NIT Warangal

GNITS
G. NARAYANAMMA INSTITUTE OF TECHNOLOGY & SCIENCE (For Women)
AUTONOMOUS

G. Pulla Reddy Engineering College, Kurnool

Dept. of ECE, GNITS, HYDERABAD

ONLINE FACULTY DEVELOPMENT PROGRAMME (FDP)

ON

Deep Learning and Machine Learning in Biomedical SignalProcessing

(23rd August 2021 – 3rd September 2021)

Organized by

E & ICT Academy, National Institute of Technology, Warangal.

In association with

Department of Electronics and Communication Engineering,
G. Narayanamma Institute of Technology and Science (for Women) (AUTONOMOUS)
Shaikpet, Hyderabad

and

G. Pulla Reddy Engineering College (AUTONOMOUS), Kurnool
(Sponsored by Ministry of Electronics and Information Technology (MeitY), GOI)

Dr.D.Venkateshulu,
Prof. & HOD, ECE Dept.
B.Tech,M.Tech,PhD., MCSI,MIETE,MISTE,
G.Narayanamma Institute of Technology and Science
Shaikpet, Hyderabad, Telangana State - 500008

Preamble:

"Electronics & ICT Academy" was set up at NIT Warangal with financial assistance from MeitY, GoI. The jurisdiction of thisacademy is Telangana, Andhra Pradesh, Karnataka, Goa, Puducherry and Andaman & Nicobar Islands. This academy tuleis to offer faculty development programmes in standardized courses and emerging areas of Electronics, Information Communication Technologies, training & consultancy services for industry, curriculum development for industry, CEP for working professionals, Advice and support for technical incubation and entrepreneurial activities.

About the Workshop:

Healthcare occupies an indispensable part in human lives. The healthcare industry contains large amount of psychiatric data hence machine learning models were used to provide conclusion effectively in the disease prediction. Clinical data from electronic medical records, registries or trials provide a large source of information to apply machine learning methods in order to foster precision medicine. Even though there is a growing interest in the application of machine learning (ML) techniques to address clinical problems, the use of deep-learning in healthcare have just gained attention recently.

Major Course Contents:

- The prediction of spread of COVID-19 using Regression Models
- Breast cancer analysis using logic regression
- Data Clustering Algorithms: k-means and K nearest Neighbor Algorithms
- SVM Algorithm in predicting the outbreak of cardiovascular diseases in patients on dialysis
- Blood Diseases Detection using Classical Machine Learning Algorithms
- Introduction to Deep Learning, Deep Neural Networks
- Foundations of Convolutional Neural Networks Object Detection
- Recurrent Neural Networks
- Deep neural network medical image segmentation
- Linear Algorithms and Optimizations
- Deep Convolutional Models

Faculty conducting this programme:

The programme will be conducted in online mode by the faculty members from NIT Warangal; Academicians in the concerned field from IITs/NITs/IIITs are invited to deliver lectures in theprogramme. Speakers from industries are also expected to deliveras part of the course.

Eligibility:

The programme is open to faculty of Engineering Colleges, MCA Colleges and other allied disciplines in India. Industry personnel working in the concerned /allied discipline can also attend.

Registration Fee Particulars:

- Faculty & Research scholars: Rs. 750/-
- Industry Participants: Rs. 2250/-

The fee shall be paid by online transfer using the following details: Please write "DLMLBM" in remarks or purpose while doing online payment transaction

Bank details for Online Transfer:

- Account Name: Electronics & ICT Academy NITW
- Account No: 62423775910
- IFSC: SBIN0020149
- Bank and Branch: State Bank of India, NIT(REC) Warangal

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Shaikpet, Hyderabad - 500 104

How to apply:

A filled in form of application in the prescribed format (*refer to page 2 of this brochure for format and the printout of the same can be used to fill, duly signed and sponsored by appropriate authorities should reach the coordinator by email since the confirmation of selection will be intimated only throughmail.

Coordinator Mail ID: DLRM.GNITS2021@GMAIL.COM

Selection Criteria:

Selection will be done based on first-come-first-serve basis to a maximum number of 100. Additionally 10 participants from industry are allowed to participate. The list of selected participants will be intimatedthroughe-mail. Incase a candidate is not selected, the registration fee amount will be refunded. Short listed Candidates will be issued certificates on successful completion of the course. Reservations are followed for selecting candidates as per GOI norms.

Important dates:

Last date (Registration and fee payment)	20th August, 2021
Selection List by E- mail	21st August, 2021
Duration	23rd August –3rd September, 2021

About NIT Warangal:

National Institute of Technology, Warangal is the first among 17RECs setup as joint venture of the Government of India and the state government. Over the years the college has established itself as a premier institute imparting technical education of a very high standard leading to the B.Tech degrees in various branches of engineering, M.Tech. and Ph.D programs in various specializations. All B. Tech and M. Tech programmes of NITWarangal are NBA accredited.

About GNITS:

G. Narayanamma Institute of Technology & Science, a leading Engineering college in Hyderabad for Women, was founded by late Sri. G. Pulla Reddy garu in 1997, with an objective of providing excellent learning facilities for Women to pursue education in Engineering since two decades. The aim is to promote Technical Education among Women to enhance and build up a new generation of thinkers, innovators and planners in the realms of Science and Technology. GNITS received UGC autonomous status for 10 years from 2018 and is affiliated to JNTUH .It is approved by AICTE, accredited by NAAC & NBA (AICTE) and ISO 9001:2015 certified institution.

About ECE department of GNITS:

The department of ECE was started in the year 1997 with an intake of 60 students. The intake was increased to 180 students. The department also offers PG course in DECE with an intake of 18. The department has applied for 5 patents, published 4 books, R&D equipment costing 3.57 crores and received 43 lakhs funding from ACITE for carrying out the projects to its credit. It has 8 doctorates in diversified fields of electronics &17 faculty Pursuing Ph.D from IITs/IIITs/NITs with alumnae in IITs/Top class MNCs/Public sectors/Abroad universities.

About GPREC:

G. Pulla Reddy Engineering College is the branchild of Late Sri G. Pulla Reddy garu, the renowned philanthropist, and a great humanist, established in 1984-85. It is one of the earliest private engineering colleges in Andhra Pradesh. The trust was instituted by late Sri G.Pulla Reddy Garu in the year 1977 with the motto of rendering service to the society. The College has been approved by AICTE and affiliated to JNTUA, Ananthapuramu and accredited with Autonomous Status by the UGC, New Delhi. Accredited by NAAC Grade(A++) of UGC & NBA of AICTE and Ranked 190 by NIRF- 2020 . Recognized as Mentor Institution by AICTE under Margdarshan Scheme.

About the ECE Department of GPREC:

The ECE dept. was established in the academic year 1984-85 with an intake of 40 and currently with 198 regular and 18 lateral entry students. The department also offers PG Programme in VLSI and Embedded Systems with intake of 18. The department is recognized as a research centre by JNTUA,Ananthapuramu and offers full time PhD programme. It has a strong pool of faculty with 14 Ph.D's , 17 faculty Pursuing Ph.D.

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5

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Deep Learning and Machine Learning in Biomedical Signal Processing

(23rd August 2021 – 3rd September 2021)

Organized by

E & ICT Academy, National Institute of Technology, Warangal.

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Department of Electronics and Communication Engineering

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Schedule with Resource Persons

Day	10.15–11AM	Session 1 11-1 PM	Lunch Break	Session 2 2- 4 PM
23-08-2021 day1	Inauguration	Introduction to Machine Learning and Bio- Medical Signal Processing **Dr. J Ravi Kumar, NITW**		FECG Extraction using LMS and RLS **Dr. J Ravi Kumar, NITW**
24-08-2021 Day2	Introduction to Linear Regression using Least Square and Gradient Descent methods **Dr. J Ravi Kumar, NITW**			Introduction to Python Programming NIT Warangal **Mr.M Vijay Kumar** NIT Warangal
25-08-2021 Day3	Introduction to Python Programming **Mr.A.B.Ahadit** NIT Warangal			Predicting COVID-19 cases using Simple regression **Mr.A.B.Ahadit** NIT Warangal
26-08-2021 Day4	Pre Processing of EEG data **Dr.V.Santhosh Kumar,Assoc.Prof,ECE,BVRIT Hyderabad for women**			Predicting COVID-19 cases using Multiple and Polynomial regression **Mr.M Vijay Kumar** NIT Warangal

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Dept. of ECE, GNITS
HYDERABAD

Dr. S. Venkateshulu
M.Tech, Ph.D., MISTE, MIETE, MISTE,
Professor & Head, Dept. of ECE
G. Narayanamma Institute of Technology and Science
Shaikpet, Hyderabad, Telangana State - 500 104

27-08-2021	Logistic Regression and Breast cancer Detection **Dr. J Ravi Kumar NIT Warangal**		Hands on Session on Logistic Regression and Breast Cancer Detection **Mr.M Vijay Kumar ,Mr.A.B.Ahadit,NITW**	
28-08-2021	Introduction to Neural Networks and Back Propagation **Dr. J Ravi Kumar NIT Warangal**		Application of Artificial Neural Networks in Cardiovascular disease Prediction **Mr.A.B.Ahadit** **NIT Warangal**	
31-08-2021	Introduction to Convolutional Neural Networks **Dr. J Ravi Kumar, NITW**		Implementation of CNN using Keras and Tensor flow **Mr.A.B.Ahadit** **NIT Warangal**	
01-09-2021	Recurrent Neural Networks and applications **Dr. Kadambari, CSE, NITW**		Applications of Recurrent Neural Networks **Dr. Kadambari, CSE, NITW**	
02-09-2021	**From 2-5 PM** Deep Generative Models **Dr. Swagatam Das, ISI Kolkata**			
03-09-2021	**Introduction to Kmeans clustering Algorithms by Dr.J.Ravi Kumar,Assoc.Prof, ECE ,NITW**		From 2 to 3PM Introduction to K means clustering Algorithms -**Handson session by Mr.M.VijayKumar,NITW**	From 3 to 3.30PM Tests conduction, Feedback from Participants Valedictory From 3.30 to 4PM

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ELECTRONICS & ICT ACADEMY

NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL, (T.S.), INDIA

and

G.Narayanamma Institute of Technology and Science (for Women)(Autonomous),Hyderabad,T.S.,
G. Pulla Reddy Engineering College(Autonomous), Kurnool,A.P.

Participation Certificate

JNTUH FDP ID
FDP2021260715420B

This is to certify that **B. TULASI SOWJANYA**, Assistant Professor from G NARAYANAMMA INSTITUTE OF TECHNOLOGY &SCIENCE(for Women) (AUTONOMOUS), Shaikpet,Hyderabad has participated in a 40-hour Online Faculty Development Programme on "Deep Learning and Machine Learning in Biomedical Signal Processing" Sponsored by Ministry of Electronics and Information Technology (MeitY) GoI, organised by E&ICT Academy, NIT Warangal and Department of Electronics and Communication Engineering, G.Narayanamma Institute of Technology and Science (for Women) (Autonomous), Hyderabad, T.S., G. Pulla Reddy Engineering College (Autonomous) Kurnool, A.P. during 23rd August - 3rd September, 2021.

She / He has successfully completed all the requirements for the completion of the programme.

Mrs. Sarada Aavula	Dr.G.Amjad Khan	Dr. Ravi Kumar Jatoth	Dr.K.Ramesh Reddy	Dr.B.Sreenivasa Reddy	Prof. R.B.V. Subramaanyam	Prof. N.V. Ramana Rao
Coordinator GNITS, Hyderabad	Coordinator GPREC, Kurnool	Coordinator NIT, Warangal	Principal GNITS, Hyderabad	Principal GPREC, Kurnool	Chief Investigator E&ICT Academy, NIT Warangal	Director NIT, Warangal

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Department: Electronics and Communication Engineering
2021-22
REPORT

FDP on "**Deep learning and Machine learning in Biomedical signal processing**"

Date of program: 23-08-2021-3-9-2021

Resource person: Dr.Ravi Kumar, Santosh Kumar

About the Program:

The FDP was inaugurated on 23rd Aug 2021 followed by first session by Dr.Ravi Kumar, Assoc.Prof, ECE Dept, NITW.

On the second day of the FDP, FN session was by Dr.Ravi Kumar, Assoc.Prof, ECE Dept, NITW on Introduction to linear regression followed by a hands on session in the afternoon.

Third day was a complete hands on session on regression models.

Fourth day of the FDP FN session was Preprocessing of EEG data by Santosh Kumar,Assoc.Prof, BVRIT.

Fifth was a session by Dr.RaviKumar on logistic regression followed by hands on session.

6th day was a session on Introdcution to neural networks by Dr.Ravi Kumar followed by application of neural network in cardiac disease detection by B.Ahadit

7th and 8th days had sessions on recurrent neural netowrks followed by valedictory.

The overall experience of attending the workshop is quite helpful in a better understanding on Neural network, concept on machine learning and how to can be applied to Biomedical signal Processing.

Signature of the Faculty member

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