MDCWC 2020

ONLINE WORKSHOP

Machine Learning Deep Learning and Computational Intelligence for Wireless Communication

22ⁿᵈ October to 24ᵗʰ October 2020

PAPER PRESENTATION* ON THE FOLLOWING TOPICS

- **Machine Learning**
- **Deep Learning**
- **Computational Intelligence**
- **Optimization algorithms**
- **Mobile data applications**
- **Wireless communication**

*To be published in the Lecture Notes in Electrical Engineering, Springer publications.

KEYNOTE ADDRESS

INVITED TALKS

TUTORIAL ON ML, DL and CI

Co-ordinator of the event: Dr. E.S. Gopi, Series editor, Signals and Communication Technology, Springer publications

Associate professor, Department of ECE, NIT Tiruchirappalli

Co-ordinator, Pattern recognition and Computational intelligence laboratory

Co-coordinators: Dr.B.Rebekka , Dr.G.Thavasi Raja, Assistant professors, Department of ECE,NIT Tiruchirappalli

Registration details for Participants

Participants will be allowed to attend all the following sessions of the workshop. (a) **Guest lectures** (b) **Invited talks (c)Paper presentation by the authors (d)Machine learning, Deep learning and Computational intelligence Tutorial**.

Tutorial lectures will be based on the book titled "**Pattern Recognition and Computational Intelligence Techniques Using Matlab**" 2019, Transactions on computational Science and intelligence, Springer publications authored by the Co-ordinator for the event MDCWC 2020

Pattern recognition and Computational Intelligence Laboratory

Department of Electronics and Communication Engineering

National Institute of Technology, Tiruchirappalli

Patron:

Mini Shaji Thomas,
Director,
National Institute of Technology,
Tiruchirappalli

Co-Patron:
P Muthuchidambaranathan,
Head of the Department/ECE

Technical Program committee:
(External members)

- ζ **Abhinav**, Radisys
- ζ **Akhil Gupta**, Lovely Professional University, Phagwara, Punjab.
- ζ **Anand Kulkarni**, Symbiosis Institute of Technology, Pune.
- ζ **Aparna P,** NITK,Surathkal
- ζ **K K Biswas**, Retired Professor, Indian Institute of Technology Delhi
- ζ **Deep Gupta**,VNIT,Nagpur
- ζ **Dushantha Nalin K Jayakody**, National Research Tomsk Polytechnic University, Russia.
- ζ **Emre celebli**, University of central Arkansas
- ζ **Florintina**, GE Electronics, Bangalore.
- ζ **Gaurav Purohit**, CSIR-CEERI, Pilani, Rajasthan.
- ζ **Hariharan Muthusamy,** NIT, Srinagar
- ζ **JithinJagannath**, Director, Marconi-Rosenblatt AI/ML Innovation Lab,Research scientist, Andro computational solutions, New York.

- ζ **Lakshmanan,** Senior Research scientist, MayachitraInc. Deep learning data solutions, California
- ζ **Lakshmi sutha**, NIT, Puducherry
- ζ **Lalit Singh,** IIT, Bhuvaneshwar
- ζ **Mandeep Singh,** NIT, Surathkal
- ζ **Mohammed shaik**, Qualcomm, Hyderabad
- ζ **Murugan**,NIT Silchar, Assam
- ζ **A V Narasimhadhan**, NIT Surathkal
- ζ **Rajarshi Bhattacharya**, NIT,Patna
- ζ **Rangababu,** NIT Meghalaya, Shillong
- ζ **Sanjay Dharroy**,NIT Durgapur
- ζ **Sankar Nair**, Qualcomm, Chennai.
- ζ **Sathyabama B**, Thiagarajar College of Engineering,Madurai
- ζ **Satyasai Nanda,**MNIT,Jaipur
- ζ **Shravan kumar Bandari**,NIT Meghalaya, Shilng
- ζ **Shilpi Gupta**, SVNIT,Gujarat
- ζ **Shyam Lal**, NIT, Karnataka
- ζ **Shrishail Hiremath**,NIT Rourkela
- ζ **Sudakar chauhan**, NIT Kurushetra
- ζ **Swaminathan R**, Indian Institute of Technology Indore.
- ζ **Shweta Shah**,SVNIT,Gujarat
- ζ **Smrithi Agarwal**, Motilal Nehru NIT,Allahabad
- ζ **Tajinder SinghArora**,NIT Uttarakhand
- ζ **Umesh C Pati**,NIT, Rourkela
- ζ **Vineetha Yogesh**, Qualcomm, Bangalore.
- ζ **Wasim Arif,** NIT, Silchar

TPC Internal members include the Faculty from the Department of Electronics and Communication Engineering, Computer Science Engineering and Computer Applications

---

For clarifications, contact the following research scholars

1. **G.J. Jeyabrindha ,** gjbrinda@gmail.com,
2. **Rajasekhar** sekharpraja@gmail.com
3. **Vinodha, ,** vinodhakamaraj@gmail.com

ζ **Click here for further details**

Springer

COMPSIG NITT

For other details contact

esgopi@nitt.edu,

mdcwc2020.nitt@gmail.com

Click below for MDCWC2020

YouTube channel

Key Note Speakers

Prof. K.K. Biswas did his Btech in Electrical Engineering from IIT Madras, followed by Mtech in Control systems and Phd in signal estimation from IIT Delhi. After a brief stint at University of Roorkee, he joined the EE deptt of IIT Delhi and later shifted to Computer science engineering department. He retired from Computer science department of IIT Delhi with a career span of over 40 years. Currently he is associated with The Bennett University of the Times Group. He has been a visiting professor at the University of Auckland, New Zealand and at the University of Central Florida, USA. He has been collaborating with University of Oxford and University of Texas at Austin. He has been an active researcher with 18 Phd students, and more than 100 publications in reputed journals and international conferences. His current area of research interest is image and video processing, Deep learning with applications in Human activity recognition and disease identification of agricultural crops.

Prof. M. Emre Celebi received his B.Sc. degree in Computer Engineering from the Middle East Technical University (Ankara, Turkey) in 2002. He received his M.Sc. and Ph.D. degrees in Computer Science and Engineering from the University of Texas at Arlington (Arlington, TX, USA) in 2003 and 2006, respectively. He is currently a Professor and the Chair of the Department of Computer Science at the University of Central Arkansas. Celebi has actively pursued research in image processing/analysis and data mining with an emphasis on medical image analysis, color image processing, and partitional clustering. He has worked on several projects funded by the US National Science Foundation and National Institutes of Health and published over 150 articles in reputable journals and conference proceedings. He is a senior member of the IEEE and SPIE.

Dr. Dush Nalin Jayakody received the MSc degree in Electronics and Communications Engineering from the Eastern Mediterranean University, Turkey (under the University Graduate Scholarship) and ranked as the first merit position holder of the department. He received the Ph. D. degree in Electronics and Communications Engineering, from the University College Dublin, Ireland under the supervision of Prof. Mark Flanagan (under the Science Foundation Ireland Grant). From 2014- 2016, he has held a Postdoc position at the Coding & Information Transmission group, University of Tartu, Estonia and University of Bergen, Norway. From 2016, he is a Professor at the School of Computer Science and Robotics, National Research Tomsk Polytechnic University, Russia. Dr. Jayakody is a Senior Member of IEEE and he has served as session chair or technical program committee member for various international conferences, such as IEEE PIMRC 2014, IEEE WCNC 2014/2016, IEEE VTC 2015 etc.

Dr. Jithin Jagannath is the Director of Marconi-Rosenblatt AI/ML Innovation Lab (MR Lab) at ANDRO Computational Solutions, LLC located in Rome, NY USA. Previously, he received his B. Tech. from the University of Kerala, M.S. from State University of New York at Buffalo, and his Ph.D. in Electrical Engineering from Northeastern University. As the Director of the MR Lab, he leads multiple teams that have been working on innovative ML-based solutions for signal, detection-characterization, building intelligent software-defined radio solutions, jamming-resilient MIMO beamforming, and enabling autonomy, sense and avoid capabilities for unmanned aerial vehicles. Dr. Jagannath's expertise and research interests include machine learning, computer vision, wireless networking, anti-jamming technologies, an signal processing. Dr. Jagannath has been the Lead author and Principal Investigator of several cutting-edge research projects selected for funding totaling of $8 Million over that last two years. His recent work has led to 7 patent applications and several publications. His latest publication titled "Machine Learning for Wireless Communication in the Internet of Things: A Comprehensive Survey" published in Ad Hoc Networks (Elsevier) has consistently been in one of the most downloaded list of the journal since its publication. He is an IEEE Senior member and serves in the IEEE Industry DSP Technology Standing Committee. He also renders his services as TPC, Editor, and reviewer to several leading conferences and journals.

Invited Talks

Title: Detection of GAN Generated Images and Deepfakes

Dr. Lakshmanan Nataraj received his Ph.D. from the Department of Electrical and Computer Engineering at the University of California, Santa Barabara in 2015. His research interests include multimedia security, malware detection and image forensics. He is currently employed as a Senior Research Staff Member at **Mayachitra Inc.**, where he leads research projects on malware detection and media forensics

Title: Reliability analysis of Safety critical systems using Machine Learning

Dr. Lalit Kumar Singh received his Ph.D. degree from Indian Institute of Technology (Banaras Hindu University. He is currently a Scientist in NPCIL-BARC, Department of Atomic Energy, Government of India, since 17 years, and has distinction of working on Pressurized Heavy Water Reactors(PHWR) and Light Water Reactors(LWR).He has an illustrious career and succeeded in Several critical jobs assigned to him in his illustrious career, though, each of them was challenging. His assignments over the years range from design, development, testing, IV&V, related research and site validation of the safety critical computer based systems of Indian Nuclear Power Plants. He has published several research papers in journals of high impact factor like IEEE Transactions, IEEE Computer, ACM, Elsevier, Quality & Reliability International, etc. He has been invited for chief guest, keynote speeches, session chair and talks in many international conferences, short term courses, workshops & faculty development programs from many IITs, NITs& other institutes of national importance. He is recipient of many awards like publication award, group achievement award, etc. He is a reviewer of several SCI indexed journals of high impact factor. He is a life member of Indian Nuclear Society. He is a member of editorial board of many reputed journals and guest lead editor of many special issues. He is supervising many PhD students of different IITs, NITs and is PhD thesis examiner of IITs, NITs and other reputed institutes. He is an expert member of Industrial policy formation of IIT Ropar, BoS of many autonomous institutes and member on the advisory board of many institutes/universities. He is a reviewer and project collaborator of Research proposals of Board of Research in Nuclear Sciences (BRNS).He is also faculty of Nuclear Training Centre, Department of Atomic Energy, Government of India. He is interfacing with other countries, like Russia, USA, France, etc. for Importing nuclear reactors that are based on new technologies. His research interests are in the Area of reliability, safety and security of safety critical computer based systems. So far he has Completed 33 projects of Department of Atomic Energy, Government of India.

Title: Deep learning for IOT Applications

Dr. Shyam Lal received Ph.D. degree in Digital Image Processing from Department of Electronics & Communication Engineering, Birla Institute of Technology, Mesra, Ranchi (Jharkhand), India in 2013. Currently; he is working as Assistant Professor in the department of Electronics & Communication Engineering, National Institute of Technology Karnataka, Surathkal, Mangalore (Karnataka), India since 18th December 2013. He has more than 17 years of Teaching & Research experience. He has supervised 05 Ph.D. students and currently 03 Ph.D. students are working under his supervision in the area of Medical and Remote sensing Image Processing and he has completed 01 R&D project funded by SERB-DST and currently executing 03 R&D projects funded by Govt. of India. He has published more than 70 research papers in the area of Digital Image Processing, Medical Image Processing and Remote Sensing at International/National Journals & Conferences. He has received Early Career Research Award (Young Scientist) in 2017 from Science Engineering and Research Board, Department of Science and Technology, Govt. of India and Young Faculty Research Fellowship Research Grant in 2019 under Visvesvaraya PhD Scheme for Electronics & IT, Digital India Innovation, MeitY, Govt of India. He has been Guest Editor of IJSISE, Inderscience Publishers, Editorial member of Open Access Journal of Biomedical Engineering and its Applications, Lupine Publishers, USA. He is Senior Member of IEEE, life member of ISTE, New Delhi, India, Life member of IAENG, Hong Kong and Life member of IACSIT, Singapore. His area of interest includes Digital Image Processing, Histopathology and Medical Image Processing, Remote Sensing Image Processing, Machine and Deep Learning with Applications, and Optimization Algorithms with application in Image Processing

Dr. Gaurav Purohit, Scientist (2016 – Present), CSIR-CEERI, Pilani, India
Assistant Professor (Present), in Engineering Sciences, Academy of Scientific & Innovative Research (AcSIR), India

Title of the Talk: Intelligent data analytics for prediction of AIR Quality on Pre and Post COVID Indian Dataset

Other invited talks
Mr. Abhinav K Nair, Senior Engineer (R & D), Radisys India Pvt. Ltd. **Title of the Talk: '6G- Why should we talk about it now?'**
Mr. Mahammad shaik, Qualcomm,Hyderabad **Title of the Talk: Computational intelligence for Efficient transmission policy for Energy harvesting and Spectral sensing in Cognitive radio system**

Co-ordinator and the speaker for the Tutorial session

Dr. E. S. Gopi is currently an Associate Professor in the Department of Electronics and Communication Engineering, National Institute of Technology Tiruchirappalli. He has two decades of teaching and research experience. He has authored seven books and nine book chapters. He has several papers in international journals and conferences to his credit. He is also the coordinator for the Pattern Recognition and Computational Intelligence Laboratory and the COMPSIG newsletter. His research interests include pattern recognition, signal processing, and computational intelligence. He is the series editor for the Signals and Communications Technology, Springer publications. He is also the Guest speaker for the IEEE Training School on Machine Learning for Wireless Communication.

Co-coordinators:

Dr. B. Rebekka is currently working as Assistant Professor in the Department of ECE at National Institute of Technology, Tiruchirappalli, Tamilnadu, India. She received Ph.D. in the Department of Electronics and Communication Engineering, National Institute of Technology, Tiruchirappalli, Tamil Nadu, India. She obtained the M.Tech. degree in Advanced Communication Systems from SASTRA Deemed University, Thanjavur, Tamilnadu, India and B.E. degree in Electronics and Communication Engineering from Bharathiar University, Coimbatore, Tamilnadu, India. Her research interests include Quality of Service scheduling in wireless networks and Energy efficient communication

Dr. G. Thavasi Raja received the B.E. degree in Electronics and Communication Engineering (ECE) from Madurai Kamaraj University, Tamil Nadu, India, in 2002 and the M.E degree in Communication Systems from Thiagarajar College of Engineering, Madurai affiliated to Anna University, Chennai, India in 2004. In June 2006, he joined as an Assistant Professor in the Department of Electronics and Communication Engineering (ECE), National Institute of Technology (NIT), Tiruchirappalli, India. He received Ph.D. in the Department of Electronics & Electrical Communication Engineering (E&ECE), Indian Institute of Technology (IIT), Kharagpur, India under Quality Improvement Program (QIP), sponsored by All India Council for Technical Education (AICTE), New Delhi, India in 2016. He was a Lecturer in Sri Sivasubramaniya Nadar (SSN) College of Engineering, Chennai, Tamil Nadu (September 2004-May 2006). He is the author of four research papers in international journals and two papers in conference proceedings. His research interest includes design of photonic crystal fibers, fiber amplifiers, fiber lasers and wireless communication systems. He is a member of the Institute of Electrical and Electronics Engineers (IEEE) in Communications and Photonics Society, USA, SPIE, Optical Society of India and Optical Society of America (OSA)