Centre for Development of Advanced Computing (C-DAC) is the premier R&D organization of the Ministry of Electronics and Information Technology (MeitY), Govt. of India, for carrying out R&D in IT, Electronics and associated areas. Software Training and Development Centre (STDC) at CDAC Trivandrum has been working on problems in the areas of Language computing, speech technology,image processing etc. in ML and DL tech- nologies. We have expertise in developing system for Machine translation, translitera- tion, information retrieval, information ex- traction, text to speech, automatic speech recognition, character recognition and de- velopment of assistive technologies. We also provide consultancy in the language computing and speech technologies. We have also experience in conducting quality training on web technologies, embedded systems, cyber security and forensics and e-governance. To know the details of upcom-

For Details Contact : Sajini T

Contact Number : +91-9895986314 ,

+91- 8547882754

0471-2781500—Ext:219

E-mail : sajini@cdac.in

Organization

Centre For Development of Advanced Computing (C-DAC) Thiruvananthapuram, Technopark Campus, Kariavattom, Pin: 695581
https://stdc-t.in/

Tel: +91- 471 - 2781500
Fax: +91- 471– 2722230

Two days Workshop on Machine Learning - Hands on with Python /Matlab
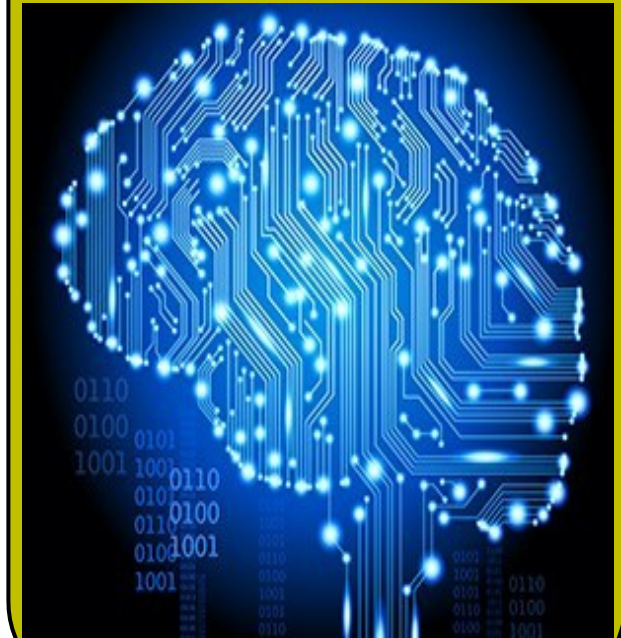
Organized by

Centre For Development of Advanced Computing (C-DAC)

5th and 6th July 2019

9.30 AM — 5.00 PM

Objective of workshop

Machine Learning is one of the essential fundamentals required to step into the rapidly emerging and upcoming era of Artificial Intelligence (AI). Data processing requires "COMPUTATIONAL THINKING" and is essential to have hands-on experience in using computational tools for problem-solving. This workshop aims to explore the recent development and various machine learning and deep learning based security approaches in the field of cyber security. The workshop will be an 'eye-opener' to build the computational skills required for machine learning.

DAY 1

9:30 AM to 10:00 AM : Overview of Machine Learning and the current & future era of Artificial Intelligence (AI).

10:00 AM to 11.00 AM : Basics of Linear Algebra required for Machine Learning (Hands-on with Matlab/Python).

11.00 AM to 11.15 AM : TEA BREAK

11.15 AM to 1.00 PM : Classical Machine Learning Algorithms: Linear Regression, logistic regression, Naive Bayes, Decision tree, Random forest, Ada boost, Random Kitchen Sink (RKS) and Support Vector Machines (SVM) for 1-D data classification (Hands-on with Matlab/Python).

1.00 PM to 2.00 PM : LUNCH BREAK

2.00 PM to 5:00 PM : Introduction to Neural Networks (Hands on with Tensor-flow/Keras), Fundamental concepts of Deep Learning (Hands on with Tensor-flow/Keras), 1D and 2D Convolutional Neural Networks for Classification (Hands on with Tensorflow/Keras), Recurrent neural network, long short-term memory, gated recurrent unit

DAY 2

9.30 AM to 11.00 AM : Reinforcement learning

11.00 AM to 11.15 AM : TEA BREAK

11.15 AM to 1.00 PM : Intrusion detection: Applying classical machine learning algorithms and Deep learning, generative adversarial network, large-scale learning

1.00 PM to 2.00 PM : LUNCH BREAK

2.00 PM to 4.00 PM : Email spam detection: Applying classical machine learning and deep learning architectures such as bidirectional RNN, bidirectional GRU and bidirectional LSTM with text representation of NLP

4.00 PM to 5.00 PM : Malware analysis: Applying classical machine learning and deep learning architectures such as CNN, CNN-RNN, CNN-LSTM and CNN-GRU with image processing

Special session by

Dr. Mamoun Alazab

Mamoun Alazab received his PhD degree in Computer Science from the Federation University of Australia, School of Science, Information Technology and Engineering. He is an Associate Professor in the College of Engineering, IT and Environment at Charles Darwin University, Australia. He is a cyber security researcher and practitioner with industry and academic experience. Alazab's research is multidisciplinary that focuses on cyber security and digital forensics of computer systems including current and emerging issues in the cyber environment like cyber-physical systems and internet of things with a focus on cybercrime detection and prevention. He has more than 100 research papers. He delivered many invited and keynote speeches, 22 events in 2018 alone. He convened and chaired more than 50 conferences and workshops. He works closely with government and industry on many projects. He is an editor on multiple editorial boards including Associate Editor of IEEE Access (2017 Impact Factor 3.5)

Editor of the Security and Communication Networks Journal (2016 Impact Factor: 1.067) and Book Review Section Editor: Journal of Digital Forensics, Security and Law (JDFSL). He is a Senior Member of the IEEE.

Domain experts from Amrita Center for Computational Engineering and Networking (CEN) , Coimbatore Campus

Dr. Sowmya V

The winner of WOMAN in AI Leadership award 2019, deep learning instructor ambassadorship grant by NVDIA in 2018.

She currently serves as Assistant Professor. Areas of interest Color Image Processing, Hyper spectral Image Processing, Pattern Classification, Machine Learning, Deep Learning, Bio-Medical Signal Processing, Bio-Medical Image Processing, Image Analysis using Drones

Dr. Vinayakumar R

He has several papers in Machine Learning applied to Cyber Security. His Ph.D. work centers on Application of ML/DL for Cyber Security and discusses the importance of Natural language processing, Image processing and Big data analytics for Cyber Security. He has participated in several international shared tasks and organized a shared task on detecting malicious domain names (DMD 2018) as part of SSCC'18 and ICACCI'18.

Registration will be first-cum first-serve basis.

Registration : https://stdc-t.in/ml-workshop

Registration end date: **03-07-2019**