

Lecture Notes in Networks and Systems 520

Milan Tuba
Shyam Akashe
Amit Joshi *Editors*

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Preface

The Seventh International Conference on ICT for Sustainable Development (ICT4SD 2022) targets theory, development, applications, experiences and evaluation of interaction sciences with fellow students, researchers and practitioners.

The conference is devoted to increasing the understanding role of technology issues and how engineering has day by day evolved to prepare human-friendly technology. The conference will provide a platform for bringing forth a significant research and literature across the field of ICT for sustainable development and provide an overview of the technologies awaiting unveiling. This interaction will be the focal point for leading experts to share their insights, provide guidance and address participant's questions and concerns.

The conference will be held on July 29–30, 2022, at Hotel Vivanta by TAJ, Panaji, Goa. The conference is organized by Global Knowledge Research Foundation, Supporting Partner InterYIT, International Federation for Information Processing, State Chamber Partner Goa Chamber of Commerce and Industry and National Chamber Partner Knowledge Chamber of Commerce and Industry.

Research submissions in various advanced technology areas were received and after a rigorous peer-review process with the help of program committee members and 193 external reviewers for 1200+ papers from 25 different countries including Algeria, United States, United Arab Emirates, Serbia, Qatar, Mauritius, Egypt, Saudi Arabia, Ethiopia, Oman out of which 225 were accepted with an acceptance ratio of 0.19. These will be presented in 30 parallel sessions in two days organized physically and virtually including one inaugural and one keynote session.

Technology is the driving force of progress in this era of globalization. Information and communications technology (ICT) has become a functional requirement for the socioeconomic growth and sustained development of any country. The influence of information and communications technology (ICT) in shaping the process of globalization, particularly in productivity, commercial and financial spheres, is widely recognized. The ICT sector is undergoing a revolution that has momentous implications for the current and future social and economic situation of all the countries in the world. ICT plays a pivotal role in empowering people for self-efficacy and how it can

facilitate this mission to reach out to grassroots level. Finally, it is concluded that ICT is a significant contributor to the success of the ongoing initiative of Startup India.

In order to recognize and reward the extraordinary performance and achievements by ICT and allied sectors and promote universities, researchers and students through their research work adapting new scientific technologies and innovations. The two days conference had presentations from the researchers, scientists, academia and students on the research work carried out by them in different sectors.

The conference has invited eminent dignitaries including Shri. Nitin Kunkolienker, President, MAIT; Prof. Mike Hinchey, President, IFIP; Dr. Milan Tuba, Vice Rector for International Relations, Singidunum University, Serbia; Prof. Jagdish Bansal, India; Mr. Aninda Bose, Springer Nature; and Dr. Amit Joshi, Director, G. R. Foundation.

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Contents

Survey Paper on Multi-view Object Detection: Challenges and Techniques	1
Nirali Anand Pandya and Narendrasinh Chauhan	
Exploring the Scheduling Techniques for the RTOS	11
Dhruva R. Rinku, M. Asha Rani, and Y. Suhruth Krishna	
Grid Power Smoothing Management for Direct-Drive PMSG Variable-Speed Wind Energy Conversion System with Multilevel Converter	19
Mohammad Aarif, Deepak Joshi, Raunak Jangid, and Sasanka Sekhor Sharma	
Fall Detection Using Transformer Model	29
K. Mohammed Sharook, Aswathi Premkumar, R. Aishwaryaa, J. M. Amrutha, and L. R. Deepthi	
Survey on Various IOT-Based Irrigation Techniques in India	39
Priya Metri and Suman Kumari	
Empirical Analysis of Crop Yield Prediction and Disease Detection Systems: A Statistical Perspective	49
Snehal A. Lohi and Chinmay Bhatt	
Analysis of Public Perception of Autonomous Vehicles Based on Unlabelled Data from Twitter	59
Achal Shankar Gupta and Shilpi Sharma	
DFCNNet: A Convolutional Neural Network to Detect Deepfakes	69
Piyush Pal Singh	
White Blood Cells Classification Using Deep Learning Technique	79
S. Srimahima, G. Yuvarani, and L. K. Nandhini	

Comparative Analysis of Convolutional Neural Network in Object Detection	87
Vipashi Kansal, Upma Jain, Bhaskar Pant, and Arnav Kotiyal	
A Review of the Applications and Future Scope of Artificial Intelligence in Smart Transport	97
Kanishk Arya and Meenakshi Sumeet Arya	
Besuited EEG Signal Analysis for Stress Monitoring Using Bionic Sensor	105
K. Dhanush, P. Janani, B. Pratap Kumar, Hanumantha Lakshmi Narayana, Karaka Teja, and Neelapu Avinash	
Publish–Subscribe with IoT for a Smart Soil Moisture Irrigation System	115
M. Usha, P. Prittopaul, P. S. Mounish, S. Sundar, G. Aijay Ramanujam, and W. S. Shahid Farhan	
An Optimized Taxonomy and Identification of Retinal Eye Diseases for Diabetes Patients Using CNN	123
P. Prittopaul, M. Usha, N. Thirumalai, M. Vasanth, R. Raj Kumar, and B. Sakthidhasan	
Axiomatically Designed Research Support Systems	131
Ahmed Ech-Cherif, Khalied Albarrak, and Abdulrahman K. Alnaim	
Detection of Hepatitis B Virus Using NFC-Enabled Smartphone-Based Portable Amperometric Immunosensor	143
Tejaswini Halakate and Sunanda Dixit	
Encrypto–Decrypto	151
Sajal Gupta, Sambhav Jain, Shastranshu Singh, and Tanveer Ikram	
Enhancing the Employability of Engineering Graduates: An Assertion on Fundamental Educational Aspect of Engineering Education with Proposing a Hypothesis of ‘Wishing Theory’-Based on Prospective Machine Learning Model	161
Shantanu Lohi, Shailendra S. Aote, Ravindra N. Jogekar, Harish V. Gorewar, Ajay A. Jaiswal, Sandeep S. Ganorkar, Snehal A. Lohi-Bode, Rajesh M. Metkar, and Dilip R. Uike	
UpMove DownMove Strategy Using Neural Network Techniques for the Prediction of Stock Prices	171
Madhav and Meenakshi Sumeet Arya	
Breast Cancer Detection Using Bag of Visual Words	189
Likhith Prasanth, P. M. Abhijith, V. K. Darsith, Deepa K. Sreekanthan, and T. Anjali	

Music Source Separation with Deep Convolution Neural Network	199
Patil Mangal and Renuka Deolalikar	
Architecture of AI-Enabled Online Education System	207
V. Devadevan and Suresh Sankaranarayanan	
Automatic Documents Categorization Using NLP	215
Parsa Sai Tejaswi, Saranam Venkata Amruth, Prakya Tummala, and M. Suneetha	
IoT-Enabled Sustainable Solution for Smart Shopping Experience	227
Rugved Chavan, Suchit Singh, Vidyadhar Aski, and Clely Fernandes	
Dual-Band Monopole Antenna with Dual-Stub and Microstrip Feeding for WLAN/WiMAX/Satellite Communications Applications	235
Parimal Tiwari, K. K. Verma, and Chandan	
Design and Implementation of Wireless Optical Link Using OOK Modulation	245
Devant Kumar and K. L. V. Sai Prakash Sakuru	
Comparison Between YOLOv5 and SSD for Pavement Crack Detection	257
Atharva Duragkar, Sharayu Guhe, Ashita Sortee, Shashikant Singh, and Chaitali Chandankhede	
Temperature Dependency of TGS822 Model on PSPICE	265
Nameesha Chauhan	
Emotional Intelligence as a Predictor of Success in e-Learning Engagement During COVID-19: A Case of Veritas University Abuja, Nigeria	275
Chika Eze, Obianuju E. Okeke-Uzodike, Emelda I. Emmanuel, and Emmanuel O. C. Mkpojiogu	
An Explainable AI-Based Skin Disease Detection	287
Gayatri Shrinivas Ballari, Shantala Giraddi, Satyadhyhan Chickerur, and Suvarna Kanakareddi	
Crop Price Prediction Using Deep Learning	297
C. Y. Prajwal, K. S. Chandan, S. Likith, M. S. Poorna Prajwal, and B. Santhosh	
Retrospective Inspection for Research in Natural Language Processing of Hindi Language Using Fuzzy Logic	303
Sonakshi Vij, Deepali Virmani, and Amita Jain	
Review of Deep Learning: A New Era	311
Mohini Darji, Jaykumar A. Dave, and Dushyantsinh B. Rathod	

A Study and Analysis of Technological Applications of Ubiquitous Computing and Internet of Things	321
Sonia Nivik and M. R. Dileep	
Cancer Through the Lens of Social Media: An Examination of Cancer-Related Content on Reddit	335
Shreeya Sudhesh Rao, Vibha, Shitij, Giridhar B. Kamath, and Suchetha S. Rao	
Depression and Disclosure Behavior via Social Media Using CNN	347
Vishal D. Tayade and Milind V. Kulkarni	
Age Estimation from Face Images Using CNN Based on LBPH/LBP ...	357
Ajmer Singh and H. Pal Thethi	
Content-Centric Prediction Model for Early Autism Spectrum Disorder (ASD) Screening in Children	369
Anita Vikram Shinde and Dipti D. Patil	
An Effective Approach for Image Cartoon and Texture Decomposition	379
Riya, Bhupendra Gupta, and Subir Singh Lamba	
Learning Analytics and Online Courses: A Bayesian Belief Network Approach to Predict Success	389
Virendra Singh Nirban, Tanu Shukla, and Daksh Dave	
Missing Link Prediction in the Social Network Using Graph Convolutional Networks	399
Liju Samuel and Asha Ashok	
Dehazing from a Single Remote Sensing Image	409
Bhupendra Gupta and Shivani A. Mehta	
Design of Water Quality Monitoring System Using IoT	419
S. Durga Madhuri, G. V. Sai Swetha, B. V. R. Gowri, Kapila Gurucharan, and M. S. Naidu	
An Approach on Cyber Threat Intelligence Using Recurrent Neural Network	429
U. Sakthivelu and C. N. S. Vinoth Kumar	
A Model in Healthcare Cloud for Securing the Data Using Fog Computing	441
Delna Jose and J. Swaminathan	
Multi-node Li-Fi Communications Compliant with IEEE 802.15.7 Standard	449
K. M. Athira and Subhasri Duttagupta	

Detecting Autism Spectrum Disorder Using DenseNet	461
Venkata Satya Sai Karri, S. Remya, Alapati Ratna Vybhav, Gopu Sri Ganesh, and Juluru Eswar	
Detecting Soil Fertility for Agriculture Land Using IOT and Prediction of Crops Using Machine Learning Algorithm	469
Prasad Bhingarde and Uma Pujeri	
Two-Phase Mitotic Detection Using Deep Learning Techniques	479
Anjali Venugopal and Lekha S. Nair	
Easy Portability and Cost-Effective Assistive Mechanism for the Visually Impaired	491
M. Achuth Ram, Irene Shaji, Issac B. Alappatt, Jacob Varghese, C. D. John Paul, and Mervin Joe Thomas	
Ensemble Deep Learning Model for Breast Histopathology Image Classification	499
Aiswarya Venugopal, V. Sreelekshmi, and Jyothisha J. Nair	
Information and Communication Technology Acceptance Among Police Personnel in Rajasthan	511
Umesh Mishra, Virendra Singh Nirban, and Tanu Shukla	
Peer-to-Peer Ridesharing Using Blockchain	519
Ashwin Nambiar, Swaroop Chava, Bankupalli Sameer, Karthik, and T. S. Indulekha	
AI-Based Interview Agent	527
Manasi Jagtap, Ankita Govekar, Nimita Joshi, Shambhavi Joshi, and Sandhya Arora	
PodFast: Extractive Audio Summarization	537
Atharva Deshpande, Shruti Yadav, Mehak Gupta, and Urmila Kalshetti	
An Improved Static Technique for Placement of Anchor Nodes to Enhance the Localization in IoT	545
Debashis Hati, Sasmita Behera, Amulya Ratna Swain, and Madhabananda Das	
Blockchain Technology and Decentralized Applications Using Blockchain	555
Mohd. Osama Iqbal, Ahmed J. Obaid, Parul Agarwal, Tabish Mufti, and Ahmed R. Hassan	
An AI-Based Scientific Approach to Analyze and Predict Attritions in an Organization	565
Devanshu Joshi, Garima Sharma, Ankita Nainwal, and Vikas Tripathi	

Role of Co-design in Developing an Enhanced Moringa-Based Intervention for Rural Livelihood Opportunities	575
P. Rithan Mandesh, R. Rajesh, A. Monika Sri, Swaran Surendran, S. Vidhya, Ashwin Krithik, Bart Otten, Kai Walther, Ruben Blanco Montero, and Krishna Nandan	
Implementation of Anomaly Detection Using Unsupervised Machine Learning	587
Preeti Hudekar, Disha Patel, Prateeksha More, Madhura Dongare, and Swati Shirsath	
Specific Wavelet Family Selection for Wavelet Domain-Based Super-Resolution Application	593
Mrunmayee V. Daithankar and Sachin D. Ruikar	
Patch-Based Autoencoder for Document Image Denoising with Smoothing	603
Sawal Mayuree, Zagade Anushka, Jadhav Pranjal, Kamble Perna, and Deshpande Prajakta	
An AHP-TOPSIS Integrated Model for Better Ranking in Constrained Crowd Opinions	613
Sujoy Chatterjee	
Image Generation Using Sketch and Attributes	625
Rishika Shrivani, Kritik Taktewale, Dharkan Mohinani, and Pooja Shetty	
Stock Market Prediction Using Recurrent Neural Network and Long Short-Term Memory	635
Sachin Bhoite, Gufran Ansari, C. H. Patil, Surabhi Thatte, Vikas Magar, and Krishna Gandhi	
Role and Rewards of Information and Communication Technology (ICT) Interventions in Edification During COVID-19 Pandemic	645
Pranav Desai and Bhaskar Pandya	
Personalized Formative Feedbacks and Recommendations Based on Learning Analytics to Enhance the Learning of Java Programming	655
Vinayak Hegde, Anusha R. Pai, and Ranjitha J. Shastry	
Predicting the Grade by Exploring the Relationship Between Computational Thinking and Academic Performance Through Learning Analytics	667
Vinayak Hegde, Ranjitha J. Shastry, and Anusha R. Pai	
Evolution of Cryptocurrencies and Sentiment Analysis: A Correlation Analysis	679
Syed Saad Husain and Salim Y. Amdani	

The Changing Landscape of Identity and Access Management with Blockchain-Based Self-Sovereign Identity	691
Monica Chawla and Sachin Gupta	
Insect Image Semantic Segmentation and Identification Using UNET and DeepLab V3+	703
Kunal Bose, Kumar Shubham, Vivek Tiwari, and Kuldip Singh Patel	
US Traffic Sign Recognition by Using Partial OCR and Inbuilt Dictionary	713
Sakshita Jaiswal, Kumar Shubham, Kunal Bose, and Vivek Tiwari	
A Comprehensive Approach for Recognizing the Ocular Impression Using Machine Learning-Based CNN and LBP Plainer Interpolation	721
Ranjeeta Kaur, Anurag Gupta, Saneh Lata Yadav, Manpreet Bajwa, Sandeep Singh, and Prashant Vats	
A Comprehensive Framework for Online Job Portals for Job Recommendation Strategies Using Machine Learning Techniques	729
Kamal Upreti, Shikha Mittal, Prakash Divakaran, Prashant Vats, Manpreet Bajwa, and Sandeep Singh	
Detection of Malicious URLs	739
S. Suresh Kumar, C. M. Richy Ryan, D. Samuel Jebin, K. Sharan Venkat, and S. Vinu Prasath	
Monitoring Suspects of COVID-19 in Compact Residential Area Using Machine Learning Based on Lockdown Analytical Impact	749
Reena Gupta and Manju Mandot	
Author Index	763

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About the Editors

Milan Tuba was born in Lucani in 1952. He completed primary and secondary education in Osijek. He received B.S. in Mathematics, M.S. in Mathematics, M.S. in Computer Science, M.Phil. in Computer Science, Ph.D. in Computer Science from University of Belgrade and New York University. From 1983 to 1994, he was in the USA first as a graduate student as well as teaching and research assistant at Vanderbilt University in Nashville and Courant Institute of Mathematical Sciences, New York University and later as assistant professor of Electrical Engineering at Cooper Union Graduate School of Engineering, New York. During that time, he was the founder and director of Microprocessor Lab and VLSI Lab, leader of scientific projects and supervisor of many theses. Since returning from the USA in 1994, he has been a participant in the scientific projects of the Ministry of Science of the Republic of Serbia, currently on the project Project III-44006. He was teaching more than 20 graduate and undergraduate courses, from VLSI Design and Computer Architecture to Computer Networks, Operating Systems, Image Processing, Calculus and Queuing Theory. His research interests include mathematical, queuing theory and heuristic optimizations applied to computer networks, image processing and combinatorial problems. Currently, mentor in a group of five students working in the field of heuristic optimization methods based on the intelligence of swarms. He is the author of more than 150 scientific papers and a monograph. He held ten plenary lectures at conferences at Harvard, Cambridge, Moscow, Paris and Istanbul. He is also a coeditor, a member of the editorial board, scientific committee member or a reviewer for several international journals and conferences. He is a member of international and scientific organizations: ACM, IEEE, AMS, SIAM and FNA. Currently, he is Vice Rector for Singidunum University, Serbia.

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Amit Joshi is currently Director of Global Knowledge Research Foundation, also an entrepreneur and researcher who has completed his graduation (B.Tech.) in Information Technology and M.Tech. in Computer Science and Engineering and completed his research in the areas of cloud computing and cryptography in medical imaging with a focus on analysis of the current government strategies and world forums needs in different sectors on security purposes. He has an experience of around ten years in academic and industry in prestigious organizations. He is an active member of ACM, IEEE, CSI, AMIE, IACSIT-Singapore, IDES, ACEEE, NPA and many other professional societies. Currently, he is Chairman of Computer Society of India (CSI) Udaipur Chapter and Secretary for Association of Computing Machinery (ACM) Udaipur Professional Chapter. Further currently, he is also the International Chair of InterYIT at International Federation of Information Processing (IFIP, Austria). He has presented and published more than 50 papers in National and International Journals/Conferences of IEEE and ACM. He has also edited more than 20 books which are published by Springer, ACM and other reputed publishers. He has also organized more than 40 national and international conferences and workshops through ACM, Springer and IEEE across five countries including India, UK, Thailand and Europe. Apart from this academic involvement, he is also associated with the business and industry community across the globe. He is currently Director of Emanant Tech Media (P) Limited which focuses on ICT and web-based services. With Global Knowledge Research Foundation, his major work area is focused on building and making effective linkages among bureaucrats, industry associations, academic leaders and regulatory authorities for effective connectivity for taking up common issues related to research in different sectors and has organized more than 20 industry forum events and recognized and felicitated Awards Ceremonies through his organizations in last five years. Liaisoning/communications with state as well as central establishments along with corporate and academics to take industry and government sector together. He is majorly focusing on academic tie-ups for medical, engineering and management sectors; for the same, he is representing the organization in many delegations to countries including USA, UK, Canada and Israel and visited more than 15 countries. He always looks forward and strives for networking in various sectors with a focus on education and industry sector.

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Survey Paper on Multi-view Object Detection: Challenges and Techniques



Nirali Anand Pandya and Narendrasinh Chauhan

Abstract Object localization and detection is the emerging area of computer vision and image processing that finds out the location of the object in the video frames or in the digital images. Object localization and detection have many challenges like occlusion, scale variations, intraclass similarities, illumination conditions, pose variations, etc. Multi-view object detection focuses on different views of objects like the top, bottom, side view, etc. We aim to discuss the different Object detection models based on Machine learning and Deep neural network approaches in a multi-view environment. We also discuss different datasets used for object detections and their applications. We apply some object detection models like SSD and Faster R-CNN to specific object categories of Open Image Dataset V6 and compare the results based on mAP (Mean Average Precision).

Keywords Object detection • Convolution neural networks • R-CNN • Fast R-CNN • Faster R-CNN • EfficientDet • CenterNet

1 Introduction

With the fast development of deep neural networks, several research areas have done good results, and with non-stop improvement of the CNN-based model, computer vision arrived at a new peak. VGGNet [1], Residual Network [2], Mobile net [3, 4], etc., are examples of very deep architectures of convolution neural networks. These models are generally used for object recognition, face recognition and detection, object classification, object detection and tracking, semantic segmentation, etc.

Object detection is a computer technology associated with computer vision that detects objects of specific categories like car, bus, airplane, traffic light, etc., in digital

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