Lecture Notes in Networks and Systems 171

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Preface

This volume contains 84 papers that were presented at the Eighth International Conference on Innovations in Computer Science and Engineering (ICICSE-2020) held during August 28–29, 2020, at Guru Nanak Institutions, Hyderabad, India, in collaboration with Computer Society of India(CSI) and funding from All India Council for Technical Education (AICTE).

The aim of this conference is to provide an vibrant virtual international forum that hubs together the researchers, scientists, academicians, corporate professionals and technically sound students under a roof to make it as a phenomenal, informative and interactive session which is acutely needed to pave the way to promote research advancements in the field of computer science and engineering.

ICICSE-2020 received more than 400 research papers from various sub-fields of computer science and engineering. Each submitted paper was meticulously reviewed by our review committee consisting of senior academicians, industry professionals and professors from premier institutions and universities.

- This conference was inaugurated and attended by top dignitaries such as Mr. Srini Santhanam, Vice President, S2 Integrators LLC, Atlanta, Georgia, USA; Dr. A. Govardhan, Professor and Rector, JNTU, Hyderabad; Dr. M. Manzoor Hussain, Professor and Registrar, JNTU, Hyderabad; and Mr. Aninda Bose, Senior Editor, Springer India Pvt. Ltd, India.
- This conference has a fantastic line up of keynote sessions, webinars sessions by eminent speakers, paper presentation sessions to present the latest outcomes related to advancements in computing technologies.
- The keynote and webinar sessions were conducted on cutting-edge technologies such as advancement in the field of artificial intelligence, advanced machine learning techniques, cybersecurity, data science-case studies, and the invited speakers were Dr. Sujala Deepak Shetty, Professor, BITS Pilani, Dubai Campus, UAE; Mr. Kiran Naidu, Data Scientist, AW Rostamani, Dubai, UAE; Dr. G. Shanmugarathinam, Professor and CISCO Certified Ethical Hacker, Presidency University, Bengaluru, India; and Dr. B. Sateesh Kumar, Professor, JNUTH, Hyderabad, India, respectively.

- The organizing committee of ICICSE-2020 takes the opportunity to thank the invited speakers, session chairs and reviewers for their excellent support in making this ICICSE-2020 a grand success during this unprecedented pandemic time.
- The quality of the research papers is a courtesy from respective authors and reviewers to come up to the desired level of excellence. We are indebted to the program committee members and external reviewers in producing the best-quality research papers in a short span of time. We also thank CSI delegates, AICTE, toward their valuable suggestions and funding in making this event a grand success.

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Contents

Static and Dynamic Activities Prediction of Human Using Machine and Deep Learning Models 1
S. Valai Ganesh, Mohit Agarwal, Suneet Kr. Gupta, and S. Rajakarunakaran

Implementation of Braille Tab 9
Tejas Kulkarni, Shikha Jha, Sunny Gupta, and Anuja Gote

Resized MIMO Antenna for 5G Mobile Antenna Applications 19
S. Subramanyam, S. Ashok Kumar, and T. Shanmuganantham

Molecule Four-Port Antenna is Utilizing Detachment Progress of MIMO 27
K. Venugopal Rao, S. Ashok Kumar, and T. Shanmuganantham

IOT-Based Underwater Wireless Communication 33
Gitimayee Sahu and Sanjay S. Pawar

Pattern Prediction Using Binary Trees 43
T. Aditya Sai Srinivas, Ramasubbareddy Somula, Karrothu Aravind, and S. S. Manivannan

Fruit Recognition Using Deep Learning 53
P. Balakesava Reddy, Somula Ramasubbareddy, D. Saidulu, and K. Govinda

Cross-Domain Variational Capsules for Information Extraction 63
Akash Nagaraj, K. Akhil, Akshay Venkatesh, and H. R. Srikanth

Automotive Accident Severity Prediction Using Machine Learning 73
Niva Mohapatra, Shreyanshi Singh, Bhabendu Kumar Mohanta, and Debasish Jena

Analysis of Quality of Experience (QoE) in Video Streaming Over Wi-Fi in Real Time 79
M. Vijayalakshmi and Linganagouda Kulkarni

Self Driven UGV for Military Requirements 87
Hrishikesh Vichore, Jaishankar Gurumurthi, Akhil Nair, Mukesh Choudhary, and Leena Ladge

Vehicular Ant Lion Optimization Algorithm (VALOA) for Urban Traffic Management 99
Ruchika Kumari and Rakesh Kumar

Dynamic and Incremental Update of Mined Association Rules Against Changes in Dataset 115
N. Satyavathi and B. Rama

E-Governance Using Big Data 123
Poonam Salwan and Veerpaul Kaur Maan

Implementation of Voice Controlled Hot and Cold Water Dispenser System Using Arduino 135
K. Sateesh Kumar, P. Udaya Bhanu, T. Murali Krishna, P. Vijay Kumar, and Ch. Saidulu

Future Smart Home Appliances Using IoT 143
Pattlola Srinivas, M. Swami Das, and Y. L. Malathi Latha

Multilingual Crawling Strategies for Information Retrieval from BRICS Academic Websites 153
Shubam Bharti, Shivam Kathuria, Manish Kumar, Rajesh Bhatia, and Bhavya Chhabra

Missing Phone Activity Detection Using LSTM Classifier 161
Abhinav Rastogi, Arijit Das, and Aruna Bhat

Suvarga: Promoting a Healthy Society 171
R. L. Priya, Gayatri Patil, Gaurav Tirodkar, Yash Mate, and Nikhil Nagdev

Multi-task Data Driven Modelling Based on Transfer Learned Features in Deep Learning for Biomedical Application 185
N. Harini, B. Ramji, V. Sowmya, Vijay Krishna Menon, E. A. Gopalakrishnan, V. V. Sajith Variyar, and K. P. Soman

Punjabi Children Speech Recognition System Under Mismatch Conditions Using Discriminative Techniques 195
Harshdeep Kaur, Vivek Bhardwaj, and Virender Kadyan

Effective Irrigation Management System for Agriculture Using Machine Learning 205
S. T. Patil, M. S. Bhosale, and R. M. Kamble

IoT-Based Smart Irrigation System 215
Mithilesh Kumar Pandey, Deepak Garg, Neeraj Kumar Agrahari, and Shivam Singh

A Hybrid Approach for Region-Based Medical Image Compression with Nature-Inspired Optimization Algorithm 225
S. Saravanan and D. Sujitha Juliet

Attention Mechanism-Based News Sentiment Analyzer 235
Sweta Kaman

Interactive Chatbot for COVID-19 Using Cloud and Natural Language Processing 241
Patel Jaimin, Patel Nehal, and Patel Sandip

Investigating the Performance of MANET Routing Protocols Under Jamming Attack 251
Protiva Sen and Mostafizur Rahman

Classification of Skin Cancer Lesions Using Deep Neural Networks and Transfer Learning 259
Danny Joel Devarapalli, Venkata Sai Dheeraj Mavilla, Sai Prashanth Reddy Karri, Harshit Gorijavolu, and Sri Anjaneya Nimmakuri

Security Features in Hadoop—A Survey 269
Gousiya Begum, S. Zahoor Ul Huq, and A. P. Siva Kumar

Optical Character Recognition and Neural Machine Translation Using Deep Learning Techniques 277
K. Chandra Shekar, Maria Anisha Cross, and Vignesh Vasudevan

COVID-19 Touch Project Using Deep Learning and Computer Vision 285
Chatla Venkat Rohit and GRS Murthy

Flood Relief Rover for Air and Land Deployment (FRRALD) 297
Jewel Moncy John, Justin Eapen, Jeffin John, Ebin Joseph, and Abraham K Thomas

An Enhanced Differential Evolution Algorithm with Sorted Dual Range Mutation Operator to Solve Key Frame Extraction Problem 307
M. Aathira and G. Jeyakumar

Annotation for Object Detection 317
P. Myna, R. V. Anirudh, Brundha Rajendra Babu, Eleanor Prashamshini, and Jyothi S. Nayak

Development of Self Governed Flashing System in Automotives Using AI Technique 327
N. Sankarachelliah, V. Rijith Kumar, P. Senthilram, S. Valai Ganesh, T. Selva Sundar, S. Godwin Barnabas, and S. Rajakarunakaran

Comparison Between CNN and RNN Techniques for Stress Detection Using Speech 333
Bageshree Pathak, Snehal Gajbhiye, Aditi Karjole, and Sonali Pawar

Finding the *K*th Max Sum Pair in an Array of Distinct Elements Using Search Space Optimization 341
Deepak Ahire, Smriti Bhandari, and Kiran Kamble

Dynamic Trade Flow of Selected Commodities Using Entropy Technique 353
Sharmin Akter Milu, Javed Hossain, and Ashadun Nobi

An Automated Bengali Text Summarization Technique Using Lexicon-Based Approach 363
Busrat Jahan, Sheikh Shahparan Mahtab, Md. Faizul Huq Arif, Ismail Siddiqi Emon, Sharmin Akter Milu, and Md. Julfiker Raju

Location-Based Pomegranate Diseases Prediction Using GPS 375
Rajshri N. Malage and Mithun B. Patil

Medical Image Enhancement Technique Using Multiresolution Gabor Wavelet Transform 385
Kapila Moon and Ashok Jetawat

HOMER-Based DES for Techno-Economic Optimization of Grid 393
R. Raja Kishore, D. Jaya Kumar, Dhonvan Srinu, and K. Satyavathi

Odor and Air Quality Detection and Mapping in a Dynamic Environment 403
Raghunandan Srinath, Jayavrinda Vrindavanam, Rahul Rajendrakumar Budyal, Y. R. Sumukh, L. Yashaswini, and Sangeetha S. Chegaraddi

A Comparative Study on the Performance of Bio-inspired Algorithms on Benchmarking and Real-World Optimization Problems 411
E. Lakshmi Priya, C. Sai Sreekari, and G. Jeyakumar

A Study on Optimization of Sparse and Dense Linear System Solver Over GF(2) on GPUs 419
Prashant Verma and Kapil Sharma

Intracranial Hemorrhage Detection Using Deep Convolutional Neural Network 429
K. Thirunavukkarasu, Anmol Gupta, Satheesh Abimannan, and Shahnawaz Khan

A Multi-factor Approach for Cloud Security 437
Francis K. Mupila and Himanshu Gupta

An Innovative Authentication Model for the Enhancement of Cloud Security 447
Francis K. Mupila and Himanshu Gupta

Substituting Phrases with Idioms: A Sequence-to-Sequence Learning Approach 457
Nikhil Anand

A Composite Framework for Implementation of ICT Enabled Road Accident Prediction Using Spatial Data Analysis 465
Dara Anitha Kumari and A. Govardhan

VISION AID: Scene Recognition Through Caption Generation Using Deep Learning 473
Mathew Regi and Mathews Abraham

Effect of Hybrid Multi-Verse with Whale Optimization Algorithm on Optimal Inventory Management in Block Chain Technology with Cloud 483
C Govindasamy and A. Antonidoss

Bottleneck Feature Extraction in Punjabi Adult Speech Recognition System 493
Shashi Bala, Virender Kadyan, and Vivek Bhardwaj

A Study of Machine Learning Algorithms in Speech Recognition and Language Identification System 503
Aakansha Mathur and Razia Sultana

Plant Leaf Disease Detection and Classification Using Machine Learning Approaches: A Review 515
Majji V. Appalanaidu and G. Kumaravelan

Single-Channel Speech Enhancement Based on Signal-to-Residual Selection Criterion 527
Ramesh Nuthakki, Junaid Abbas, Ayesha Afnan, Faisal Ahmed Shariff, and Akshaya Hari

Evolutionary Algorithm for Solving Combinatorial Optimization—A Review 539
Anisha Radhakrishnan and G. Jeyakumar

Effect of J48 and LMT Algorithms to Classify Movies in the Web—A Comparative Approach 547
Prashant Bhat and Pradnya Malaganve

A System to Create Automated Development Environments Using Docker 555
N. S. Akhilesh, M. N. Aniruddha, Anirban Ghosh, and K. Sindhu

Novel Methodologies for Processing Structured Big Data Using Hadoop Framework 565
Prashant Bhat and Prajna Hegde

Intelligent Cane for Assistant to Blind and Visual Impairment People 573
Meet Patel, Hemal Ahir, and Falgun Thakkar

A Comprehensive Survey on Attacks and Security Protocols for VANETs 583
Aminul Islam, Sudhanshu Ranjan, Arun Pratap Rawat, and Soumayadev Maity

Analysis, Visualization and Prediction of COVID-19 Pandemic Spread Using Machine Learning 597
Snigdha Sen, B. K. Thejas, B. L. Pranitha, and I. Amrita

Study of Behavioral Changes and Depression Control Mechanism Using IoT and VR 605
Pavan Kumar Katkuri and Archana Mantri

Sentiment Analysis on Hindi–English Code-Mixed Social Media Text 615
T. Tulasi Sasidhar, B. Premjith, K. Sreelakshmi, and K. P. Soman

Accident Risk Rating of Streets Using Ensemble Techniques of Machine Learning 623
Akanksha Rastogi and Amrit Lal Sangal

Skin Detection Using YCbCr Colour Space for UAV-Based Disaster Management 633
S. J. Arya, A. Asish, B. S. Febi Shine, J. L. Sreelakshmi, and Elizabeth Varghese

Lie Detection Using Thermal Imaging Feature Extraction from Periorbital Tissue and Cutaneous Muscle 643
Prajkta Kodavade, Shivani Bhandigare, Aishwarya Kadam, Neha Redekar, and Kiran P. Kamble

Voting Classification Method with PCA and K-Means for Diabetic Prediction 651
Anupama Yadav, Harsh K. Verma, and Lalit Kumar Awasthi

Hybrid Model for Heart Disease Prediction Using Random Forest and Logistic Regression 657
Hemant Kumar Sharma and Amrit Lal Sangal

Detection of Android Malware Using Machine Learning Techniques . . . 663
Sonal Pandey, C. Rama Krishna, Ashu Sharma, and Sanjay Sharma

The Predictive Genetic Algorithm (GA) Load Management Mechanism for Artificial Intelligence System Implementation (AI) 677
T. Pushpatha and S. Nagaprasad

Continuous Recognition of 3D Space Handwriting Using Deep Learning 693
Sagar Maheshwari and Sachin Gajjar

Automated SQL Grading System 701
Shohna Kanchan, Samruddhi Kalsekar, Nishita Dubey, Chelsea Fernandes, and Safa Hamdare

Error Analysis with Customer Retention Data 709
V. Kaviya, V. Harisankar, and S. Padmavathi

Prediction Based Task Scheduling for Load Balancing in Cloud Environment 719
Suresh Chandra Moharana, Amulya Ratna Swain, and Ganga Bishnu Mund

Test Case Generation Using Adequacy-Based Genetic Algorithm 727
Ruchika Malhotra and Shivani Pandey

Performance Analysis of π, AL and CT for Consistency Regularization Using Semi-Supervised Learning 737
Rishita Choubey and Koushik Bhattacharyya

An Energy-Efficient PSO-Based Cloud Scheduling Strategy 749
Ranga Swamy Sirisati, M. Vishnu Vardhana Rao, S. Dilli Babu, and M. V. Narayana

A Pronoun Replacement-Based Special Tagging System for Bengali Language Processing (BLP) 761
Busrat Jahan, Ismail Siddiqi Emon, Sharmin Akter Milu, Mohammad Mobarak Hossain, and Sheikh Shahparan Mahtab

A High Performance Pipelined Parallel Generative Adversarial Network (PipeGAN) 769
Rithvik Chandan, Niharika Pentapati, Rahul M. Koushik, and Rahul Nagpal

Electroencephalogram-Based Classification of Brain Disorders Using Artificial Intelligence 779
Laxmi Raja and R. Santhosh

Parallel Antlion Optimisation (ALO) and Grasshopper Optimization (GOA) for Travelling Salesman Problem (TSP) 787
G. R. Dheemanth, V. C. Skanda, and Rahul Nagpal

Design and Development of Machine Learning Model for Osteoarthritis Identification 795
Naidu Srinivas Kiran Babu, E. Madhusudhana Reddy, S. Jayanthi, and K. Rajkumar

Author Index 803

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Static and Dynamic Activities Prediction of Human Using Machine and Deep Learning Models

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Abstract Recent advancement in smart phones and computing technologies has played a vital role in people's life. Develop a model to detect the human basic dynamic activities such as Amble, Climb stairs, coming down the stairs into the floor and human basic static activities like Sitting, Standing or Laying using the person's smart phone and computers are the major work of this paper. Conventional Machine learning models like Logistic Regression, SVC, Decision tree, etc. results are compared with a recurrent deep neural network model named as Long Short Term Memory (LSTM). LSTM is proposed to detect the human behavior based on Human Activity Recognition (HAR) dataset. The data is monitored and recorded with the aid of sensors like accelerometer and Gyroscope in the user smart phone. HAR dataset is collected from 30 persons, performing different activities with a smart phone to their waists. The testing of the model is evaluated with respect to accuracy and efficiency. The designed activity recognition system can be manipulated in other activities like predicting abnormal human actions, disease by human actions, etc. The overall accuracy has improved to 95.40%.

Keywords Human activity recognition · LSTM · Sensors · Smart phones · Recurrent neural network · Gyroscope · Accelerometer

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