

**Faculty Development Program
On
Deep Learning for Visual Computing and
Communications (DeLViCCo-2020)**

sponsored by
**Electronics and ICT academy at National Institute of
Technology Patna**

Organised by
**Department of Electronics and Communication
Engineering, National Institute of Technology Silchar**

15th October to 21st October, 2020



Patrons

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Director, NIT Patna

Prof. Sivaji Bandyopadhyay

Director, NIT Silchar

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Supported by

Electronics and ICT Academy, NIT Patna, Patna- 800005.

India. www.nitp.ac.in/ict/

Ministry of Electronics and Information Technology, MeitY,
Govt. of India.

About NIT Patna

National Institute of Technology Patna is the 18th National Institute of Technology created by the Ministry of H.R.D. Government of India after rechristening the erstwhile Bihar College of Engineering Patna on 28.01.2004. NIT Patna marked its humble beginning in 1886 with the establishment of pleaders survey training school which was subsequently promoted to Bihar College of Engineering Patna in 1924. This made this institute the 6th oldest Engineering Institute of India. The Institute is situated on the south bank of holy river Ganges behind Gandhi Ghat (where the ash of father of the Nation, Mahatma Gandhi was offered in the river Ganges). The Institute imparts high level education training, research and development in science, engineering technology and humanities along with high quality education and values at UG, PG and Ph.D. level. At present the Institute offers courses in six major technical disciplines viz. Architecture, Civil Engineering, Computer Science & Engg., Electrical Engg., Electronics & Communication Engg. And Mechanical Engg. It also consists of well-established departments of Physics, Chemistry, Mathematics and Humanities and Social Sciences.

Electronics and ICT Academy

The Ministry of Electronics and Information Technology, Government of India has instituted seven Electronics and Information & Communications Technology (ICT) Academies of which, the academy of NIT Patna is one. The Academy at NIT Patna aims to design and organize basic as well as specialized training programmes in niche areas of electronics and ICT for the development of required knowledge base, skills and tools to equip the teaching community with better knowledge and understanding.

About Department of ECE, NIT Silchar

The Department offers B. Tech in Electronics and Communication Engineering and M. Tech in two specializations (i) Microelectronics and VLSI Design & (ii) Communication and Signal processing engineering. This department also offers a Ph.D. in Electronics and Communication Engineering. The state of art laboratory facilities exist in the department to train the UG, PG, and Ph.D. scholars to carry research in the frontier research areas of Electronics and Communication Engineering. The faculty members are specialized in diverse fields, and there is a commendable research

ambiance in the department. The Department of Electronics and Communication Engineering takes up R&D projects sponsored by various funding agencies such as DST, SERB, BARC, Meity CSIR, and many more.

About NIT Silchar

National Institute of Technology Silchar is one of the 31 National Institutes of Technology of India and was established in 1967 as a Regional Engineering College Silchar in Assam. In 2002, it was upgraded to the status of National Institute of Technology and was declared as Institute of National Importance under the National Institutes of Technology Act, 2007. NIT Silchar is a fully residential campus situated on the banks of river Barak and on a sprawling green campus spread over 625 acres of land surrounded by scenic tea gardens on the outskirts of Silchar. NIT Silchar is a teaching and research institute which reflects in the top NIRF ranking. In 2020 NIRF ranking, NIT Silchar secured 9th among all NITs, 46th rank in engineering and 94th in overall category. NIT Silchar has been ranked INTERNATIONALLY FOR THE VERY FIRST TIME by the highly reputed Times Higher Education (THE) World University Ranking 2021 with a rank in the band of 801-1000.

Objective and Scope

This program will help participants not only to grasp the various deep learning concepts but also their applications. In this era of interdisciplinary research and practice, deep learning concepts are widely used across other engineering domains like industrial automation engineering, mechanical engineering, marine engineering, aeronautical engineering, electrical engineering, chemical engineering and environmental engineering. Therefore, knowing the basics and design techniques enables one to think, create and make efficient use of deep learning for solving problems in their respective domains. This is an attempt to get experts related to deep learning from premier institutes of India and abroad to give participants a good exposure to above aspects of deep learning.

Objectives of the Program

The objectives of the FDP are:

- To impart knowledge of principles and practices in deep learning for academicians, researchers and students.
- To promote the use of deep learning for problem solving in other engineering domains.
- To introduce some cutting edge research trends in the field of deep learning.

Topics to be covered

Introduction to machine learning; Artificial Neural Networks, The Neuron Diagram, Perceptron, multilayer network, and backpropagation; Introduction to deep neural networks (DNN)-CNN, RNN, LSTM, etc. Advanced architecture, i.e., GAN, Transfer learning techniques, one shot learning etc. Transfer learning, Deep learning scopes, Impact of Deep Learning in this world of AI, Application to computer visions; Deep Architectures for medical image processing, analysis and diagnostics, Deep Architectures for Speech, Language and Pathological Signal Processing, Deep generative models for computational imaging, Deep Architectures for Natural Language Processing, Deep architectures for (speech and image based) forensic and security related applications, Computational intelligence in wireless communications and architectures, Computational intelligence in electromagnetics and allied domains.

Resource Persons

Our team of experts is as follows:

1. Prof. B.W. Schuller, Imperial College London, UK
2. Prof. S. C. Dutta Roy, IIT Delhi
3. Prof. Md. Zafar Ali Khan, IIT Hyderabad
4. Prof. S. R. Mahadeva Prasanna, IIT Dharwad
5. Dr. M. Sabarimalai Manikandan, IIT Bhubaneswar
6. Prof. Ashish Ghosh, ISI Kolkata
7. Dr. Amalendu Patnaik, IIT Roorkee
8. Dr. J. Chakraborty, Dept. of Surgery, MSKCC, USA
9. Dr. Abhishek Midya, MSKCC, USA
10. Mr. Jai Mangal Singh, RES LLP, Bengaluru
11. Mr. Abhishek Dey, Data Scientist, Kaliber.AI
12. Mr. Abhishek Roy Choudhury, TCS, Kolkata
13. Prof. S. Ramanarayana Reddy, IGDTUW, Delhi.
14. Dr. Chandra Shekar Seetamantulu, IISC Bangalore
15. Dr. Anil Kumar Vuppala, IIIT Hyderabad

16. Dr. Rabul Hussain Laskar, NIT Silchar
17. Dr. Taimoor Khan, NIT Silchar
18. Dr. Ram Kumar Karsh, NIT Silchar
19. Dr. R. Murugan, NIT Silchar

One-week FDP includes

Seven Days Training will be taken by a group of experts from IISc, IITs, NITs with the experience ranging from several years to several decades in delivering sessions in India and abroad. The training hour is 5-6 hours/ each day. Mode of training is Instructor-led live online.

- **40 Hours Instructor-led live online Hands-on based learning & Interactive Query Session.**
- Soft copy of study material, Training PPTs & Projects code
- Participants will get recorded sessions after completion of training

Who Can Participate

Faculty members of UGC/AICTE recognized Universities and Engineering colleges all over India, Research scholars (Ph.D. only), students and Industry personals, however priority will be given to the faculty members.

Registration Fee

- **Faculty/ Research Scholar: 500/-**
- **Students (UG-Final yr, PG): Rs. 500/-**
- **Industry and others: Rs. 1000/-**

Registration Process

1. Registration fee will be paid through online mode, the account details for this purpose is

Account Name: NIT Patna

Account No.: 50380476798

IFSC Code: ALLA0212286

2. Registration link: <https://forms.gle/aNMDJXQv6qTCL2iF6>
3. The brochure of the program may be downloaded from the Institute website www.nits.ac.in.

4. Last date of registration: 14 October 2020

Total -100 seats and the selection will be done on first-cum-first-serve basis. A PDF file of an online filled registration form with proof of registration fee paid will be sent through email to **Dr. Ram Kumar Karsh. (email: ram@ece.nits.ac.in)**

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REGISTRATION FORM

1. Name (block letter):
2. Gender:
3. Caste:.....
4. DOB:.....
5. Designation
6. Organization:
7. Address for communication:
.....
Pin code: Ph. No.:
- E-mail:
8. Highest Academic Qualification:
9. Specialization:
10. Experience (in years):
(a) Teaching: (b) Industrial:
11. Aadhar No:.....

DECLARATION

I do hereby agree to abide by the rules and regulations of the FDP.

Place:

Date:.....

.....
Signature of the Applicant