



Indian Institute of Technology (BHU) Varanasi  
Department of Electronics Engineering

Organizes

Science and Engineering Research Board (SERB) funded  
High-End Workshop

on

## Advanced Statistical and Machine Learning Models (22-28 August 2022)

### About IIT (BHU) Varanasi

IIT(BHU) Varanasi is located in Varanasi which takes pride of being the holy and one of the oldest city in the world. The IIT (BHU) Varanasi was ranked 9th, 11th, 14th, and 13th by the National Institutional Ranking Framework (NIRF) in 2019, 2020, 2021, and 2022, respectively, among engineering colleges in India. IIT (BHU) Varanasi offers four-year program for the degree of Bachelor of Technology, five-year programs for Integrated Dual Degree and various postgraduate programs.

### About KARYASHALA

'KARYASHALA' scheme by SERB is meant for skill development training on topics required for scientific research work. It is an effort to improve research productivity of promising PG and PhD students from universities and colleges through high-end workshops on specific themes. This program aims to provide opportunities to acquire specialized research skills

### Who Can Attend

M. Tech & PhD students of Electrical/Electronics & Communication Engineering or any other specialization studying/working in the area of Wireless Communication/ Signal Processing/ Cyber Physical Systems/ IoT/ Data Science/ Machine Learning/ Artificial Intelligence/ and other relevant areas of wireless communication and signal processing.

### Certification

E-certificate to the participants on successful completion of the course

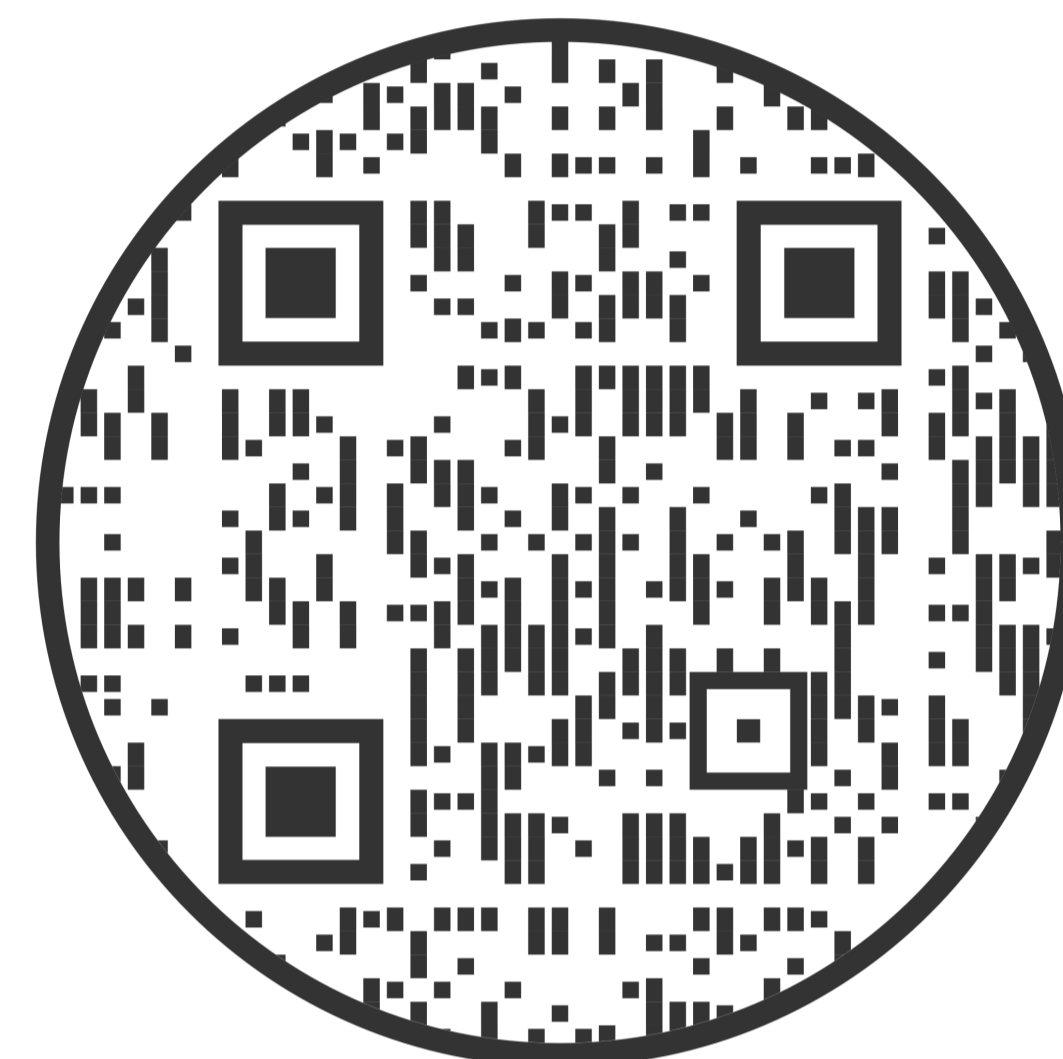
### Registration Details

**There is no registration fee.**  
**Deadline for registration is August 15, 2022.**

### For Registration Visit:

<https://forms.gle/zYPi8s4ibdnZHtzp7>

Scan to register:



### Location

IIT (BHU) Varanasi  
Dates: 22-28 August 2022

### Number of Seats

Total number of seats is limited to 25

### General Information

- Accommodation for participants may be provided at IIT (BHU) Varanasi Guesthouse/hostel with catering facilities, if requested.
- Students selected for this workshop are eligible for Travel allowance (TA) reimbursement for their journey to IIT (BHU) Varanasi from their home town or host institute as well as return journey as per SERB & GoI norms.
- Daily necessary expenses such as stationery, consumables, accommodation, food etc. for participants will be covered under the funds approved by SERB as per norms.
- After last date of registration, selected candidates will be intimated through email.

- Selected candidates will have to acknowledge participating in the workshop through a return email failing which the waitlisted candidates may be called for attending the workshop.
- Candidates will be selected on the basis of merit.

### Brief description about the workshop

Digital data is a primary tool for almost all kinds of industries in future. Therefore, efficient data collection and its analysis are essential from product design to product selling for industries to maximize business opportunities and customer experience. This workshop will provide fundamentals of various statistical and machine learning (ML) models that are useful for various futuristic applications and system designing.

### Tentative Course Contents

- Review of Probability Theory and Random Variables
- Gaussian, Bernoulli, Poisson, and Markov Processes
- Various Bounds for Random Variables
- Various Hypothesis testing
- Mean, Median, Variance Analysis of Data
- Curve Fitting Techniques
- Density Estimation and Clustering
- Deep Learning: Supervised and Unsupervised Learning and Deep Reinforcement Learning
- Growth of Deep Learning & AI Technology
- Principal Component Analysis (PCA), Linear Discriminant Analysis (LDA), Independent Component Analysis (ICA),
- Statistical Methods for Machine Learning
- Machine Learning Applications
- Introduction to Python and Matlab

### Expert Speakers:

Experts from Industry and Academia (IITs, IIITs, etc.) will be delivering talks along with few hands-on training sessions

### Course Coordinator

Dr. Sanjeev Sharma

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**This KARYASHALA will provide an opportunity to understand and learn the various tools and algorithms of statistical and machine learning models.**