

# **2021 IEEE International Conference on Machine Learning and Applied Network Technologies (ICMLANT 2021)**

**Soyapango, El Salvador  
16-17 December 2021**



**IEEE Catalog Number: CFP21BGE-POD  
ISBN: 978-1-6654-4951-9**

**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:	CFP21BGE-POD
ISBN (Print-On-Demand):	978-1-6654-4951-9
ISBN (Online):	978-1-6654-4950-2

**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

Multi-input LSTM for water level forecasting in Black River at border of Vietnam-China <i>Truong Thi Hai Yen, Ngo Xuan An, Nguyen Quang Dat, Vijender Kumar Solanki</i>	1
Enhanced Text Classification Methods to Improve the Performance of the Various Text Mining Processes using Rapid Miner <i>Shitanshu Jain, S.C. Jain and Santosh Vishwakarma</i>	6
Predicting ocean-wave conditions using buoy data supplied to a hybrid RNN-LSTM neural network and machine learning models <i>Gulustan Dogan, Meghan Ford, Scott James</i>	11
Classification of Activities and Falls within a Multimodal Dataset <i>Gulustan Dogan, Evan Kurpiewski, Ilya Samokhvalov, Blythe Layne, Lukmon Rasaan, Michel Heijnen</i>	17
Kinematics Solution of ALICE: An Exoskeleton Robot for Rehabilitation <i>Manuel Cardona</i>	22
Robust Automatic Speaker Identification System Using Shuffled MFCC Features <i>Mahdi Barhoush, Ahmed Hallawah, Anke Schmeink</i>	28
Night club recommendation system based on decision trees <i>Claudia N. Sánchez, José-Carlos Delgado-Gómez, Pablo Ramírez-España, Luis García-Zermeño, Samantha Licea, Julieta Domínguez-Soberanes</i>	34
Modeling and Prototype Implementation of an Automated Guided Vehicle for Smart Factories <i>Hiroki Sasamoto, Ramiro Velazquez, Sebastian Gutierrez, Manuel Cardona, Amir A. Ghavifekr, Paolo Visconti</i>	40
Realtime Pipeline Fire Smoke Detection using a Lightweight CNN model <i>Vaishnav Kumar Suresh Kumar and Praveen Sankarasubramanian</i>	46
Development of a teleoperated robot based on an experimental design for sterilization in Honduras <i>Jose Luis Ordoñez-Avila, Fredy Danilo Bonilla, Eduardo Daniel Garcia</i>	50
A CNN-based algorithm for selecting tree-of-interest images acquired by UAV <i>Itamar F. Salazar-Reque, Daniel Martín Arteaga Melendez, Kevin Guerra Huamán and Samuel G. Huamán Bustamante</i>	56
Mathematical Model Using Denavit-Hartenberg Algorithm For Kinematic Control of 12DOF Zoomorphic Robot <i>Dennys Fernando Cantarero Urbina and Alicia María Reyes Duke</i>	62
Using Neural Networks in River Level Prediction - case study of the river La Leche-Peru <i>Diana Castro Cardenas, Francisco Segura Altamirano, Merly Yataco Bernaola</i>	68
Partial Least Squares Structural Equation Modeling Algorithm for Electronic Wallet <i>Nguyen Thi Ngan, Bui Huy Khoi</i>	73

Assessment of Machine Learning Models in Detecting DGA Botnet in Characteristic by TF-IDF .....	79
<i>Tong Anh Tuan, Nguyen Viet Anh, Hoang Viet Long</i>	
Neural Transfer Learning For Vietnamese Sentiment Analysis Using Pre-trained Contextual Language Models.....	84
<i>An Pha Le, Tran Vu Pham, Thanh-Van Le, Duy V. Huynh</i>	
A Hybrid Fault Detection Framework for Mobile Computing System .....	89
<i>Neha Malhotra and Manju Bala</i>	
Effects of uncertainty in laser energy on temperature evolutions in directed energy deposition process using machine learning-based stochastic approach .....	94
<i>Thinh Quy Duc Pham, Xuan Van Tran and Anne-Marie Habraken</i>	
A Blockchain-based Secured and Privacy-Preserved Personal Healthcare Record Exchange System .....	99
<i>Hien Do Hoang, Do Thi Thu Hien, Thach Canh Nhut, Phan Dang Truc Quyen, Phan The Duy, Van-Hau Pham</i>	
Fruits classification by using machine learning - An experiment using popular approaches on local data .....	104
<i>Nguyen Vuong Thinh, A Nguyen Thi Yen Nhi, Trinh Gia Huy, Nghi Hoang Khoa, Nguyen Tan Cam</i>	
PWDGAN: Generating Adversarial Malicious URL Examples for Deceiving Black-Box Phishing Website Detector using GANs .....	110
<i>Trinh Nguyen Bac, Phan The Duy, Van-Hau Pham</i>	
Reinforcement learning for optimization hyper parameters of Long Short-Term Memory applied to Electricity load forecasting .....	114
<i>Ngoc Anh Nguyen Thi, Dat Dang Tien and Ngoc Le Anh</i>	
Generative Adversarial Network Design for Data Augmentation for Copro-parasite Images	120
<i>Miguel Gutierrez-Velazquez, Mario I Chacon-Murguía, Juan A Ramirez-Quintana, Carlos Arzate-Quintana and Alma D Corral-Saenz</i>	
Computer vision neural network using YOLOv4 for underwater fish video detection In Roatan, Honduras.....	125
<i>Delond Angelo Jimenez Nixon</i>	
Feature Generation by K-means for Convolutional Neural Network in Detecting IoT System Attacks .....	130
<i>Le Thi Hong Van, Pham Van Huong, Ta Quang Hua, Le Duc Thuan and Nguyen Hieu Minh</i>	
Stochastic Linear Programming Approach for Portfolio Optimization Problem .....	135
<i>Dao Minh Hoang, Tran Ngoc Thang, Nguyen Danh Tu, Nguyen Viet Hoang</i>	
Implementation of MPC and PID Control Algorithms to the Artificial Pancreas for Diabetes Mellitus Type 1.....	139
<i>Esther Matamoros-Alcivar, Tanya Ascencio-Lino, Rigoberto Fonseca, Andrés Tirado-Espín, Gandhi Villalba-Meneses, Lorena Barona, Diego Almeida-Galárraga</i>	

Evaluation of 6PE and 6VPE techniques in MPLS-VPN networks for video streaming . . . .	145
<i>Alex Leonel Yautibug Coro, Diego Avila-Pesantez, Alberto Arellano-Aucancela</i>	
Wearable Prototype for the Measurement of Explosive Gases in Mining . . . . .	150
<i>Fabian Medina, David Patarroyo, Bryann Gutierrez, Jorge Espíndola, Eduardo Avendaño</i>	
A Load Power Distribution Optimization based on Improving Biogeography-Based Optimization . . . . .	156
<i>Trong-The Nguyen, Trinh-Dong Nguyen, Truong-Giang Ngo, Thi-Kien Dao</i>	
Power Distribution System Optimization Based on Improved Free Search Algorithm . . . . .	161
<i>Thi-Kien Dao, Trong-The Nguyen, Quynh-Nga Nguyen, Truong-Giang Ngo</i>	
Cyberattacks Predictions Workflow using Machine Learning . . . . .	165
<i>Carlos Eduardo Barrera Perez, Jairo E. Serrano, Juan Carlos Martinez-Santos</i>	
Propose Method for the Design of a Transtibial Prosthesis using Generative CAD/FEM Analysis and Additive Manufacturing . . . . .	171
<i>Jose Luis Ordoñez Avila, Marcial Ordoñez Avila, Douglas Adalberto Aguilar, Manuel Cardona</i>	