Gayatri Vidya Parishad
Prof .V.Lakshmikantham Institute for Advanced Studies
(GVP-LIAS)
in Association with
Dept. of Mathematics, GVP College of Engineering (A)

As a part of Centenary Year celebrations of

Prof. V. Lakshmikantham (16-03-2023 to 16-03-2024)

is organizing a short course on

Introduction to Machine Learning (Online)

10 – Lectures (7pm-8pm)

(from 22nd June 23 to 5th July 23)

Resource Person
Mr. Satya Prasad (Ph D, IITM),
Research Scholar of Professor Sundar, IITM ,
has submitting his thesis in IITM and
is currently sharing his expertise in Machine Learning

INTRODUCTION.

Modeling or Mathematical modeling of physical phenomena has been an ongoing process for many centuries. As explicit solutions to math models involving differential equations, integral equations, integro differential equations cannot be obtained in most of the cases, numerical methods have taken the fore ground. With the exponential increase in computational capacity and development of machine learning and/or artificial neural networks, the study of physical phenomena entered a new era.

Thus mathematicians working in the areas of differential equations and its allied topics will be highly benefitted to join the band wagon of machine learning and be in the fore front of research. For this, it is highly essential to organize workshops dealing with the numerical techniques that link up with machine learning and also learn the techniques involved in machine learning. Thus, in this workshop, expert in Mathematics with a sound knowledge of ML will give insights of math in ML. The structure of the short course is as follows

Introduction to Machine Learning

Prerequisite:

- Basic Linear Algebra
- Basic knowledge required on Real Analysis, Measure Theory (in particular, Borel measurable functions).
- Higher dimensional calculus
- Optimization in $\mathbb{R}^n$(in particular, Gradient Descent Method)

Day-1:
- Briefing about aims of these lecture series
- Terminology
- Motivating examples

Day-2:
- Few basic definitions
- Universal Approximation Theorem
- Introduction to ML

Day-3:
- Artificial Neural Networks(ANN)
- Feed Forward Neural Networks

Day-4:
- Backward Propagation

Day-5:
- Backward Propagation (continuation)
- About squashing functions
- About loss functions

Day-6:
- Algorithm for simple ANN
- Implementation of simple ANN

Day-7:
- Testing examples and analyse results
- Introduction to packages

Day-8:
- Types of neural networks

Day-9:
- Extended discussion-1

Day-10:
- Extended discussion-2

About the Institution.

The Gayatri Vidya Parishad College of Engineering has a 5000 strong contingent of students pursuing quality and skill oriented education. The college is established by 'Gayatri Vidya Parishad'(GVP), a non-profitable organization comprising of noted educationists and eminent philanthropists who have a missionary zeal to provide quality technical education. The college is one of the most- preferred self-financing engineering colleges in Andhra Pradesh and at present offers 10 B.Tech. Programs, 9 M.Tech. and one MCA Program approved by AICTE. The college has brought in many initiatives for the benefit of students with autonomous status granted by UGC in 2009 and extended up to 2025. The institute has been reaccredited second time by NAAC with 'A' grade with CGPA of 3.47/4.0. All the eligible seven B.Tech. programs are accredited by NBA at least twice. The institute received funds to the tune of Rs. 5 Crores under Technical Education Quality Improvement Program (TEQIP), S.C-1.2. The college received Rs. 12 Crores from funding organizations AICTE / DST / NBHM / ARB etc. towards 45 R&D projects.

GVP-LIAS.

Gayatri Vidya Parishad Professor V. Lakshmikantam institute for advanced studies (GVP-LIAS) organize seminars/ workshop / conference every year. GVP-LIAS in association with the departments of GVP-College of Engineering organized four international conferences titled, "Recent Advances in Mathematical Sciences and Applications (RAMSA)" in 2009, 2013 2017 and 2021. GVP-LIAS boasts of hosting a good number of distinguished Mathematicians, Scientists and Researchers from various parts of the country and from abroad.

Dept of Mathematics.

The faculty of the Department of Mathematics is very active and strong in both teaching and research. It caters to the needs of the engineering students by offering all the necessary prerequisite mathematics courses required in the curriculum. It takes special efforts and caters to the needs of slow learner. A couple of faculty co-authored research monograph and text books for undergraduate and graduate students. The department conducts GVP Math Olympiad every year for students of engineering in and around Visakhapatnam.

Who Can Attend the Workshop

Faculty and Research Scholars interested in Machine learning for their Research.

Contact Dept. of Math and GVP-LIAS **for more Information.**

- Dr. J. Vasundhara Devi (Dept. of Math and GVP-LIAS)

  Contact: +91 8985649078

- Dr. N. Giri Babu

  Contact: +919441213181

- Dr. Ch. V. Sreedhar

  Contact : +91 9490131784

Google Meet link

Please join by 6.55pm for lecture scheduled at 7pm.

Introduction to Machine Learning (IML)

Time zone: Asia/Kolkata

Google Meet joining info

Video call link: https://meet.google.com/oph-cbyb-dei

Or dial: (US) +1 785-380-5304 PIN: 408 496 733#