IEEEComSoc ETI MLC Initiative - ONLINE Workshop on Machine Learning, Deep Learning, and Computational Intelligence for wireless communication (with Illustrations using MATLAB) 'MDCWC 2022'

30th May to 24th June 2022 (Duration: 6.00 to 9.00 P.M.)

IEEECommunication society "Machine Learning for Communication Emerging Technology Initiative Workshops, Special Sessions, and Symposia, 2022(MDCWC2022 online workshop) - Link

Link to website

Link for Registration

Link for payment

Last date for registration: ~~20th May 2022~~(Extended date:26th May 2022)

Target Audience:

UG, PG, Scholars, Faculty from Engineering colleges and universities and participants from Industry. Participants are strongly encouraged to have MATLAB software installed in their system to execute the code described during the illustration session.

About the course:

The Pattern Recognition and Computational Intelligence group from the Department of Electronics and Communication Engineering, NIT Tiruchirappalli is organizing the ONLINE Workshop on Machine Learning, Deep learning and Computational intelligence for wireless communication (with Illustrations using MATLAB) (MDCWC 2022) from 30th May to 24th June 2022 [Evening classes from 6.00 P.M. to 9.00 P.M(IST)], (Excluding Saturday and Sunday).

The course aims at strengthening the mathematical foundations involved in two modules:

Module 1: Machine Learning, Deep Learning and Computational Intelligence using illustrations using MATLAB.

Module 2: Digital Signal Processing for wireless communication using illustrations using MATLAB.

Online portal: Webex (Link will be shared for the registered participants)

Maximum number of Registrations = 30

Co-ordinator:
Dr. E. S. Gopi, Associate professor, Department of ECE

Module 1: Parametric approach to Linear regression (Maximum Likelihood Estimation, Least square estimation) Regularization technique, Bayes technique, Kernel smoothing and Gaussian process technique, Dimensionality reduction techniques: Principal Component Analysis, Linear Discriminant Analysis, Kernel Linear Discriminant Analysis, and Independent Component Analysis, Probabilistic discriminative model: Perceptron, Multiple class Logistic regression, Support Vector Machine Probabilistic generative models: Gaussian Mixture Model(Combinational model), Generative Model: Hidden Markov Model, Artificial Neural Network Introduction to Deep learning techniques: Convolution Neural Network, Autoencoder, Generative Adversarial Network, Graph Neural Network, Long Short Term Memory, Recurrent Neural Network, Particle Swarm Optimization, Ant Colony Optimization.

Module 2: Mathematical model of Time-varying wireless channel model: Coherence time, Doppler spread, Coherence frequency and Delay spread Rayleigh, Rician,kappa-mu, eta-mu model,Detection theory: Bayes, Mini-Max andNeyman-pearson technique Estimation theory: MMSE, MMAE and MAP technique, Mathematical model of base band transmission and its Spectraldensity computation. Relationship between Base and Band pass transmission. Computation of spectral densityPSK,QPSK,FSK,MSK, Power Spectral estimation using periodogram, Barlett,Welch and the Blackman- Tuckey method, Multiple Input Multiple Outputchannel model and Massive MIMO, mmWave channelmodel Ray tracingmodel, Beam forming,NOMA, Spatial Modulation, OFDM, Water fill algorithm, Case studies on Machine learningalgorithm in Wirelesscommunication.

Registration fee:

Category	Module 1 (Including GST) (or) Module 2 (Including GST)	Both Modules (Including GST)
UG,PG, Research scholars and Faculty	₹ 6000	₹10000
Industry participants	₹ 8000	₹14000

Supporting team:
RajasekharreddyPoreddy,mailid:sekharpraja@gmail.com,phoneno:9492900508
Vinodhak, mail id: vinodhakamaraj@gmail.com, phone no: 9488752949
Neema M , mail id: neemamnair@gmail.com, phone no: 8129244221
Simy Baby, mailid: simybaby@gmail.com, phone no: 9447126822
Contact id: mdcwc2022@nitt.edu (or) mdcwc2022@gmail.com

Registration Details:

Step 1: Registration needs to done throughSBI i-collect: Link for payment

·Academia module I and II: Proceed->Select: State: Tamil Nadu, Institution: Educational Institutions->Select: CONFERENCE AND WORKSHOP NIT TRICHY- >MDCWC2022 ACADEMIA MODULE I and II.

·Industry module I and II: Proceed->Select: State: Tamil Nadu, Institution: Educational Institutions->Select: CONFERENCE AND WORKSHOP NIT TRICHY- >MDCWC2022 INDUSTRY MODULE I and II

Step2: Fill the Google form (Link for Registration) (Don't forget to upload the receipt generated from SBI i-collect in the Google form)

Step3:You will get an acknowledgement from mdcwc2022@gmail.com for final confirmation of the registration process.