



## APPLICATION OF MACHINE LEARNING IN B5G WIRELESS COMMUNICATIONS

(Under the KARYASHALA Scheme - A SERB initiative)

Organized by

Department of Electronics and Communication Engineering

National Institute of Technology, Tiruchirappalli

December 18 to December 24, 2022

### About The Institute:

National Institute of Technology (formerly known as Regional Engineering College) Tiruchirappalli is one among the premier Institutions of India and is well known for its high standards in teaching and research. It offers 10 undergraduate and 23 postgraduate programs in disciplines spanning engineering, science, architecture, and management. It has been declared as an Institute of National Importance by the Government of India under NIT Act. NIT Tiruchirappalli retained its No. 1 position among all NITs, 6th year in a row in the "India Rankings 2021" released by NIRF. The Institute has signed MoUs with various Industries and Institutions both in India as well as in abroad to promote collaborative research and consultancy.

### Department of Electronics and Communication Engineering:

The Electronics and Communication Engineering (ECE) Department was established in the year 1968. The department offers Undergraduate (UG), Postgraduate (PG), M.S. (By Research) and Ph.D. degree programs that provide students with the knowledge and tools they need to succeed in the Electronics and Communication Engineering. Research in the department focuses on high-impact various disciplines: Communication systems, Wireless networks, Signal and Image Processing, RF MEMS and MIC, Microwave antennas, Optical communication and Photonics, VLSI technologies.

### About the Programme:

Machine learning has been successfully used in different fields such as computer vision, image processing, speech processing etc. for a long time. Recently researchers have started using machine learning techniques in wireless communication to a great advantage. This program will explore how machine learning and deep learning techniques can be used for wireless communication research. Apart from a data based approach alone, we will also explore combining a data based and a model driven approach of applying machine learning in wireless communication.

### Focus Areas:

- Machine Learning and its Applications
- Basics of Wireless Communication
- Deep Learning and its Applications
- Autoencoder
- Deep learning at physical layer

- Reinforcement learning
- ML for mm-wave applications
- Wireless signal classification
- DL for Massive MIMO applications
- Reinforcement learning application in wireless network

**Target Audience:** Research scholars, PG Students

**Resource Persons:** The course faculty includes resource persons from IITs, NITs and Industry.  
**The number of participants is restricted to 25.**

**No Registration Fee. TA will be given for Sleeper class fare , Free Food & Accommodation will be provided.**

### How to apply:

- Please fill the online form using the link: <https://forms.gle/6DyWq4GxSWT1EEgT7> . After applying through the link, intimate us at [karyashala.nitt.ece@gmail.com](mailto:karyashala.nitt.ece@gmail.com)
- The applicants must produce a letter of authentication from their Supervisor/HoD/Head of Institute indicating their association with institute and "No Objection Certificate (NOC)" for allowing their student to undergo karyashala, if selected. The last date to apply is **25th November 2022**. If selected, you will be intimated through e-mail.

### Coordinator:

Dr. P. Sudharsan, Assistant Professor Gr II  
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### Contact details:

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