

Machine Learning, Deep Learning and Computational Intelligence for Wireless Communication (MDCWC 2023)
(Hybrid Event)

(FIRST COME FIRST SERVED BASIS)

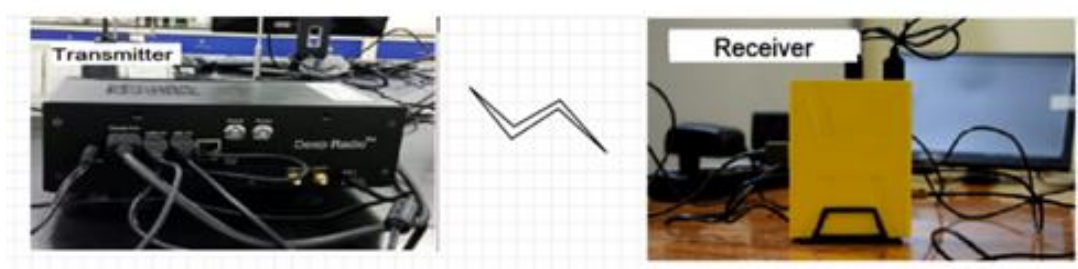
Theme: Deep Learning based RF Signal Classification-Hands-on

Date: June 24th 2023 Time: 1.45 P.M. to 3.45 P.M.

Venue: NIT, Tiruchirappalli (Online participation through webex*)



Abstract: Radio Frequency (RF) signal classification is a key technique of Dynamic Spectrum Access (DSA) to utilize the unused spectrum in Cognitive Radio (CR) to meet the ever-increasing traffic demands for the next generation 5G and beyond cellular networks. In recent years, the RF signal classification for CR-based applications using Deep Learning (DL) architectures has received considerable attention. This tutorial focuses on a DL-based framework with Convolution Neural Network (CNN) architecture for classifying various modulation schemes such as BPSK, QPSK and GMSK. The real-time GSM signals captured from the nearby base stations will be used to analyse the performance of the developed CNN architecture. (For further details scan QR code given below)

**Tutorial Schedule:**

01:45 PM - 02:00 PM: Fundamentals of Deep Learning and CNN architecture

02:00 PM - 02:30 PM: Live Demo: Dataset generation using Deep Radio[®], GNU platform and Wi-Guy[®]

02:30 PM - 03:15 PM: Hands-on: CNN model training

03:15 PM - 03:45 PM: Hands-on: Testing and Real-Time modulation prediction

Tutorial Outline Learning Objectives: By the end of the tutorial, the participants shall be able,

- ✓ To use Kaggle platform for handling big RF datasets for DL-based wireless projects
- ✓ To learn Python programming tools for signal processing and DL
- ✓ To prepare, train, test and predict real-time wireless signals

Tutorial speakers:

1. Dr. Prabhu Chandhar, Director, Chandhar Research Labs, Chennai, India.
2. Mrs. K.Tamizhelakkiya, Wireless Researcher, Chandhar Research Labs, Chennai, India.

Organized by

Pattern recognition and Computational intelligence group
Department of Electronics and Communication Engineering
National Institute of Technology Tiruchirappalli



Registration fee: Rs.1000

1. For payment <https://www.onlinesbi.sbi/sbicollect/icollecthome.htm> > Educational Institutions > CONFERENCE AND WORKSHOP NIT TRICHY > ECE MDCWC 2023)

2. Workshop registration: <https://forms.gle/HpZWQw6uN3aai4QWA>

For further details contact: esgopi@nitt.edu, mahes@nitt.edu, mdcwc2023@nitt.edu

*Webex link will be shared to registered online participants