ONLINE FACULTY DEVELOPMENT PROGRAMME (FDP)
ON
AI/ML for Computer Vision and Medical Image Analysis Applications
(1st December– 9th December 2022)

Organised by

Electronics & ICT Academy, NIT Warangal

In Association With

Department of Electronics and Communication Engineering

BVRIT HYDERABAD College of Engineering for Women, Hyderabad, Telangana

(Sponsored by Ministry of Electronics and Information Technology (MeitY), GOI)

Preamble:

"Electronics & ICT Academy" was set up at NIT Warangal with financial assistance from MeitY, GoI. The jurisdiction of this academy is Telangana, Andhra Pradesh, Karnataka, Goa, Puducherry and Andaman & Nicobar Islands. This academy's role is 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 FDP:

This FDP aims at providing strong theoretical background along with practical experience in the field of computer vision and medical imaging applications and how the visualization and analysis of the images could be efficiently done with the help of computer vision and medical image analysis based algorithms. In the growing and emerging era of "Digital India" initiative, the use of computer vision becomes pertinent in the machine vision and medical imaging area since several applications of the images determine and contribute towards socio-economic status of the regions and the country as whole. The computer vision and medical imaging based methods would be delivered by eminent resource persons of CV and Medical Imaging experts. This FDP aims to impart knowledge and train on fundamentals of engineering aspects of AI and insights in recent computer vision & medical image analysis applications using AI. FDP will be helpful for the faculties and researchers working in the areas of AI/ML for computer vision and medical image analysis applications.

Major Course Contents:

- Introduction to Computer Vision and Medical image analysis applications.
- Machine Learning Basics, Working with data pre-processing and data visualization.
- Supervised and unsupervised learning methods, SVM classification, neural networks and applications.
- Introduction to Deep learning methods, and DL based other Architectures and its applications.
- CNN Architectures for CV and medical imaging implementation.
- Video analytics, Object detection/Tracking, segmentation, Yolo models, RCN, Unet and FRCNN.
- Biometrics detection, Human activity and face recognition.
- Medical image data processing and analysis.
- AI/ML for Biomedical imaging, CT Scan/MRI based image analysis, and medical image classifications.
- Basics of Tensor Flow/Keras/PyTorch/Jupyter and Colab.
- Working with data pre-processing and data visualization using python/MATLAB.
- Hands-on session using Python/MATLAB.
- CV and AI algorithms implementation on Hardware platform like Jetson Nano, TX2 etc.

Faculty conducting this programme:

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

Registration Fee Particulars:

Faculty and Research Scholars	**Rs.750/-**
Industry Participants	**Rs.2250/-**

Participants need to pay the Registration Fee Online using the following details

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

How to apply:

Participants are required to fill the online registration form by clicking on the following link:
https://forms.gle/otJSWzbMYD27x35q7

Selection Criteria:

Selection will be done based on first-come-first-serve basis to a maximum number of 60 (sixty). Additionally, 10 participants from industry are allowed to participate. The list of selected participants will be intimated through e-mail. In case a candidate is not selected, the DD will be sent back. Candidates will be issued satisfactory certificates on successful completion of the course. Reservations are followed for selecting candidates as per GOI norms.

Important Dates:

Last date (Application & DD)	**29.11.2022**
Selection List by E- mail	**30.11.2022**
Duration	**01.12.2022 to 09.12.2022**

About NIT Warangal:

National Institute of Technology, Warangal is the first among 17 RECs 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 programmes in various specializations. All B. Tech and M. Tech programmes of NIT Warangal are NBA accredited.

About BVRIT Hyderabad:

BVRIT HYDERABAD College of Engineering for Women is the youngest college under the umbrella of Sri Vishnu Educational Society, Established in 2012 by Sri K V Vishnu Raju, Chairman with the intention of enabling women engineers. College offers UG programs in EEE, ECE, CSE, IT and CSE (AI & ML) with an intake of 540 and a PG Program in Data Science. The college was accredited by NBA and by NAAC with a grade 'A'. The college has been ranked in NIRF and ARIIA.

The Department of ECE was established in 2012 with an intake of 60 and increased to 120 from 2014-15. Department was accredited by NBA. Department is well established and known for academics, research and innovation. The Department is supported by a fine amalgam of eminent and dynamic faculty members diversified in various domains like communications, Signal Processing, VLSI and Embedded Systems, serving continuously in providing quality education. Department has bagged projects worth Rs.65 Lakh and the faculty has published 10 patents.

PRINCIPAL
G. Narayanamma Institute of Technology & Science (for Women)
(AUTONOMOUS)
Shaikpet, Hyderabad - 500 104

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(Sponsored by Ministry of Electronics and Information Technology (MeitY), GOI)

1. Name :
2. Designation :
3. Institution :
4. Email :
5. Mobile No :
6.

Reference No:
Amount:
Bank :
Date:

7. Address for Correspondence:
8. Educational Qualification:
9. Subjects taught so far:
10. No. of refresher courses/workshops attended:
11. Experience (in years):

    Teaching: Research: Industry:

12. Do you belong to SC/ST : YES /NO

Declaration

The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the FDP and shall attend the course for the entire duration. I also undertake the responsibility to inform the Coordinator in case, I am unable to attend the course.

Date **Signature of the Applicant**

SPONSORSHIP CERTIFICATE

Dr. /Mr. /Ms. ..... is an employee of our Institute/Organization and is hereby sponsored to participate in the FDP on **"AI/ML for Computer Vision and Image Analysis Applications"**, sponsored by **Electronics & ICT Academy** during **01st December – 09th December 2022** at BVRIT Hyderabad College of Engineering for Women, Hyderabad, Telangana.

Signature of Head of Institution
(with seal)

Address for correspondence

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Mobile: +919618106080
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It is requested to all the delegates, after completion of application form, all the payment details, screenshot of the payment and scanned application form has to be uploaded in the following online registration link.

Registration Link:

For more details about Electronics & ICT Academy, NIT, Warangal, please visit:
https://nitw.ac.in/eict

For more enquiries please contact:

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ONLINE FACULTY DEVELOPMENT PROGRAMME (FDP) ON
AI/ML for Computer Vision and Medical Image Analysis Application
(3rd–12th December 2022)

Organized by

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

in association with

Department of EECE, BVRIT HYDERABAD College of Engineering for Women, Hyderabad, Telangana

Day& Date	10.00 A.M. – 12.00 Noon		Break	2.00 P.M. – 4.00 P.M.	4.00 P.M. – 5.00 P.M.
03-12-2022 Saturday	Inaugural Fn.	Research in Machine Learning MSV, NITW		Unsupervised Learning Methods MSV, NITW	Hands on Session on Python MFH, NITW
05-12-2022 Monday	Trends in Computer Vision and Applications MFH, NITW			Deep Concept of Deep Learning (3 Hrs.) KMB, VNIT Nagpur	Deep Concept of Deep Learning KMB, VNIT Nagpur
06-12-2022 Tuesday	Medical Informatics and Biometrics SDR, IIT Delhi			Auto encoders with Computer Vision Applications EP, NITW	Image Classifications using CNN-Hands on Session MFH, NITW
07-12-2022 Wednesday	Machine Learning for Next Generation Biometric Systems VK, IIT Indore			Basics and Research Aspects of Recognition, Kinship Verification TM, NIT Raipur	Image Classifications using CNN-Hands on Session MFH, NITW
08-12-2022 Thursday	Heart-rate Monitoring From Non-Contact Face Videos PG, IIT Indore			Pneumonia Classification and Detection using DNN MFH, NITW	Deep Learning and Data Augmentation-Hands on Session MFH, NITW

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09-12-2022 Friday	Machine Learning for Medical Image Processing IIA, IIITDM Jabalpur		Image Processing Applications on FPGA MFH, NITW	Transfer Learning for CV Applications with Google Colab- Hands-on Session MFH, NITW
10-12-2022 Saturday	FPGA Accelerators for Machine Learning PM, NITW		Machine learning for Medical Image Analysis-Hands on Session MFH, NITW	AI/ML for Image Processing and CV Applications TKK, NITW (2 Hr.)
12-12-2022 Monday	Photo Acoustic Imaging SS, VNIT Nagpur		Computer Vision In Sports Applications MFH, NITW	Real Time AI/ML Implementation on NVDIA and PYNQ Boards - Hands on Session MFH, NITW

KMB: Prof. Kishore Bhurchandi, VNIT Nagpur
SDR: Prof. Sumantra Dutta Roy, IIT Delhi
TM: Dr. T. Meenpal, NIT Raipur
PG: Dr. Puneet Gupta, IIT Indore
MSV: Dr. M. Srinivas, NITW
PM: Dr. P. Murlidhar, NIT Warangal

TKK: Prof. T. Kishore Kumar, NIT Warangal
IIA: Dr. Irshad Ahmad Ansari, IITDMJ
VK: Dr. Vivek Kanhangad, IIT Indore
SS: Dr. Saugata Sinha, VNIT Nagpur
EP: Dr. Ijjina Earnest Paul, NITW
MFH: Dr. Mohammad Farukh Hashmi, NIT Warangal

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Department: Electronics and Telematics Engineering

2022-23

REPORT

FDP on "FDP on AI/ML for Computer Vision and Medical Image Analysis Applications"

Date of program: 03-12-2022 to 12-12-2022

Resource person: KMB: Prof. Kishore Bhurchandi, VNIT Nagpur TKK: Prof. T. Kishore Kumar, NIT Warangal, SDR: Prof. Sumantra Dutta Roy, IIT Delhi IIA: Dr. Irshad Ahmad Ansari, IITDMJ

About the Program: Introduction: The Faculty Development Program on Artificial Intelligence (AI) and Machine Learning (ML) for Computer Vision and Medical Image Analysis was organized with the aim of enhancing the knowledge and skills of educators in these cutting-edge domains. Day 1: Fundamentals of AI/ML

The program commenced with an overview of the fundamentals of AI and ML, providing participants with a solid foundation for the subsequent sessions. Day 2: Computer Vision Basics

The second day focused on computer vision, a key component in the application of AI to medical image analysis. Day 3: Medical Image Analysis. The program then transitioned to the core theme of medical image analysis. Various imaging modalities, including X-rays, MRIs, and CT scans, were explored.

Day 4: AI/ML Models for Medical Image Analysis

Building on the foundational knowledge, day four focused on specific AI/ML models used in medical image analysis. Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), and transfer learning were covered in detail., Day 5: Applications and Future Trends

The fifth day of the FDP addressed real-world applications of AI/ML in medical image analysis, showcasing success stories and ongoing research. ,Day 6:The sixth day covers data pre-processing and data visualization using python/MATLAB, Day 7:Hands-on session using Python/MATLAB,Day8:CV and AI algorithms implementation on Hardware platform like Jetson Nano, TX2 etc.

Dr.A. Naveena
Assistant professor
ETE dept

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