IEEE
HYDERABAD SECTION

IEEE Computational Intelligence Society

The Institute of Electrical and Electronics Engineers, Inc

Computational Intelligence Society Chapter, Hyderabad

In Association with Department of CSE, JNTUH College of Engineering, Hyderabad

Machine Learning with Python
By
Mr. Balaji Marisetti, Cavium Networks
and
Dr. Arijit Laha, Senior Principal Data Scientist, Analytics Unit, Infosys Ltd.

Date & Time:
15th July 2016 10:00 to 17:00
16th July 2016 10:00 to 13:00

Location: JNTU, Kukatpally, Hyderabad
https://goo.gl/maps/dhavTi74PJD2

Registration fee

Professionals
Non-IEEE: Rs. 800/- ; IEEE: Rs. 700/-
Students
Non-IEEE: Rs. 500/-; IEEE: Rs. 400/-
*Fee to be paid through DD or Internet Banking as given in payment procedure,
Registration details to be entered at
http://goo.gl/forms/qO306q9dh82HStdq2
*participants should get their own
Laptops preinstalled with Python.
Instructions are given in next page

for queries please contact:
IEEE CIS Chapter Leadership
Naresh M, Chair naresh.k.m@ieee.org,
Mobile : 9392431163
JNTUHCEH
Dr. A. Kavitha, Department of CSE
athotakavitha@jntuh.ac.in

Abstract

Present day business processes heavily rely on services that mine the data for patterns to make informed decisions. In recent times there has been spurt in hiring patterns of data scientists who are experienced in machine learning applications. This workshop provides an opportunity to students and professionals to get hands-on training in machine learning methods from Industry experienced experts. In addition, the focus is on understanding machine learning concepts using an intuitive, object oriented, simplified and easy to learn programming language Python. Moreover, on successful completion, participants would be receiving a certificate from IEEE CIS Chapter Hyderabad Section.

About the Speakers

Speaker 1 : Mr. Balaji Marisetti completed his M.Tech in Artificial Intelligence from Hyderabad Central University. He is presently working with Cavium Networks for the past three years on OpenSSL. He uses Python mostly for automating his personal tasks (and for fun!).

Speaker 2 : Dr. Arijit Laha is currently a Senior Principal Data Scientist with the Analytics Unit in Infosys Ltd. He has been active in the field of Data Science for nearly 20 years. He has received M.Tech. in Computer Science and Ph.D. for his works in Machine Learning and Pattern Recognition from Indian Statistical Institute, Kolkata. He has authored/co-authored more than 30 papers published in prestigious journals and conferences, including various IEEE Transactions. His interests also include AI, HCI, Semantic Computing and related areas. He is a Senior Member of IEEE and a long-time member of IEEE-CIS.

*Payment Procedure -- **Demand Draft (DD)** : The Institute of Electrical and Electronics Engineers. Inc, state bank of India, Ranigunj Branch.
Internet Banking : The Institute of Electrical and Electronics Engineers. Inc, State Bank of India, Current A/c. No : 10043455954, Bank Swift Code : SBI NIN BB 321, IFSC Code : SBIN0003032.
For registration http://goo.gl/forms/qO306q9dh82HStdq2

Python Installation Instructions

Participants to come with a laptop with a Linux-OS (Ubuntu 14.04/16.04 or Fedora or some other linux version). All the laptops/PCs must have Python3, IPython3 and Numpy installed.

Ubuntu   **Fedora**

```
$ sudo apt-get install python3          $ su      # change to root user and run the
$ sudo apt-get install python3-pip      following commands
$ sudo apt-get install ipython3
$ sudo apt-get install python3-numpy    # dnf install python3
                                        # dnf install python3-pip
                                        # dnf install python3-numpy
                                        # dnf install python3-ipython
```

Windows

users can get the Python3 (Python3.5) from Miniconda (or Anaconda) distribution available at the url: http://conda.pydata.org/miniconda.html
After installing the distribution, run the following commands in a command window.

```
> conda update conda
> conda install ipython
> conda install numpy
```

Day 1 : Basics of Python
Session Expert : Mr. Balaji Marisetti, Cavium Networks
15th July 2016, 10:00 to 17:00

Python

i. Introduction to Python
ii. Built-in Data Types
    a. Numeric,String,Boolean,None

iii. Built-in Data Structures
    a. Tuples, Lists, Sets, Dictionaries
iv. Built-inFunctions
    a. len, range, str, min, max, zip, any, all, reversed, sort
v. Comparison and Logical operators
vi. Control and Looping/Iteration
    a. If-else, for, while
vii. Functions
    a. Optional/Keyword arguments, argument unpacking
viii. Generators and Iterators
ix. Files
    a. reading and writing to files, listing/traversing directories

x. Classes

Numpy

i. Introduction to arrays and multi-dimensional arrays

ii. Basics of Numpy arrays and data types

iii. Creating, modifying, slicing Numpy arrays

iv. Statistics: calculating mean, standard deviation, variance, and covariance

Day 2 : Foundational Data Science
Session Expert : Dr. Arijit Laha, Infosys Ltd.
Duration: 3 hrs [50+10(B) + 50+10(B) + 30+30(Q&A)]
16th July 2016 10:00 to 13:00

i. What is data science?

ii. Data science problems involving
   a. Objects [This tutorial will focus on]
   b. Sequences
   c. Relations

iii. Functional classes of problems
   a. Classification
   b. Regression
   c. Clustering
   d. Others

iv. Practical problem decomposition and layering

v. Object Data
   a. Structure
   b. Attributes/features
   c. Labeled and Unlabeled data

vi. Object Similarity
   a. Feature space
   b. Distance-based similarity
   c. Cosine Similarity
   d. Correlation Similarity

vii. Learning from data
   e. Supervised learning
   f. Unsupervised learning

viii. Getting the right features
   g. [Informed] Feature Engineering
   h. [Blind] feature selection
   i. Feature extraction

ix. Curse of dimensions

x. Practicing Data Science