
Permanent Magnet Wind Generators: Neodymium vs. Ferrite Magnets.....	116
Control of swarm robotics in Webots with PSO.....	122
Design and implementation of a cognitive ability virtual reality training tool.....	128
High layer thickness influence on melt pool sizes and defects appearing of Ti6Al4V at high scan speeds.....	134
A Book Recommendation System Using Decision Tree-based Fuzzy Logic for E-Commerce Sites	138
Study of Energy Efficiency in a Class of CNC Machine Tools.....	143
Design of an Automated Car Washing System with Verilog HDL	148
LightWeight Deep Convolutional Neural Networks for Vehicle Re-Identification using Diffusion-based Image Masking	153



3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications

A Review of Recent Advances for Preventing, Diagnosis and Treatment of Diabetes Mellitus using Semantic Web	159
Power Quality and financial risk for RES investments.....	165
Electrical Infrastrucure in Hospitals risks and opportunity for quality healthcare.....	169
Lightweighth Convolutional Neural Networks for Person Re-Identification	174
Conceptual Design of a Cargo UAV That Can Takeoff and Land Vertically	179
Autonomously Controlled Intelligent Wheelchair System for Indoor Areas.....	185
Educational Data Mining Using Semi-Supervised Ordinal Classification	191
Optimization of Deep Learning Model Parameters in Classification of Solder Paste Defects.....	196
A new Deep Learning Based Intrusion Detection System for Cloud Security	202
Focused crawling application for building corporate knowledge base	206
A Study Of Modulation Types in Visible Light Commuication.....	209
Analysis of the user experience in a web-based university staff's publication management system.....	213
Analysis of the KNN Classifier Distance Metrics for Bulgarian Fake News Detection.....	219
Sentiment Analysis of Meeting Room	223
Analysis of Anomaly Detection Approaches Performed Through Deep Learning Methods in SCADA Systems.....	228
Measurement Precision of Average Frame for SolidState Time-of-Flight Camera.....	234
COVID-19: Toward Artificial Intelligence Algorithms	239
Design of a Drivable Airport Luggage Trolley.....	243
Design and Assembly of A Smart Recycling Bin.....	247
Design and Assembly of a Smart Steamer.....	251
Advancement Of Deep Learning In Big Data And Distributed Systems.....	256
A Workflow for Developing Game Assets for Video Games.....	263
Machine Learning Algorithms for Regression Analysis and Predictions of Numerical Data	268
A Hybrid Stock Optimization Approach for Inventory Management.....	274
Implementation of pick-and-place algorithms for the purposes of wafer handling robotics simulations.....	278
Tactile Feedback on a Fabric Surface Using Electro vibration.....	283
Image encryption algorithm using DNA pseudosymbols and chaotic map	287
Using blockchain technology to ensure security in the cloud and IoT environment	292
Assessment of the sustainability of communication networks built on the basis of computer networks	297
Solar Power Forecasting With Weather Factors Using Support Vector Regression	303
6-DOF Grasp Detection for Unknown Objects Using Surface Reconstruction.....	306
Comparative Analysis Of Activation Functions Used In The Hidden Layers Of Deep Neural Networks.....	312
Face Detection, Tracking and Recognition with Artificial Intelligence	317
Wrist Vein Recognition by Fusion of Multiple Handcrafted Methods.....	322
A Linear Programming Optimization Model to Minimize Waste in Cutting Steel Rods for Table Manufacturing...	327



3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications

Optimization of Location of a Distribution Center for an Automobile Supply Chain System	332
Fuzzy Logic Controlled Active Hydro-Pneumatic Suspension Design Simulation and Comparison for Performance Analysis.....	338
Machine Learning approach for Item-basedMovie Recommendation using the most relevant similarity techniques	343
A Programmable Analog Device Based Emulation Circuit Design for Excitatory and Inhibitory Neurons	347
Hybrid Explainable Smart House Control System.....	351
Automated Control of Pasteurization in Wine Production	354
Brain computer interface for human-cobot interaction in industrial applications.....	359
Content Engineering for State-of-the-art SEO Digital Strategies by Using NLP and ML	365
Autonomous Driving by Using Convolutional Neural Network	371
Automated Evaluation of the Virtual Assistant in Bleu and Rouge Scores	375
A CPW-Fed Amended U-Shaped Monopole UWB Antenna For Surfaces Penetrating Applications	381
Fault-related Alarm Detection of a Wind Turbine SCADA System.....	385
Compressing the Scenes of Medical Video by Using Eigenvector.....	390
The Avoidance And Detection Function Of Artificial Intelligence In Covid-19.....	394
Hyperledger, Ethereum and Blockchain Technology: A Short Overview.....	401
A Two Phase Smart Code Editor	407
Improving Training time in Capsule Neural Network	411
Trajectory Planning Optimization for the Autonomous Three-Wheeled Omnidirectional Mobile Robot	415
Modeling and Optimal Motion Planning for the Omnidirectional Mobile Robot with Three Orthogonal Wheels	421
Comparison of Brain Tumor Detection in MRI Images Using Straightforward Image Processing Techniques and Deep Learning Techniques.....	427
The analysis of Teletraffic and Handover Performance in Cellular System.....	433
Localizing and Imaging of Breast Cancer Based on UWB Antenna Sensor Network	438
Weighted Round Robin Scheduling Algorithms In Mobile Ad Hoc Network	442
Analysis of the traditional voting system and transition to the online voting system in the republic of Iraq	447
IOT Based Low-Cost Smart Home Automation System	452
A path planning method for robotic Additive Manufacturing	458
Mechanical Design and Development of a Continuous Rotational Variable Stiffness Actuator.....	463
Data Reduction Algorithms for Wireless Sensor Networks Applications: Review.....	469
Enhanced Super Twisting -based RISE Control for trajectory tracking of parallel robot	476
An Approach for Data Transformation In Homogeneous and Heterogeneous Information Systems.....	482
Design of Flexible Metamaterial Absorber for Broadband Microwave Applications	487
Cybersecurity, Computer Networks Phishing, Malware, Ransomware, and Social Engineering Anti-Piracy Reviews	490
Development of a Tomato Harvesting Robot: Peduncle Recognition and Approaching.....	495



3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications

Image Processing For Geo Detection.....	501
Computer vision and stochastic approach for LEO objects attitude determination	507
Job Descriptions Keyword Extraction using Attention based Deep Learning Models with BERT.....	603
Performance Analysis of KNN and Neural Networks for Predicting Customer Purchases in a Real Retail Department Store	609
Role and challenges of the use of UAV-aided WSN monitoring system in large-scale sectors	614
Methods of control of three phase AC/DC converter with bilateral energy exchange	619
Phishing Web Page Detection Using N-gram Features Extracted From URLs	621
Wavelet-based Spatial-temporal Feature Extraction for Gesture Recognition	627
Enhancement of Magnetic Dipole Spontaneous Emission with Silicon Hollow Nanocuboid Resonator in Visible Range	632
Comparative Dissolved Gas Analysis with Machine Learning and Traditional Methods	636
Efficacy and Acceptance of Virtual Classrooms During COVID-19: Bangladesh Perspective	642
Effect of Dataset Size on Deep Learning in Voice Recognition.....	648
A Data-Driven Fatigue Prediction using Recurrent Neural Networks.....	653
Application of Machine Learning for Improving the Algorithm for Capturing, Orienting and Placing an Object with 6-Axis Robot and 2d Visual Inspection Camera	659
Metaheuristic algorithm based PI controller design for Linearized Quadruple-Tank Process	664
Effects of Financial Conditions on Photovoltaic System Design and Investment Process: An Application on Different Scenarios	670
Deep Learning Based Object Detection and Recognition of Unmanned Aerial Vehicles.....	677
Camera Controlled Smart Food Container Design	682
Point Clouds of Bridge Generated by Terrestrial Laser Scanner and Images via Structure from Motion Technique: Comparison Study.....	688
Control of Construction Quality by a Terrestrial Laser Scanner: Example of Steel Frame Building.....	693
Admission Chance Prediction Models For The School Of Physical Education And Sports Candidates	696
Implementation of a Mobile Application for Teaching and Analyzing RLC Circuits.....	699
Attack Helicopter Camera Carrying and Balancing System Design.....	703
Strength and Modal Analysis of Mobile Robot with Klann Walking Mechanism	709
Design of Mobile Robot with Strandbeest Walking Mechanism to Overcome the Set Type Obstacle.....	714
Kinematic Analysis of Mobile Robot with Klann Walking Mechanism	718
Product-Based Reasonable Price Suggestion System in the Market with Crowd-Source and Full-Text Search.....	724
Entity Name Recognition in Job Postings and Resumes	730
Determine the Shortest Path Problem Using Haversine Algorithm, A Case Study of SMA Zoning in Depok.....	736
Methodology for bio-inspired design innovations based on functional decomposition	742
Generative Design Methodology for Internet of Medical Things (IoMT)-based Wearable Biomedical Devices.....	748



3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications

Integration of Cloud-Based Speech Recognition System to the Internet of Things Based Smart Home Automation	752
Deep Learning Classification of Location Oriented Recommendation System for Low-Sale Products	755
Comparison Of Iron And Steel Production Defects Using Classification Algorithms	759
Estimating the cost of crude steel production: a machine learning approach	768
Adopting Drone Technology in Mathematical Education	776
Electrical Energy Demand Forecasting Using Artificial Neural Network.....	783