### **COMPUTER VISION & BIOMETRICS LAB**



ORGANISING

**TWO WEEKS** 

14<sup>th</sup>-28<sup>th</sup> July, 2018

NATIONAL WORKSHOP & SUMMER SCHOOL ON

## **ADVANCES IN**

# **DEEP ARCHITECTURES**

## FOR

#### SIGNAL IMAGE VISION

# APPLICATIONS









DEPARTMENT OF INFORMATION TECHNOLOGY

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY - ALLAHABAD** 

### **ABOUT THE WORKSHOP & SUMMER SCHOOL**

Deep architectures are playing the most important role in the area of machine learning and are considered as the future technology and anticipated a complete paradigm shift in the area of artificial intelligence by the researchers. It is considered to be one of the most active areas of research in signal, image, vision and biometrics and comprises of supervised and unsupervised models of approach for detection/ recognition/classification/synthesization of objects.

With the advent of extraordinary computation power and huge data sets, it is possible to model the most complex processes using deep architectures. With the advent of Deep learning architectures, almost all areas of signal processing have undergone significant changes in their approach. This is primarily because machine learning is at the forefront of solving many problems in computer signal, image, vision and biometrics which were thought to be either unsolvable or highly computationally intensive in the past. One of the key ideas which have facilitated this is the introduction of deep architectures, which form the basis of present day pattern based recognition problems.

The proposed two-week course will be comprising of approximately 40 lectures followed by 14 hours' worth of lab demonstration and hands-on approach is intended to help the participants familiarise themselves with Signal & Image Processing, Computer Vision, Biometrics and Machine Learning and pertains to how all of the approaches can be applied to research problems in real life. The course also covers essentials of machine learning, deep neural networks as well as the other models how they can be applied to solve practical problems in computer vision so that more people become interested in signal processing.

### **OBJECTIVES**

- ⇒ Providing a platform to showcase the research work through the Technical paper and poster presentation
- $\Rightarrow$  Building awareness towards deep learning architectures.
- ⇒ Building the technical capacity in the area of Signal, Image, and Vision Processing via deep architectures.
- ⇒ Building communities of research students, educator, R&D, and Industry persons in this emerging area of research and development.
- ⇒ Providing hands-on tutorial sessions, where the participants can experiment with concepts and methods
- $\Rightarrow$  Introducing the importance of terahertz imaging and communication.

#### ADASIVA 2018

#### **RESOURCE PERSONS**



Prof. Bidyut B. Chaudhuri IŞI, Kolkata



Prof. P. Nagabhushan IIIT-Allahabad



Dr. R. Venkatesh Babu IISc Bangalore



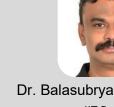
Dr. Vineeth N. B. IIT - Hyderabad



Dr. Mukesh Jewariya NPL, CSIR



Dr. Gaurav Agrawal Ola, ANI Tech. Pvt. Ltd. Bangalore



Dr. Balasubryamanian Raman IIT Roorkee



Dr. Chetan Arora IIIT - Delhi



Mr. Akhilesh Kumar DIPR, DRDO, Gol, New Delhi



Dr. Partha Pratim Roy IIT Roorkee



Dr. Tejas Kulkarni Google DeepMind



Prof. Shekhar Verma



Dr. Krishna Pratap Singh IIIT Allahabad



Prof. U. S. Tiwary IIIT - Allahabad



Dr. Satish Kumar Singh IIIT-Allahabad



Mr. Mohak Sukhwan ABB Robotics Bangalore



Dr. Shiv Ram Dubey IIIT - Sri City





Dr. Angshul Majumdar IIIT Delhi

#### WORKSHOP OVERVIEW

ADASIVA 2018

- ⇒ Pre-Deep Learning Classification Architectures
- ⇒ Essentials of Traditional Neural Networks
- ⇒ Convolutional Neural Network Architectures
- $\Rightarrow$  Training Methods for CNN
- ⇒ Transfer Learning
- ⇒ Advanced Deep CNN Architectures
- ⇒ Network In Network
- ⇒ Deep Networks with Stochastic Depth
- ⇒ DenseNet, ResNeXt
- ⇒ Object Detection using CNN
- ⇒ Visualizing and Understanding CNN
- ⇒ Deep Generative Models
- ⇒ Action Recognition
- ⇒ 3D Modelling
- ⇒ Deep Reinforcement Learning

#### **Special Session on Terahertz Imaging and Communication**



Dr. Mukesh Jewariya

Scientist Length, Dimension and Nanometrology National Physical Laboratory (NPL), CSIR



ADASIVA 2018

#### CHIEF PATRON & CHAIRPERSON



Prof. P. Nagabhushan



Prof. Gaurav Sharma University of Rochester, USA



Prof. U. S. Tiwary IIIT - Allahabad

#### ADVISORY COMMITTEE



Dr. Ajay Kumar Singh Director INMAS, DRDO, Gol, New Delhi



Prof. K. R. Ramkrishnan IISc - Bangalore



Prof. Bidyut B. Chaudhuri ISI - Kolkata



Prof. B. Chanda ISI - Kolkata



Mr. Hemanshu Srivastava Sumsang Research, Delhi



Dr. Satish Kumar Singh IIIT-Allahabad

CONVENER

#### COORDINATOR



Dr. Mohammed Javed IIIT-Allahabad



CATEGORY	COURSE FEE	
	INDIAN	ABROAD
Full-time Research Scholars/Student	INR. 7000/. + 18% (GST)	USD. 250/. + 18% (GST)
Faculty Members	INR. 10,000/. + 18% (GST)	USD. 350/. + 18% (GST)
Industry Person	INR. 13,000/. + 18% (GST)	USD. 500/. + 18% (GST)

- + Accommodation and Food Facilities at nominal fee at the institute rate can be made available to the participants on Payment basis.
- + Food and Accommodation charges will be informed soon.
- + No TA/DA will be given from the institute

#### **PAYMENT DETAILS**

- + Details regarding payment of registration fees will be communicated to the selected participants through email at the earliest.
- + Final selection list will be displayed on July 1,0 2018 on the official website.
- + Selection will be done on first come first serve basis and motivation of the candidate in addition to good recommendation.

#### **HOW TO REGISTER?**

Visit <a href="https://cvbl.iiita.ac.in/adasiva2018/">https://cvbl.iiita.ac.in/adasiva2018/</a> to register.

LAST DATE TO REGISTER (Extended): July  $10^{th}$ , 2018



### **CONTACT US**

#### CONVENER

Dr. Satish Kumar Singh Associate Professor

#### COORDINATOR

Dr. Mohammed Javed Assistant Professor

#### FOR ANY QUERIES

Mail us at— adasiva2018@gmail.com Contact: Albert Mundu — +918756860528

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Visit https://cvbl.iiita.ac.in/adasiva2018/ for detailed information.