



VIT[®]

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

CHENNAI

Organizes

Virtual Workshop on Machine Learning Applications for Power Engineers

19th-21st November 2020

In association with
**IEEE Power Electronics Society,
Madras section**



Organizing Secretaries

Dr. V T Sreedevi & Dr. S. Hemamalini

School of Electrical Engineering

VIT Chennai

VIT – A Place to learn; A Chance to grow
VIT – Recognized as an Institute of Eminence (IoE)
by Govt. of India

About VIT CHENNAI

VIT for the past 35 years has made a mark in the field of higher education in India imparting quality education in a multicultural ambience, intertwined with extensive application-oriented research. VIT was established with the aim to provide quality higher education on par with international standards. It persistently seeks and adopts innovative methods to improve the quality of higher education on a consistent basis. VIT was established by a well-known educationalist and former parliamentarian, Dr. G. Viswanathan, Founder and Chancellor, a visionary who transformed VIT into a center of excellence in higher technical education. **Govt. of India recognized VIT as an Institution of Eminence (IoE).** ARIIA, Govt. of India recognized VIT as a No. 1 Private University for Innovation. MHRD, Govt. of India ranked VIT as No.15 among the Engineering Institutions (NIRF-2020 ranking). VIT Chennai is ably spearheaded by Dr. Sekar Viswanathan, Vice President, Dr. Sandhya Pentareddy, Executive Director, Dr. Rambabu Kodali, Vice-Chancellor and Dr. V. S. Kanchana Bhaaskaran, Pro-Vice-Chancellor. They share in the mission to make VIT a global center. The focus is:

- To maximize the industrial connectivity
- To create centers of excellence in contemporary areas of research
- To enrich technological and managerial human capital nurtured in a multicultural ambience
- To provide a common platform for the agglomeration of ideas of personnel from various walks of life for learning enrichment
- To create opportunities and exploit the available resources to benefit industry/society
- To encourage participation in the national agenda of knowledge building
- To foster international collaborations for mutual benefits in areas of research

About School of Electrical Engineering (SELECT)

The School of Electrical Engineering (SELECT) at VIT Chennai is established in the year 2010. Since the inception of the institute, the school developed the state-of-the-art infrastructure for teaching and research in the field of Electrical Engineering and allied areas. To mention, smart grid lab is unique of its kind in the country. The school has highly qualified and experienced faculty. The school offers B.Tech. Program in Electrical and Electronics Engineering and Ph.D. Program. The expertise of the faculty members includes Power Systems, Power Electronics and Drives, Applied Electronics, Control and Instrumentation, VLSI and other frontier areas. The research findings of these groups are published in several peer reviewed international journals with high impact factor. The QS World University Rank for Electrical and Electronics Engineering is in top 350 by subject.



About IEEE Power Electronics Society, Madras Section

The Power Electronics Society (PELS) is one of the fastest growing technical societies of the Institute of Electrical and Electronics Engineers (IEEE). For over 25 years, PELS, Madras section has facilitated and guided the development and innovation in power electronics technology. The IEEE, PELS students chapter, VIT Chennai provides a forum to discuss about the recent developments of power electronic based technologies. The student chapter is actively involved in arranging workshops, technical talks, seminar and other activities.

About the Workshop

Globally, there is a ramping demand for modernization of power system in multiple aspects including smart grid and integration of large renewable energy sources. Increasing use of renewable energy sources, liberalized energy markets and most importantly, the integrations of various monitoring, measuring and communication infrastructures into modern power system network offer the opportunity to build a resilient and efficient grid. However, it also brings about various threats of instabilities and security concerns to the complex network. The need for efficient methodologies for quicker identification and detection of these problems has always been a priority to energy stakeholders over the years. In recent times, machine learning techniques have proven to be effective in numerous applications including power system studies. Numerous machine learning techniques such as Artificial Neural Network, Decision Tree, Principal Component Analysis, etc. have been proposed in various capacities involving power system security and stability assessments. Unlike traditional methods, machine learning techniques have proven to be computationally powerful, systematic and explicitly reliable when they are deployed in classification studies.

In that context, this workshop focuses on how to apply deep learning algorithms to solve problems of interest in the operation, monitoring and control of power systems. The topics to be covered include standard supervisory learning algorithms, evaluation metrics and advanced sub topics with hands on sessions.



Objectives of the workshop

- To introduce fundamentals of machine learning and its applications in power engineering
- To understand the key concepts in machine learning
- To choose the appropriate machine learning algorithm for different applications
- To explore various research opportunities and challenges in the field of machine learning and its applications in power engineering

Resource persons

Eminent academic and industry experts from IIT Tirupati, Paypal and senior faculty members from VIT Chennai will deliver lectures and conduct hands on sessions.

Topics to be covered

- Standard supervised learning algorithms
- Application of machine learning in power system operations
- Machine learning for solar applications
- End-to-End modeling of load balancing using deep learning

Mode of delivery

Registered participants will be provided with the link to attend the online workshop sessions along with the detailed schedule of the workshop.

Registration and Guidelines

Faculty members, research Scholars, PG students, and UG students from all disciplines of engineering with a quest to work in the areas of machine learning can register.

REGISTRATION IS FREE

Registration is limited and on first come first served basis.

Register online using the following link:

<https://forms.gle/vqshwP3b97bMXSEF9>

E-certificate will be provided for those who are attending all the sessions.



DATES TO REMEMBER

Last date for registering: 15th November 2020

Confirmation to the participants: 16th November 2020

DETAILS FOR COMMUNICATION

Organizing Secretaries

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