



IMARTICUS
LEARNING

BIG DATA & MACHINE LEARNING PRODEGREE

Imarticus Learning is an
EdTech Partner of :



TOP4
ANALYTICS TRAINING
INSTITUTE IN INDIA

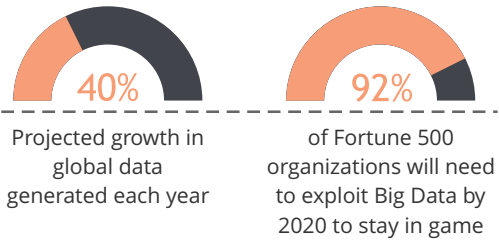
Leading Institute in
SAS & Python
Analytics Vidhya

BIG DATA 2016
TRAINING INSTITUTE

INDUSTRY LANDSCAPE

Machine learning marks a major technological breakthrough in the field of computer science, big data and artificial intelligence. Machine Learning has seen a phenomenal rise in terms of industry application over the last year because it is ideal for exploiting the opportunities hidden in Big Data.

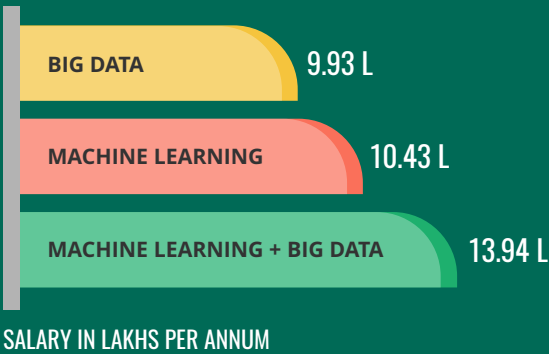
THE SKILLS GAP



IN DEMAND SKILL SETS

- Distributed Computing
- Predictive Modeling
- Math, Stats
- Machine Learning
- Storytelling

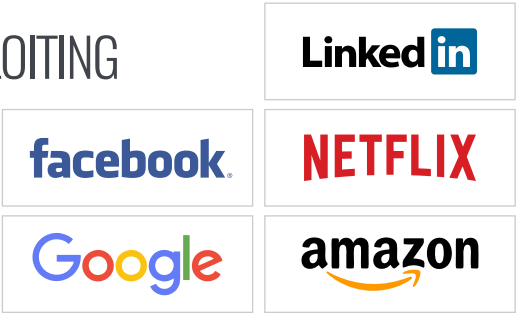
GROWING DEMAND



DATA SCIENTIST
THE
SEXIEST
JOB IN THE
21ST CENTURY

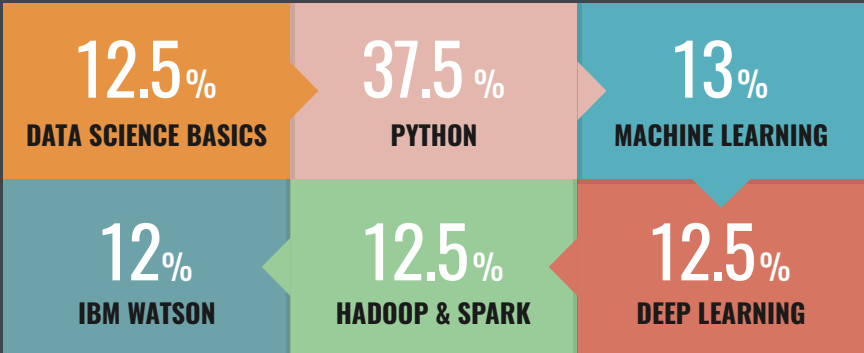
HARVARD BUSINESS REVIEW, OCT 2012

TOP COMPANIES EXPLOITING BIG DATA AND MACHINE LEARNING



OVERVIEW OF PROGRAM

The Big Data and Machine Learning Prodegree, in association with IBM as the EdTech Partner, is a first-of-its-kind 160 hour program providing in-depth exposure to Data Science, Big Data and Deep Learning through a rigorous industry-aligned curriculum featuring Python, Spark and Hadoop.



160
HOURS

PROGRAM AVAILABLE IN CLASSROOM & ONLINE DELIVERY FORMAT

CURRICULUM

LEVEL 1. INTRODUCTION TO STATISTICS

BASIC PROBABILITY AND TERMS	Rules of Probability Permutations and Combinations Bayers Theorem Descriptive Statistics Compound Probability Conditional Probability
PROBABILITY DISTRIBUTIONS	Types of Distributions Functions of Random Variables Probability Distribution Graphs Confidence Intervals
DATA TRANSFORMATIONS	Merge, Rollup, Transpose and Append Missing Analysis and Treatment Outlier Analysis and Treatment
EXPLORATORY DATA ANALYSIS	Summarizing and Visualizing the Important Characteristics of Data Hypothesis Testing Visualizations Univariates, Bivariates Crosstabs, Correlation

LEVEL 2. BASIC OF PYTHON FOR MACHINE LEARNING

INTRODUCTION TO PYTHON	Python Basics Spyder IDE Jupyter Notebook Floats and Strings Simple Input & Output Variables Single and Multiline Comments
CONTROL STRUCTURES	Booleans and Comparisons Conditional Statements (IF ELSE) Operator Precedence Lists - Operations and Functions
FUNCTIONS AND MODULES	Function Arguments Comments and doc strings Functions as Objects Modules Standard Lib and Pip
EXCEPTIONS AND FILES	Exception Handling Raising Exceptions Assertions Working With Files

LEVEL 3. DATA ANALYSIS WITH PYTHON FOR MACHINE LEARNING

LINEAR REGRESSION	Implementing Simple & Multiple Linear Regression with Python Making Sense of Result Parameters Model Validation Handling other Issues/Assumptions in Linear Regression: Handling Outliers, Categorical Variables, Autocorrelation, Multicollinearity, Heteroskedasticity Prediction and Confidence Intervals
LOGISTIC REGRESSION	Wald Test, Likelihood Ratio Test Statistic, Chi-square Test Goodness of Fit Measures Model Validation: Cross Validation, ROC Curve, Confusion Matrix Use Cases
DECISION TREES	Homogeneity Entropy Information Gain Gini Index Standard Deviation Reduction Vizualizing & Prunning a Tree Implementing Random Forests using Python Random Forest Algorithm Important hyper-parameters of Random Forest for Tuning the Model Variable Importance Out of Bag Error
PANDAS	Introduction to Pandas IO Tools Basics of NumPy NumPy Functions Pandas - Series and Dataframes
SCIKIT LEARN	Load Data into Scikit Learn Run Machine Learning Algorithms Both for Unsupervised and Supervised Data Supervised Methods: Classification & Regression Unsupervised Methods: Clustering, Gaussian Mixture Models Decide What's the Best Model for Every Scenario

PROJECT 1 **LINEAR REGRESSION** ▶ Real Estate Price Prediction using Linear Regression

PROJECT 2 **LOGISTIC REGRESSION** ▶ Bankruptcy Prediction using Logistic Regression

PROJECT 3 **DECISION TREES** ▶ Facebook Post Count using Decision Tree

LEVEL 4. INTRODUCTION TO MACHINE LEARNING

INTRODUCTION TO MACHINE LEARNING	What is Machine Learning? End-to-end Process of Investigating Data through a Machine Learning Lens Evolution and Trends Application of Machine Learning Best Practices of Machine Learning
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LEVEL 4. INTRODUCTION TO MACHINE LEARNING

MACHINE LEARNING ALGORITHMS

Classification | Regression | Collaborative Filtering | Clustering
Principal Component Analysis

NEURAL NETWORKS

Neural Networks | The Biological Inspiration Perceptron Learning
& Binary Classification | Backpropagation Learning | Learning
Feature Vectors for Words | Object Recognition

LEVEL 5. DEEP LEARNING APPLICATIONS

KERAS

Keras for Classification and Regression in Typical Data Science
Problems | Setting up KERAS | Different Layers in KERAS |
Creating a Neural Network | Training Models and Monitoring
Artificial Neural Networks

PROJECT 4

ANN ON KERAS

▶ Credit Default using ANN on Keras

TENSORFLOW

Introducing Tensorflow | Neural Networks using Tensorflow
Debugging and Monitoring | Convolutional Neural Networks |
Unsupervised Learning

PROJECT 5

CNN ON TENSORFLOW

▶ Handwriting/Facial recognition using CNN on
TensorFlow

LEVEL 6. HADOOP AND SPARK

INTRODUCTION TO BIG DATA/HADOOP

Big Data and its Sources | RDBMS vs Hadoop | Hadoop
Architecture and Ecosystem | HDFS Design and Architecture
Overview | When to Use & Not Use Hadoop?

MAPREDUCE FRAMEWORK

MapReduce Design and Execution | High level MapReduce Pipeline
Strategies for Debugging | Hadoop MapReduce Architecture |
MapReduce I/O Formats

HIVE AND SPARK ECOSYSTEM

Spark Architecture | Hadoop vs. Spark | Data Sharing in
MapReduce | Data Types and Validation in Hive | Using Hive
Built-in Functions | Configuration and Cluster Modes

LEVEL 7. THE FUTURE WITH IBM WATSON

MACHINE LEARNING IN 2020

What does the Future of Machine Learning Hold? | Virtual Agents
Deep Learning Platforms | Biometrics | Robotics Process
Automation

IBM WATSON DEVELOPER

Fundamentals of IBM Watson | Advantages of IBM Watson | Use
cases of Cognitive Services | Applications on IBM Watson |
Administering Watson Applications

PROJECT 6

IBM WATSON

▶ Watson Deep Learning

LEVEL 8. JOB READINESS

RESUME WRITING

The Why, the What and the How of Resumes | Personal Branding
Tips and Resources | Interview Skills | Using Social Media |
CV Discussion

MOCK INTERVIEWS - DOMAIN

1:1 or Panel Mock Interviews with Faculty to Clear the Technical
Round of Interviews to give you Confidence to Face Real World
Scenarios

Capstone project in Deep Learning/Machine Learning

24/7
ACCESS

IBM has provided access to their Cognitive Platform with IBM Watson & All Program Software

- Cloud-based: Connect from anywhere, anytime
- No installation or compatibility issues
- Agnostic of machine configuration
- Centralized datasets

KEY HIGHLIGHTS



COMPREHENSIVE COVERAGE

The Prodegree features 136 hours of impactful learning of supervised and unsupervised learning which forms the core of Machine Learning. Aspirants also learn about Data Science, Machine Learning and Big Data through hands-on practice on tools such as Python and Hadoop, along with an exclusive guide to IBM Watson by IBM faculty.



COLLABORATION WITH IBM

The Big Data and Machine Learning Prodegree is co-created with IBM as the EdTech Partner, who are at the forefront of technology innovation.



PROJECT BASED LEARNING

The program provides an edge through our unique project-based methodology, focusing on real life projects. The Prodegree features seven projects covering tools such as Python, Hadoop and IBM Watson and teaches you how to apply predictive models to massive dataset typically found in healthcare, financial services, social media and many more!



ACCESS TO IBM CONTENT AND PLATFORMS

Get access to IBM's state-of-the-art content on their own delivery platform. You are also provided access to IBM Cloud Platforms featuring IBM Watson and other software for 24/7 practice.



JOB READINESS

The Imarticus Career Assistance Services (CAS) team prepares you to be job ready through extensive interview prep, resume building & mock interviews.



MENTORSHIP

Industry experts from leading companies act as your personal mentor to advise and guide you in your journey towards job-readiness.

TWO DELIVERY MODES TO CHOOSE FROM



CLASSROOM DELIVERY

Classroom training by expert faculty with industry credentials at our Imarticus centers

136 HOURS

OR



ONLINE DELIVERY

Live Instructor-led Virtual Classes with expert faculty for real-time learning as per your convenience

136 HOURS



SELF PACED VIDEOS

Self Paced Instructor Videos

Active, self-paced, data-driven learning through HD videos

24 HOURS



FACULTY

SANDEEP AGARWAL

Sandeep has over 18 years of experience in IT and extensive hands-on expertise in application development involving analysis, design, development and maintenance with 10+ experience in data mining and BI and Big Data Hadoop. He has worked across multiple business domains such as Manufacturing, Retail, Banking and Insurance and has experience with large-scale, distributed systems design and development.

YOGESH PARTE

Yogesh is a research engineer with over 14 years of experience in algorithmic development and PoC demonstration using C/C++, Python and R. He is the Founder of Y P Consulting Services, which specializes in innovation engineering and technology applications. He holds a PhD. in Applied Mathematics from University of Paul Sabatier, France and has won over 30 awards for academic excellence.

SATYA SRINIVAS

Satya has 25 years of experience aligning multi-million dollar IT deployments with business strategy and operational processes for Fortune 1000 companies. He has expertise in performance management in enterprise architecture, data mining & analytics, machine learning, pattern recognition, social media analytics and Big Data management & analytics. Satya is a MS - Computer Engineering from Florida Atlantic University.

★ Indicative Faculty ★

PLACEMENT ASSISTANCE

Imarticus provides 100% assistance throughout the program to guide and help navigate ample career options and help you get job ready from Day 1.



RESUME BUILDING

Refine and polish your resume with experts tips to help you land your coveted job



INTERVIEW PREP

Prepare you to ace HR and Technical interview rounds with interview Q&A and mock interviews



MOCK INTERVIEWS

Preparing candidates to face interview scenarios through 1:1 and panel mock interviews with industry veterans

COLLABORATION WITH IBM

IBM is a cognitive solutions and cloud platform company that leverages the power of innovation, data and expertise to improve business and society. For more information, visit www.ibm.com



COGNITIVE CLASS

Get access to IBM's state-of-the-art content on their own delivery platform. Made and delivered by the experts.



IBM PLATFORMS

Aspirants are provided access to IBM Cloud Platforms featuring IBM Watson and other software for 24/7 practice.



IBM CERTIFICATION

All candidates earn IBM Badges on completion of the Prodegree with an option of additional IBM certifications.

OUR CAMPUSES

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