

**5 Day workshop on
Machine Learning, Deep learning and Computational intelligence
for Wireless Communication, MDCWC2020-Preworkshop
September 16th to 20th 2019**

Day 1 :Machine Learning

- Dimensionality reduction techniques
- Multiple input , Multiple output Linear regression
- Probabilistic discriminative model

Day 2 (FN): Machine Learning

- Probabilistic generative model (HMM,GMM)
- Support Vector Machine

Day 2 (AN): Deep learning

- Multilayer perceptron
- Boltzmann Machine
- Auto-Encoders
- Convolutional Neural Network

Day 3 (FN):Deep learning

- Recurrent Neural Network
- Generative Adversarial Network
- Deep Reinforcement Learning

Day 3 (AN): Computational intelligence

- Particle Swarm Optimization
- Ant colony techniques
- Social Emotional Optimization Algorithm
- Social Evolution and Learning Optimization

Day 4: Data driven Applications in Wireless Communication-Problem statement

- Network prediction, Traffic classification, Call detail record mining.
- Mobile health care, Mobile pattern recognition, Natural language processing, Automatic Speech Processing
- Mobility analysis, Indoor localization
- Wireless Sensor Networks (WSN)
- 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 estimation, Full duplex, OFDM/FBMC, NB-IOT

Day 5: Tutorial on Machine learning, Deep learning and Computational intelligence using Matlab