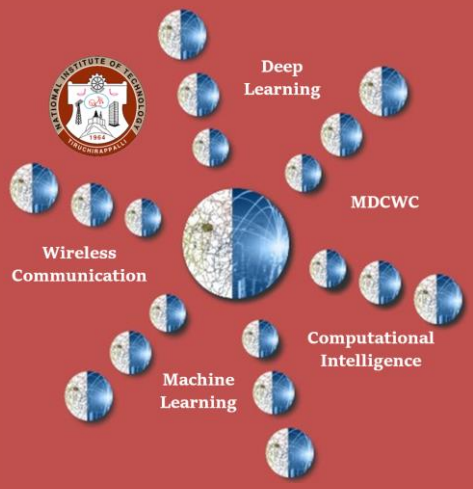


National Institute of Technology Tiruchirappalli
Department of Electronics and Communication Engineering
Workshop on

Machine Learning, Deep Learning and Computational Intelligence for Wireless Communication (MDCWC2020)

May 11-13, 2020

Objective of the workshop

Due to the feasibility of collecting huge data from mobile and wireless networks, there are many possibilities of using Machine learning, Deep-learning and the Computational Intelligence to interpret and to hunt knowledge from the collected data. The workshop aims in consolidating the experimental results integrating the Machine Learning, Deep Learning and Computational Intelligence for Wireless Communication.

The workshop invites original research contributions/survey paper under the following categories.

(1) The data driven wireless communication applications using ML, DL and Computational intelligence.

(2) Optimization algorithm/technique for ML, DL and Computational intelligence.

(3) Related mobile data applications.

Topics

Machine Learning

- Multiple input multiple Output regression
- Probabilistic discriminative approach
- Multi-class Logistic Regression
- Probabilistic generative model
- Support Vector Machine
- Dimensionality reduction Techniques.

Deep Learning

- Multilayer perceptron
- Boltzmann Machine
- Auto-Encoders
- Convolution Neural Network
- Recurrent Neural Network
- Generative Adversarial Network
- Deep Reinforcement Learning

Optimization algorithm

- SGD
- Nesterov's momentum
- Adagrad
- Adadelta
- RMSprop
- Adam
- Quantized training etc.

Computational Intelligence

- Particle Swarm Optimization
- Bacterial Foraging
- Simulated Annealing
- Ant Colony Technique
- Genetic algorithm
- Social Emotional Optimization Algorithm
- Social evolutionary Learning Algorithm

Mobile data applications

Mobile health care, Mobile pattern recognition, Natural language processing, Image processing.

Wireless Communication

- Network prediction, Traffic classification, Call detail record mining
- Automatic speech processing
- Mobility Analysis, Indoor Localization
- Energy minimization, Routing, Scheduling, Resource allocation, Multiple access, Power control
- Malware detection, Cyber security, Flooding attacks detection, Mobile apps sniffing
- MIMO detection, Signal detection in MIMO-OFDM, Modulation recognition
- Channel Estimation, MIMO nonlinear equalization,
- Super-resolution channel and direction of arrival estimation.
- NOMA, mm-Wave channel model, Full duplex, OFDM/FBMC, NB-IO

Important Dates

Paper Submission: **28 February 2020**
Acceptance notification: **2 April 2020**
Camera ready submission and registration: **15 April 2020**

Publication

Researchers are invited to submit their original research findings. Submitted papers are subjected to Double review process and the selected papers will be published as the book series **Lecture Notes in Electrical Engineering (Confirmed). ISI Proceedings, EI-Compendex, Scopus, Meta press, Web of science and Springer link** Detailed information on paper submission, accommodation and travel will be posted on the workshop website. Papers can be submitted via Easy Chair through this link. Paper template is given here.

Patron

- Professor. Dr. Mini Shaji Thomas, Director,
  National Institute of Technology Tiruchirappalli

Technical Program committee (External members)

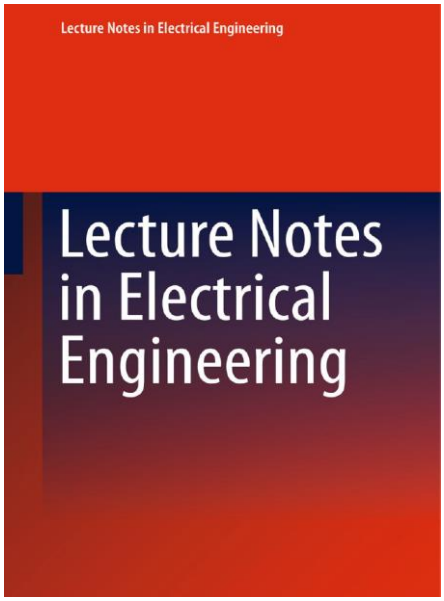
- **Abhinav**, MBit Technologies, Bangalore.
- **Akhil Gupta**, Lovely Professional University, Phagwara, Punjab.
- **Anand Kulkarni**, Symbiosis Institute of Technology, Pune.
- **K K Biswas**, Retired Professor, Indian Institute of Technology Delhi.(Currently at IndraPrastha Institute of Information Technology Delhi.)
- **Dush Nalin Jayakody,** National Research Tomsk Polytechnic University, Russia.
- **Florintina**, GE Electronics, Bangalore.
- **Gaurav Purohit**, CSIR-CEERI, Pilani, Rajasthan.
- **JithinJagannath**, Director, Marconi-Rosenblatt AI/ML Innovation Lab,Research scientist, Andro computational solutions, New York.
- **Krishna Moorthy**, Indian Institute of Information Technology Tiruchirappalli.
- **Lakshmanan**, Senior Research scientist, MayachitraInc. Deep learning data solutions, California.
- **Sankar Nair**, Qualcomm, Chennai.
- **Swaminathan R**, Indian Institute of Technology Indore.
- **Vineetha Yogesh**, Qualcomm, Bangalore.

Technical Program committee (Internal members from NITT,Trichy)

- **B Janet**/ CA
- **B Malarkodi**/ECE
- **B Rebekka**/ECE
- **E S Gopi**/ECE
- **G Thavasi Raja**/ECE
- **P Muthuchidambaranathan**, Head of the department/ECE
- **Rajeswari Sridhar**, Head of the department/CSE
- **S S.Karthikeyan**/ECE
- **Varun P Gopi**/ECE
- **V Sudha**/ECE
- **G R Gangadharan**/CA

Organized by

Pattern Recognition and Computational Intelligence Laboratory, Department of Electronics and Communication Engineering, National Institute of Technology, Tiruchirappalli



Registration Fee

For authors: **₹ 6000/-**
For participants: **₹ 3000/-**
(Payment through SBI collect)

- **Survey/Review papers will also be accepted.**
- **Virtual Presentation is also allowed. For details, please visit** workshop website.

Mode of payment

- Payment through SBI Collect (State Bank of India)
  Link

Coordinator

Dr. E. S. Gopi,
Head of the Pattern recognition and Computational intelligence laboratory
Associate Professor/ECE, NIT Trichy

Co-Coordinators

Dr. B. Rebekka,
Assistant Professor/ECE, NIT Trichy
Dr. G. Thavasi Raja,
Assistant Professor/ECE, NIT Trichy

COMPSIG NITT

Prof. K.K.Biswas,(Retired faculty from IIT Delhi), currently at IIIT Delhi

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 dept. of IIT Delhi. He later shifted to Computer science engineering department where he is currently serving as a professor. His teaching career spans over 35 years. He has been a visiting professor at the University of Auckland, New Zealand and at the University of central Florida, USA.He has also acted as UNESCO expert for development of curriculum at university of Nigeria. He has been collaborating with University of Oxford and University of Texas at Austin. He has been an active researchers with 15 Phd students, and more than 60 publications in reputed journals and international Conferences. His current area of research interest Interest is image and video processing, machine learning with applications in activity recognition and salient object detection. His other main research interest is handling fuzzy models in probabilistic domain. He is also working in the area of logic based knowledge representation in scientific domains.

Dr.Nalin Jayakody, Professor in school of Computer Science and Robotics, TPU, Russia

Dr.Nalin Jayakody, Professor in school of Computer Science and Robotics, National Research Tomsk Polytechnic University (TPU), Russia. He has published over 120 international peer reviewed journal, conference papers and books. His research interest include PHY and NET layer prospective of 5G, Cooperative wireless communication, device to device communication, LDPC codes, Unmanned Ariel vehicle etc. He currently serves as an Area Editor of the Elsevier Physical Communication Journal, MDPI Information journal and Wiley Internet of Technology Letter.

Invited Talks

[1] **Dr.Lakshmanan Nataraj**, Senior Research Staff Member,Mayachitra Deep learning data solution, Santa Barbara, United States
[2] **Dr.Gaurav Purohit,** Scientist,CSIR-CEERI,Pilani
[3] **Mr.Mohammed shaik,** Scientist, ISRO, Mahendragiri
[4] **Ms.Vineetha Yogesh**, Qualcomm, Bangalore
[5] **Mr.Sankar Nair,** Qualcomm, Chennai
[6] **Ms.Florintina,** GE Electronics, Bangalore

Reference for related works and Links to the dataset

[1] CRAWDAD dataset UMASS Trace Repository

[2] Machine Learning Paradigms for Next-Generation Wireless Networks

[3] Machine Learning for Communications

[4] Pattern Recognition and Computational Intelligence Techniques Using Matlab