Objective of the workshop
The Tutorial consists of series of lectures, followed by Tutorials using MATLAB, focused on the state-to-the-art techniques on Machine learning, Deep learning and Computational intelligence.

Important details:
• Last date for Tutorial registration: 20th March 2020
• Registration fee: Rs.1000/- (Including GST) in the form of DD in favor of "The Director, NIT Tiruchirappalli" (payable at Tiruchirappalli).
• Registration is complete once we receive the hard copy of the Demand Draft and the Google form is submitted. FIRST COME FIRST SERVE BASIS

Who should attend?
All UG, PG, research scholars and faculty who are interested in machine learning, deep learning, computational intelligence and their applications.

Tentative Schedule

<table>
<thead>
<tr>
<th>Machine Learning (9am to 10.30am)</th>
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<tbody>
<tr>
<td>• Dimensionality reduction techniques</td>
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<tr>
<td>• Multiple input, Multiple output Linear regression</td>
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<tr>
<td>• Probabilistic discriminative model</td>
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<tr>
<td>• Probabilistic generative model (HMM,GMM)</td>
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<td>• Support Vector Machine</td>
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<tr>
<td><strong>Break (10.30am to 10.45am)</strong></td>
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<tr>
<td><strong>Deep learning (10.45pm to 12.45pm)</strong></td>
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<tr>
<td>• Multilayer perceptron</td>
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<td>• Boltzmann Machine</td>
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<tr>
<td>• Auto-Encoders</td>
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<tr>
<td>• Convolutional Neural Network</td>
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<tr>
<td>• Recurrent Neural Network</td>
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<tr>
<td>• Generative Adversarial Network</td>
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<tr>
<td>• Deep Reinforcement Learning</td>
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<tr>
<td><strong>Lunch Break (12.45pm to 2pm)</strong></td>
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<tr>
<td><strong>Computational intelligence (2pm to 3pm)</strong></td>
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<tr>
<td>• Particle Swarm Optimization</td>
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<tr>
<td>• Ant colony techniques</td>
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<tr>
<td>• Social Emotional Optimization Algorithm</td>
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<tr>
<td>• Social Evolution and Learning Optimization</td>
</tr>
<tr>
<td><strong>Break (3pm to 3.15pm)</strong></td>
</tr>
<tr>
<td>Hands on session using Matlab (3.15pm to 5.30pm)</td>
</tr>
</tbody>
</table>
Call for Papers

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

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

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

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: 20th March 2020
(Hard deadline)
Acceptance Notification: 2nd April 2020
Camera ready submission and registration: 15th April 2020

Mobile data applications
- Mobile health care
- Mobile pattern recognition
- Natural language processing
- Image processing.

Optimization algorithm
- SGD
- Nesterov's momentum
- Adagrad
- Adadelta
- RMSprop
- Adam
Registration Details

<table>
<thead>
<tr>
<th>Type of registration</th>
<th>Fee</th>
<th>Benefits</th>
<th>Link</th>
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</table>
| Author (all 3 days)  | ₹ 6000/- | • Access to keynotes
• Slot for oral presentation
• Author workshop kit
• Publication of selected papers
• One day tutorial
• Lunch |
| Participants (all 3 days) | ₹ 6000/- | • Access to keynotes
• Participants workshop kit
• One day tutorial
• Lunch |
| Participants (all 3 days) | ₹ 3000/- | • Access to keynotes
• One day tutorial
• Lunch |

Payment through SBI Collect (State Bank of India) [Link]

*Registration is complete once the Google form is submitted.*

**Google Form Link for registration:**

- **Author:** [https://forms.gle/YdVUeWcsfAYJxPqf9](https://forms.gle/YdVUeWcsfAYJxPqf9)
- **Participants:** [https://forms.gle/SJB6ZbKo5H8ShLGk7](https://forms.gle/SJB6ZbKo5H8ShLGk7)

**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.

**Dr. Dushantha Nalin K Jayakody, Professor in school of Computer Science and Robotics,**

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. 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. **Abhinav**, MBit Technologies, Bangalore
4. **Mr. Mohammed Shaik**, Scientist, ISRO, Mahendragiri
5. **Ms. Vineetha Yogesh**, Qualcomm, Bangalore
6. **Mr. Sankar Nair**, Qualcomm, Chennai
7. **Ms. Florintina**, GE Electronics, Bangalore
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.

Reference for related works and Links to the dataset
[1] CRAWDAD dataset UMASS Trace Repository
[4] Pattern Recognition and Computational Intelligence Techniques Using Matlab

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

Nearby places to visit

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

COMPSIG NITT (Newsletter) Link