



Dr. Suresh Sundaram of Nanyang Technological University (NTU), Singapore.

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Suresh Sundaram is Associate Professor and Deputy Director of Management Committee for Robotic Research Centre (RRC) in Nanyang Technological University. He is Office bearer (Treasurer) of IEEE Computational Intelligence Society Chapter of Singapore and member of IEEE Neural Network Technical Committee, IEEE Intelligent Control Technical Committee, IEEE Task Force on CISDA, and IEEE Task Force for complex valued Neural Network. He is external project reviewer of CONICYT – National Commission for Scientific and Technological Research, Chile and King Fahd University of Petroleum and Minerals, Saudi Arabia. Suresh Sundaram is in various editorial boards: IEEE Transaction on Neural Networks and Learning Systems, Swam and Evolutionary Computing, Artificial Intelligence Research, Journal of Experimental and Theoretical Artificial Intelligence, International Editorial Board for Special Issue of Auto Soft Journal entitled “Application and Security Services in Web and Pervasive Environments”.



Dr. Aruna Tiwari is Assistant Professor of Discipline of Computer Science and Engineering (CSE) at Indian Institute of Technology Indore (IITI). She leads Soft Computing research group at IIT Indore. Her research interests are Artificial Neural Networks, Fuzzy Clustering, Genetic Programming, Quantum Computing, Extreme Learning Machine and their applications to bioinformatics, medical diagnosis etc. Currently collaborated with Soybean Research centre, Indore and CDAC, Bioinformatics group Pune.

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### Course Co-ordinator

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# GLOBAL INITIATIVE OF ACADEMIC NETWORKS



Neural Networks Learning Theory – Advanced Topics  
6<sup>th</sup> July – 15<sup>th</sup> July

gJan



MINISTRY OF HUMAN RESOURCE DEVELOPMENT, GOVT. OF INDIA



Indian Institute of Technology Indore

Discipline of Computer Science and Engineering (CSE)

## Overview

This course covers basics of neural networks with several-advanced topics, including supervised learning, semi-supervised learning, online/sequential learning algorithm, on-shot learning, and meta-cognitive learning, deep learning. The focus of the class will be complex-valued neural networks, neuro-fuzzy inference and spiking neural network, which are currently the major research focus area for building sophisticated solutions for many practical complex real-world problems. The course also provides current trends in neural networks in big data analytics. This advanced-level course will provide strong foundation of theory in advanced learning algorithms and experience in application of these approaches in image processing, video analytics, signal processing, medical informatics and bioinformatics.

## Modules

Inauguration of the GIAN course and plenary lecture by Dr. Suresh Sundaram of Nanyang Technological University (NTU), Singapore.

Day	Morning	Afternoon
Day 1	Lecture 1: Perceptron, MLP Lecture 2: Neural Classifier	Lab: MLP Lecture: Problems
Day 2	Lecture 1: RNN Lecture 2: RBF	Lab: RBF, Lecture: Project Discussion
Day 3	Lecture 1: RAN, MRAN Lecture 2: SMC	Lab: RBF, MRAN Lecture: Project Discussion
Day 4	Lecture 1: SRAN Lecture 2: McNN	Lab: Project Discussion Lecture: Application
Day 5	Lecture 1: FCMLP Lecture 2: FCRBF, Classifier	Lab: Project Discussion Lecture: application
Day 6	Lecture 1: FCRN Lecture 2: CC-ELM	Lab: Project Discussion Lecture: application
Day 7	Lecture 1: Spiking Neuron Lecture 2: ESNN	Lab: Project Discussion Lecture: SRESN
Day 8	Lecture 1: Deep Neural Lecture 2: Clustering	Lab: Project Discussion Lecture: Application

## You Should Attend If you are ...

- Research Scholars, Graduate students, Computer Science researchers and graduate students from different institutes across the country.
- Young researchers in R & D laboratories of IT industries.
- Faculty and academics interested in cross disciplinary research in Automation, Big data learning and Intelligent Computing,
- Research organization such as Soybean Research Centres, Healthcare Centres which are generating huge data for their problems related to prediction, classification, clustering.

## Registration Information

### *Two Steps Registration Process:*

**Step 1:** Register on the following link by payment of Rs. 500:

<http://www.gian.iitkgp.ac.in/GREGN/index>

**Step 2:** To complete the registration, use the following link (*NEFT detail of payment will be required for filling the registration form*):

**Participation from outside India:** US \$500

**Industry/ Business organization:** Rs. 10,000/- per participant

**Faculty:** Rs. 5000/- per participant

**Student:** Rs. 1000/- per participant

<http://gian.iiti.ac.in/register.php>

*Please refer the mail for more details of the registration process.*

### **Payment Details:**

Name of the Beneficiary

**IIT Indore Project and Consultancy A/c**

Name of Bank

**Canara Bank**

Branch

**Indore Navlakha**

Beneficiary Account No.

**1476101027440**

Bank MICR Code

**452015003**

Bank IFS Code

**CNRB0001476**

**The last date for registration: 3<sup>rd</sup> July**

### **Note:-**

The above fee includes all instructional materials, computer use for tutorials, and lunch. The Participants will be provided with single bedded accommodation on payment basis.