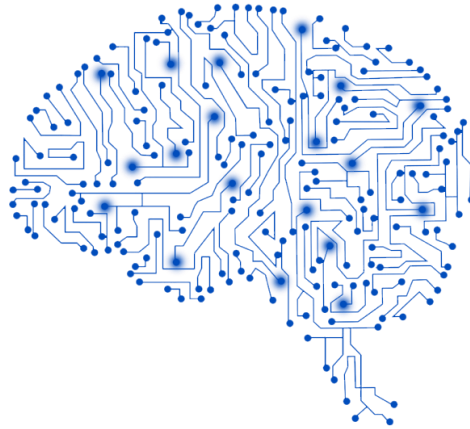




Three Day National Workshop on **Deep Learning: Bridging Theory and Practice**

Organized By
Department of Computer Science
University of Calicut
Kerala - 673635



February 22 - 24, 2018
EMS Seminar Complex
University of Calicut

Workshop Overview

Deep learning is driving the third wave of Artificial Intelligence research. Recent years, deep neural networks have been achieving breakthroughs in various major AI tasks such as machine translation, image understanding, speech recognition, natural language processing and so on. In these domain specific tasks, deep neural networks reached the level of accuracy comparable to humans' performance. The primary goal of this three-day workshop is to build the skill-set and toolbox you need to build your own deep learning solutions through hands-on projects. Another purpose of this workshop is to familiarize the participants to the emerging technologies enabled by deep learning. The workshop will bring together the experts and provide an opportunity to explore ways to harmonize the power of computational intelligence and discuss the next directions.

The workshop sessions and hands-on will enable participants to understand the background theory and practices of Machine Learning, ANNs and Deep Learning Architectures. The workshop topics include Digital Image Processing and Computer Vision applications using Convolutional Neural Network (CNN), Speech and Text processing with Recurrent Neural Network (RNN) and Long Short-Term Memory networks (LSTM). In addition to these topics, the Generative Adversarial Networks (GAN) and Variational Autoencoders (VAE) for realistic image synthesis will also introduce in the workshop.

About the Department of Computer Science

Computer-based technologies are the foundation of modern life and as a University Department we are proficient to contribute towards the advancement of the society at large. We also ensure our sincere effort to offer the best in terms of Academic programmes, Research activities and infrastructure including State-of-the-art laboratories. The Department with the bright young and dynamic faculty members attracts the best of students for its masters and doctoral programmes. We also aim at bringing in excellent opportunities for active institute-industry interaction and exchange programmes which will unquestionably help the students to excel in the present competitive professional life.

Our vision is to create a vibrant learning environment founded on value based academic principles that foster collaboration, a culture of accomplishment and strong support of ethnic and intellectual diversity wherein all involved shall contribute effectively, efficiently and responsibly .

Our mission is to provide

- Highest quality Post Graduate and Doctoral education as per international standards.
- State-of-the-art research facilities with the upgraded laboratory facilities time to time.
- Strong partnerships with industries, government agencies, professional societies and local communities.
- Extension and consultancy services to government, private, public and industrial sectors

Scope

- Fundamentals of Machine Learning and Artificial Neural Networks
- Recent Trends and advancements in Deep Learning in computer vision and language processing
- Architectures such as:
 - Convolutional Neural Network (CNN)
 - Recurrent Neural Network (RNN) and Long Short Term Memory (LSTM)
 - Generative Adversarial Networks (GAN) and Variational Auto Encoders (VAE)
- Recent Models, Variations and Applications in Deep Learning

Target Audience:

Faculty members, Research Scholars, PG Students, Engineers and industry professionals with relevant background

Pre-requisites:

Participants should be comfortable with programming. Familiarity with python is ideal.

Participants must bring their own laptop with following configurations to this workshop.

OS: Windows/Linux/Ubuntu (64 bit machines)

Minimum RAM: 4GB

Registration Details

Registration Starts on: 12th February 2018

For online registration please visit: <http://dcs.uoc.ac.in/cida/dlbt18>

Participants are requested to make their own arrangements for transportation and accommodation

Venue:

The sessions will be held at the E.M.S. Seminar Complex of the University of Calicut situated in the main campus at Thenhippalam. It is 23 kilometers south of Calicut, 12 kilometers from Karipur airport and approximately 14 kilometers from Farook and Parappanangadi Railway stations. Calicut city is well connected with buses and trains from various parts of the country. The campus is on NH17, and regular buses are available from Calicut city.

Workshop Schedule:

Day 1: 22nd February 2018

9.00 am – 9.30	Registration
9.30 am - 10.00 am	Inauguration
10.00 am - 11.30 am	Keynote Address “Introduction and Applications of Deep Learning” Dr. Deepak Mishra, Associate Professor, Department of Avionics, Indian Institute of Space Science and Technology, Trivandrum
11.30 am – 11.45 am	Tea break
11.45 am - 01.00 pm -	Session 1 “Neural Networks and Machine Learning Refresher” <i>(Fundamentals of machine learning and Artificial Neural Networks)</i> Dr. Lajish V. L. Assistant Professor, Department of Computer Science, University of Calicut, Kerala
01.00 pm - 01.30 pm	Lunch break
01.30 pm - 03. 00 pm -	Session 2 “Convolutional Neural Networks” <i>(Fully connected networks, CNN, properties of CNN, Different models)</i> Dr. S Balasubramanian, Assistant Professor, Department of Mathematics & Computer Science, Sri Sathya Sai Institute of Higher Learning, Andhra Pradesh
03.00 pm - 03.15 pm	Tea Break
03.15 pm - 05.00 pm -	Session 3 Hands-on Convolutional Neural Networks Dr. S Balasubramanian, Assistant Professor, Department of Mathematics & Computer Science, Sri Sathya Sai Institute of Higher Learning, Andhra Pradesh

Day 2: 23rd February 2018

10.00 am - 11.30 am	Session 4 “Recurrent Neural Networks” <i>(Different Network Structures in RNN and their applications, Internal logic for Vanilla RNN, Back Propagation Through Time and Truncated Back Propagation Through Time)</i> K Sumanth Reddy Deep Learning Engineer, Blincam, Japan
11.30 am - 11.45 am	Tea Break
11.45 am - 01.00 pm	Session 5 Project 1: Sentiment Analysis on IMDB Movie Review Dataset K Sumanth Reddy Deep Learning Engineer, Blincam, Japan

01.00 pm - 01.30 pm	Lunch break
01.30 pm -03. 00 pm	Session 6
	“Long Short Term Memory”
	<i>(LSTM & RNN logic comparison, core idea behind the LSTM and step by step walk through, LSTM Case Study, Applications)</i>
	K Sumanth Reddy
	Deep Learning Engineer, Blincam, Japan
03.00 pm - 03.15 pm	Tea Break
03.15 pm - 05.00 pm	Session 7
	Project 2: Bit Coin Price Prediction
	K Sumanth Reddy
	Deep Learning Engineer, Blincam, Japan

Day 3: 24th February 2018

10.00 am - 11.30 am	Session 8
	“Generative Adversarial Networks”
	<i>(Generative models, Introduction, variations and applications of GAN)</i>
	Dr. Darshan Gera
	Assistant Professor, Department of Mathematics & Computer Science
	Brindavan Campus, Sri Sathya Sai Institute of Higher Learning, Bangalore
11.30 am - 11.45 am	Tea Break
11.45 am - 1.00 pm	Session 9
	“Variational Auto-encoder”
	<i>(Variational Auto-encoder, variants, extensions and applications)</i>
	Dr. Darshan Gera
	Assistant Professor, Department of Mathematics & Computer Science
	Brindavan Campus, Sri Sathya Sai Institute of Higher Learning, Bangalore
01.00 pm - 01.30 pm	Lunch break
01.30 pm -03. 00 pm	Session 10
	Hands-on Generative Adversarial Networks & Variational Auto-encoder
	Dr. Darshan Gera
	Assistant Professor, Department of Mathematics & Computer Science,
	Brindavan Campus, Sri Sathya Sai Institute of Higher Learning, Bangalore
03.00 pm -03. 15 pm	Tea Break
03.15 pm – 04.00 pm	Valedictory function

Workshop Organizing Committee

Chief Patron:

Dr. K. Mohammed Basheer, The Hon'ble Vice Chancellor, University of Calicut

Patrons:

Dr. P. Mohan, Pro-Vice-Chancellor, University of Calicut

Dr. Abdul Majeed T. A., Registrar, University of Calicut

Organizing Director:

Dr. P. T. Ramachandran

Director, School of Mathematical and Computational Sciences
& Head, Department of Mathematics, University of Calicut

Organizing Chair:

Ms. Manjula K. A., Head. Department of Computer Science, University of Calicut

Workshop Coordinator:

Dr. Lajish V. L., Director, Calicut University Computer Centre &
Faculty, Department of Computer Science, University of Calicut

Members:

Dr. C. Chandran, Head, Department of Statistics

Ms. Shahina K. M., Guest Faculty, Department of Computer Science, University of Calicut

Ms. Priyanka K., Guest Faculty, Department of Computer Science, University of Calicut

Ms. Hashida Haidros Rahima Manzil, Guest Faculty, Department of Computer Science,
University of Calicut

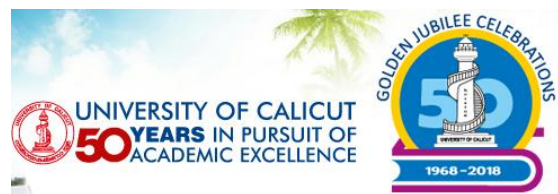
Student Coordinators:

Mr. Anoop K. (Contact: 9048377170)

Ms. Manjary P. Gangan (Contact: 9020997771)

Research Scholars, Department of Computer Science, University of Calicut

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<http://dcs.uoc.ac.in>