Indira Gandhi Delhi Technical University For Women
(Established by Govt. of Delhi vide Act 09 of 2012)
Department of Electronics and Communication Engineering

DST-SERB Sponsored One Week Faculty Development Program
on
Deep Learning Algorithms for Medical Image Processing
20-Jan-2020 to 24-Jan-2020

Department of Electronics and Communication Engineering, IGDTUW organized SERB sponsored One Week Faculty Development Program on "Deep Learning Algorithms for Medical Image Processing" from 20th -24th January, 2020. The program was held successfully with participation of various stakeholders. During the program various related subtopics were discussed in detail by eminent researchers, academicians and industry experts and a good learning academic environment was experienced by the participants.

The event was inaugurated with address of Hon'ble Vice Chancellor, Dr. Amita Dev, fostering inspiration and telling the students to make the most out of the available opportunity to network with eminent speakers. It was stressed upon the paradigm changes from conventional techniques to deep learning techniques for medical image processing. Dr. Sanjay Mishra, Head, Kiran, DST was the Chief Guest in the inaugural function. Prof. R. K. Singh, Registrar, IGDTUW also graced the inaugural of the program. Dr. Nidhi Goel, Convener, FDP gave a glimpse of the various sessions of the FDP and briefed the participants about the topics chosen for the FDP and highlighted the reasons and importance of the same.

There were 14 external participants from different colleges and 26 participants from IGDTUW which included faculty participants, industry personnel, research scholars, project associates, post graduate and under graduate students. Resource Persons from reputed academic institutions like IIT Roorkee, IIT Delhi, IIIT Delhi, DTU, NIT Delhi, Bennett University, IIT Jodhpur, NSUT, WKU Wenzhou China and industries like IBM, Mando Softech, Coding blocks, Altran Technologies having expertise in the different relevant areas related to the program delivered the talk in the Faculty Development Program.

The list of speakers included Mr. Gurjit Walia from Altran Technologies who spoke about the "Trends and challenges in neural network and machine learning". He focused on the recent developments in the field of neural network and machine learning. It was followed by a brain storming session.

Mr. Bipin Kalra from Coding blocks gave hands on session on "Nuts and bolts of python". He gave the highlights of Python and its programming and discussed its significance over conventional programming languages which benefitted the attendees a lot. Discussions with the speakers also continued during the tea. Mr. Kalra helped the participants to familiarize with the tools used in python for coding.

Dr. Chandra Prakash from NIT Delhi discussed on the topic "Reinforcement learning" and elaborated the various experimental results and the new research areas in this emerging field. Prof. Rajiv Kapoor from Delhi Technological University spoke in the area of "Emotion recognition". The program progressed with the detailed talk by

Dr. Amit Singhal from Bennett University in which he discussed about the retrieval of images from a huge image dataset. Dr. Singhal also demonstrated various tools used for image retrieval and discussed the online sites where the datasets can be downloaded. Dr. Gaurav Bhatnagar from IIT Jodhpur enlightened the participants with a engrossing topic of "Human versus AI". He discussed a case study in image completion and the recent trends in this area. Participants were quite inquisitive and interacted with the experts during the session.

The detailed lecture on "CNN in medical imaging" was given by Dr. Anubha Gupta from IIITD. Huge discussion followed thereafter. A talk on "Learning algorithms in biomedical imaging" was given by Prof. Balasubhramanian Raman from IIT Roorkee. He discussed two very significant case studies in this field. Mr. Shashank Vashisht from Mando Softech gave a problem oriented session on "Object identification and classification". He presented his results for the live scenes regarding the object detection and classification for better understanding of the concept by the participants.

Dr. Dinesh Vishwakarma from DTU delivered a lecture on "Shallow versus deep neural network". The day progressed with a lecture on "Architectural innovations in deep learning algorithms" by Dr. Sujay Deb from IIIT Delhi. Prof. Mukul Sarkar from IIT Delhi gave a lecture on "Electronics behind capturing of an image." With this lecture, participants learnt that there is much more to image than just the pixel value. The entire process how an image is captured by a Camera (an electronic device) and then converted into pixel value was made much simple by the talk of Prof. Mukul Sarkar. Dr. Jyoti Yadav from NSUT explained the significance of "Biomedical instrumentation". She shared the bits of her research in the session and also shared future scope with the participants.

Dr. Ramesh from JNU spoke about "Deep learning model applications and challenges". After a series of comprehensive lectures on core areas, the session was continued by our industry experts from IBM, Mr. Shashank and Mr. Abhinav, who gave a session on "Deep learning for medical imaging". The International Speaker, Dr. Gaurav Gupta from WKU, Wenzhou china gave a talk on "Exploratory data analysis using R." Dr. Gupta emphasized on the use of R language for various modules of machine learning, and how to analyze and interpret the results/data easily using pictorial representations of language R.

This led to the end of the series of lectures in the one week FDP. In the concluding session participants shared their experiences. Most of them talked about their enriching experience at the FDP. This FDP emphasized on stimulating inquisitiveness in the participants during the process of acquiring and assimilating new techniques and concepts, rather than relying on conventional methods of medical image processing.

The program delivered the concept of deep learning and medical imaging in research-based strategies and the exposure to tools like python, simulation tools, and scientific approaches of medical image processing were also delivered in the FDP. It was a enriching experience for the participants and the organizers, wherein eminent academicians, researchers and industry experts from various parts of the Country came forward under one roof, IGDTUW to share their knowledge, expertise in the area and their latest research. It proved to be a very good platform for networking and collaborations among the various experts.

1. Inaugural Session

2. General Photograph

3. General Photograph

4. General Photograph