

Contents

Deep Learning-based Applications

Deep Learning Based Early Diagnosis for SARS-CoV-2 Using Chest X-Ray Images	3
Abdel Rahman M. Attia and Sally M. ElGhamrawy	
Deep Learning-Based Image Captioning Used to Recognize Malicious or Emergency Activity in an Image	19
Prafful Roshan Topno, E. P. Ephzibah, R. Sujatha, Jyotir Moy Chatterjee, and Aboul Ella Hassanien	
Deep Learning Approaches for Personal Identification Based on EGG Signals	30
Sara Hamed Radwan, Mohammed El-Telbany, W. Arafat, and Rasha A. Ali	
Research on Vehicle Detection Algorithm Based on Improved YOLO	40
Jinjing Hu, Quan Liang, Zicheng Zhang, Wenzhe Yu, Hansong Wang, Zhihui Feng, Wei Ji, Neng Xiong, Chuanbo Feng, Chuanbo Hong, Wenjie Yu, and Chang Kuo-Chi	
Deep Learning Quantitative Trading Models' Performance Assessment: The Egyptian Exchange Stock Market as a Case Study	49
Rasha Abdel Kawy, Walid M. Abdelmoez, and Amin Shoukry	
Robust Crosswalk Detection Using Deep Learning Approach	62
Thong Duc Trinh, Tai Phat Nguyen, Tuan Ngoc Dao Le, Ngoan Van Nguyen, Narayan C. Debnath, and Vinh Dinh Nguyen	
Human Trafficking Solution by Deep Learning with Keras and OpenCV	70
Joram Gakiza, Zhang Jilin, Kuo-chi Chang, and Lin Tao	

Automatic Insulator String and Disk Detection in Aerial Images Based on a Deep Learning Approach	80
Gilbert Shyirambere, Rui Xu, Fatana Jafari, Jean Bosco Ndungutse, and Shi-Jian Liu	
Informatics	
Reducing Voltage Sag in Electrical Distribution System Through Comparison and Simulation Between DVR and DSTATCOM	93
Alaa Yousef Dayoub, Haitham Daghrour, and Nesmat Abo Tabak	
Understating Factors Affecting Traveling During COVID-19 Using Sentiment Analysis	105
Lamiaa Mostafa and Sara Beshir	
Image Colorization: A Survey of Methodologies and Techniques	115
M. H. Noaman, H. Khaled, and H. M. Faheem	
Factors Affecting the Adoption of Technology in Education System: Case of GCC Universities	131
Abdulsadek Hassan, Allam Hamdan, Mahmoud Gamal Sayed Abd El Rahman, Sameh Reda, and Adel M. Sarea	
Comparison Between Filtering Estimation with Evidence and Prediction Filtering Without Evidence to Predict a Robot Localization States	142
Jaouad Boudnaya, Marouan Cherrat, Ilham Gharib, and Abdelhak Mkhida	
An Improved Lightweight Traffic Sign Detection Model for Embedded Devices	154
Yu Wenzhe, Liang Quan, Zhang Zicheng, Hu Jinjing, Wang Hansong, Feng Zhihui, Xiong Neng, Hong Chuanbo, and Kuo-Chi Chang	
Research on Battery Energy Storage to Improve Transient Voltage Stability of Weak Nodes in Power System	165
Yusheng Chen, Peiqiang Li, Kuo-Chi Chang, and Rongsheng Zhang	
Vector Quantization Image Compression Algorithm Based on Bat Algorithm of Adaptive Separation Search	174
J. R. Guo, C. Y. Wu, Z. L. Huang, F. J. Wang, and M. T. Huang	
An Enhanced Approach for Automated Glaucoma Diagnosis in Retinal Fundus Images	185
Osama M. Kamara, Ahmed H. Asad, and Hesham A. Hefny	
Expert Systems in Academic Advising	198
Rania El-Sayed, Shahd Seddik, and Lydia W. Rizkallah	

Intelligent Robotic Arm Trajectory Tracking Research Based on a Multi-exponential Accelerated ILC Algorithm	208
Ji Wei, Liang Quan, Yu Wenjie, Zhu Xin, Feng Zhihui, Zhang Zicheng, and Kuo-Chi Chang	
Efficient Noise Reduction System in Industrial IoT Data Streams	219
Rabab Farouk Abdel-Kader, Noha Emad El-Sayad, and Rawya Yehia Rizk	
Machine Learning and Optimization	
Chinese Short Text Classification Based on Multi-level Semantic Feature Extraction	235
Fan Xu, Shuihua Sun, Shiao Xu, Zhiyuan Zhang, and Kuo-Chi Chang	
Indoor Air Conditioning Temperature Control System Based on RBF Fuzzy PID Control Algorithm	247
Zheng Shang, Huang Xuhong, Tang Shenping, Zhao Nan, Ruohan Ma, and Kuo-Chi Chang	
Chaotic Particle Swarm Optimization Algorithm for Fault Location of Distribution Network with DG	256
Kuo-Chi Chang, Rong-sheng Zhang, Hui-qiong Deng, Fu-Hsiang Chang, Hsiao-Chuan Wang, and Governor David Kwabena Amesimenu	
An Improved Multi-objective Visual Tracking Algorithm	267
Zhang Zicheng, Liang Quan, Feng Zhihui, Ji Wei, Wang Hansong, Hu Jinjing, Kuo-Chi Chang, and Gu Shengsen	
Optimal Configuration of Alarm for Ship Engine Room Based on Modified Invasive Weed Optimization Algorithm	275
Z. L. Huang, C. Y. Wu, J. R. Guo, F. J. Wang, and C. C. Huang	
Single Channel Speech Boundary Detection Algorithm Based on Principal Component Analysis	285
Haiyun Zhang, Jian Dong, Yufeng Ling, Yulong He, and Jian Lu	
Clustering-Based Hybrid Synergetic Model for Long-Term Electrical Load Forecasting	295
Rizk M. Rizk-Allah, I. M. El-Desoky, A. N. Ayad, and Aboul Ella Hassanien	
A Novel Chaotic Artificial Gorilla Troops Optimizer and Its Application for Fundus Images Segmentation	318
Gehad Ismail Sayed and Aboul Ella Hassanien	
Combined Predictive Model for Classifying and Lifetime Regression of Meat Based on Electronic Nose	330
Hazem Fekry Afify, Nahla Belal, and Yasser M. K. Omar	

An Intelligent Model for Rapid Diagnosis of Patients with COVID-19 Based on ANFIS	338
Aya Hossam, Ahmed Fawzy, Basem E. Elnaghi, and Ahmed Magdy	
Web Series Recommendation System Using Machine Learning	356
Anirban Mitra, Loknath Roy, Rupam Ghosh, Debranjana Pal, Sudipta Roy, Narayan C. Debnath, and Soumya Sen	
Modified Tunicate Swarm Algorithm for Nonlinear Optimization Problems	366
Rizk M. Rizk-Allah, O. Saleh, Enas A. Hagag, and Aboul Ella Hassanien	
Chaotic Harris Hawk Optimization Algorithm for Training Feed-Forward Neural Network	382
Eman A. Atta, Ahmed F. Ali, and Ahmed A. Elshamy	
Fuzzy Based Model for Predicting Crops Diseases Respecting the Ongoing Changes in Climate	392
Ahmed M. Yousef, Ahmed M. Gadallah, Maryam Hazman, and Hesham A. Hefny	
Author Index	401