

MACHINE LEARNING WITH PYTHON

(Project Based Program)

MACHINE LEARNING



6

MODULES

50

HOURS

2

PROJECTS

6

ASSIGNMENTS



भारतीय सूचना प्रौद्योगिकी संस्थान भागलपुर
Indian Institute of Information Technology
Bhagalpur

**IIIT-Bhagalpur offers Certified
project based learning Program in
“Machine Learning with Python”**

in collaboration with



PROGRAM OVERVIEW

Machine Learning is field of computer science that uses statistical techniques to give computer systems the ability to learn with Data without explicitly being programmed. This course exposes you to different classes of machine learning algorithms like supervised, unsupervised and reinforcement algorithms. This course imparts you the necessary skills and practical exposure on skill sets like data pre-processing, dimensional reduction, model evaluation and also exposes you to different machine learning algorithms like regression, clustering, decision trees, random forest, Naive Bayes and Q-Learning.

This course is focused on building industry-ready professionals who can work on Machine Learning & it will provide in-depth understanding of Artificial Neural Networks, Data Analytics for Machine Learning and its mechanism. Furthermore, you will be provided with project based Learning which is an important to gain expertise in Artificial Intelligence. With this program, one will be able to automate real life scenarios using Machine Learning Algorithms. As part of the course, practical use cases of Machine Learning with Python programming language will be discussed for better & improved learning experience.



Data Mining



Algorithm



Classification



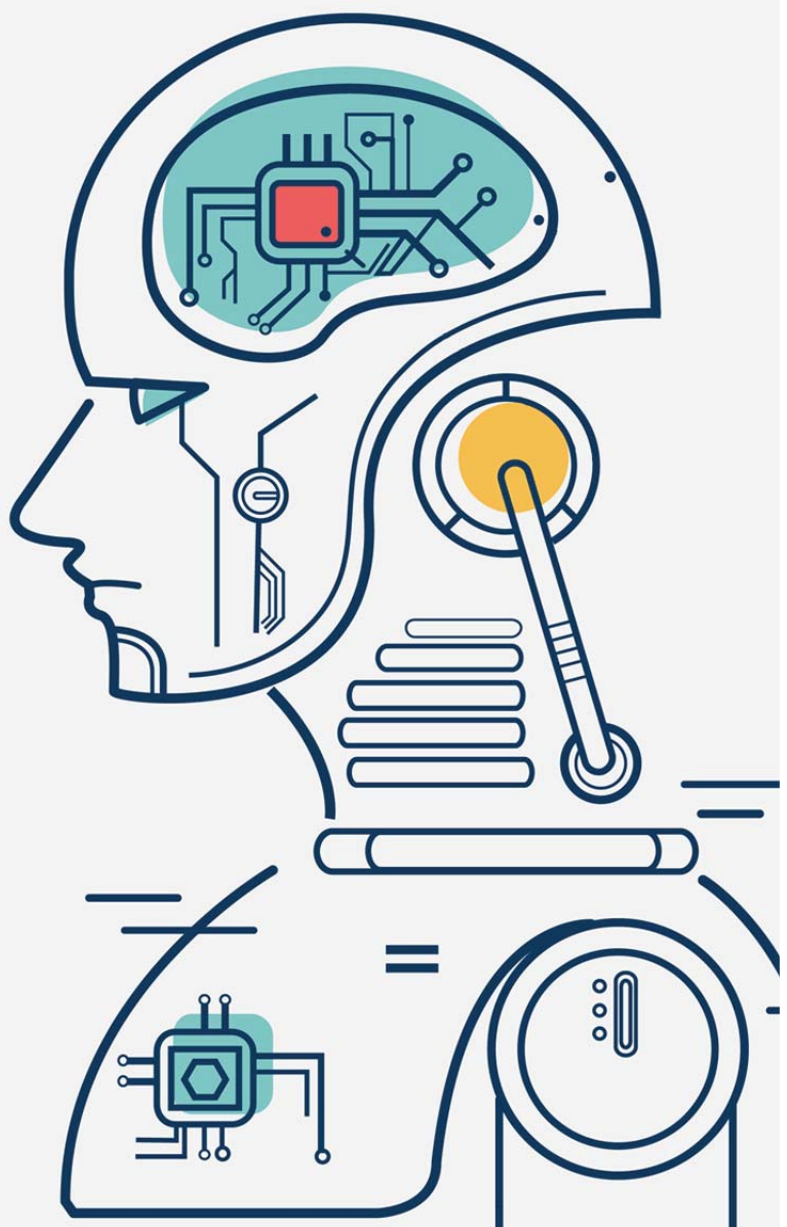
Learning



Neural Networks



Deep Learning



PROGRAM HIGHLIGHTS

Vitti has established an AI & Innovation Hub in collaboration with IIIT-Bhagalpur experts to re-skill and re-tool working professionals towards Artificial Intelligence space, this program offers the following benefits:

- Experienced Faculty Led Sessions
- Live-Interactive Online Classes
- Program Content & Structure designed in collaboration with IIIT-Bhagalpur Faculty and Vitti Industry experts.



PROJECTS

Each student will get hands on practical experience in Machine Learning.



VITTI ADVANTAGE

Vitti Interactive Digital Learning Platform ensures per excellence, quality education anytime in pervasive environment.



ACCESS TO LMS

You get access to Vitti Learning Management System (LMS) where presentations, quizzes and installation guide are there.



EXPERT SUPPORT

Support team to resolve all your technical queries.

PROGRAM **CONTENT**

MACHINE LEARNING with PYTHON

Duration: 50 Hrs.

1. Introduction to Machine Learning

- Machine Learning Categories
- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning
- Frameworks for Building
- Machine Learning Systems
- Machine Learning Python Packages

2. Data Analysis Packages

- NumPy.
- Pandas
- Matplotlib
- Machine Learning Core Libraries

3. Machine Learning Perspective of Data

- Dealing with Missing Data
- Handling Categorical Data
- Normalizing Data

- Feature Construction or Generation
- Exploratory Data Analysis
- Univariate Analysis.
- Multivariate Analysis.

4. Supervised Machine Learning

- Classification
- Collecting, preparing and exploring the data
- Regression
- Multivariate regression
- KNN algorithm
- Classification using Decision Trees and rules
- The naïve Bayes classification
- Preparing and exploring data
- Training a model on the data
- Evaluating the model performance
- Logistic Regression
- Support Vector

Machine

- Artificial Neural Network

5. Unsupervised Machine Learning

- Clustering as a machine learning task
- Hierarchical Clustering
- K-means
- Finding Value of k
- Hierarchical Clustering
- Principal Component Analysis (PCA)
- Hidden Markov Model

6. Convolutional Neural Network

- Architecture of CNN
- Types of layers in CNN
- Building an image classifier using CNN
- Deep Learning with CNN

PROGRAM **OUTCOME**

On completion of the program, students will have developed a world-class skill set in their selected technology domain.

Machine Learning with Python is designed by industry experts to make you a well enhanced Machine Learning Analyst/Engineer. This course offers:

- Improved understanding of Machine Learning Engineer/Analyst roles
- Learning automation in Data Analysis
- Machine Learning Fundamentals & Crunching real-time data
- Learning Machine Learning algorithms and their practical implementation
- Machine Learning algorithms and their validation
- Predictive Modelling - tools and techniques and practical exposure to decision support system for business using predictive analytic techniques

CANDIDATES CAN EXPECT TO PLAY ROLES IN POSITIONS SUCH AS:

- **Machine Learning Engineer**
- **Machine Learning Analyst**
- **Data Scientist**
- **Solution Architect (Artificial Intelligence)**



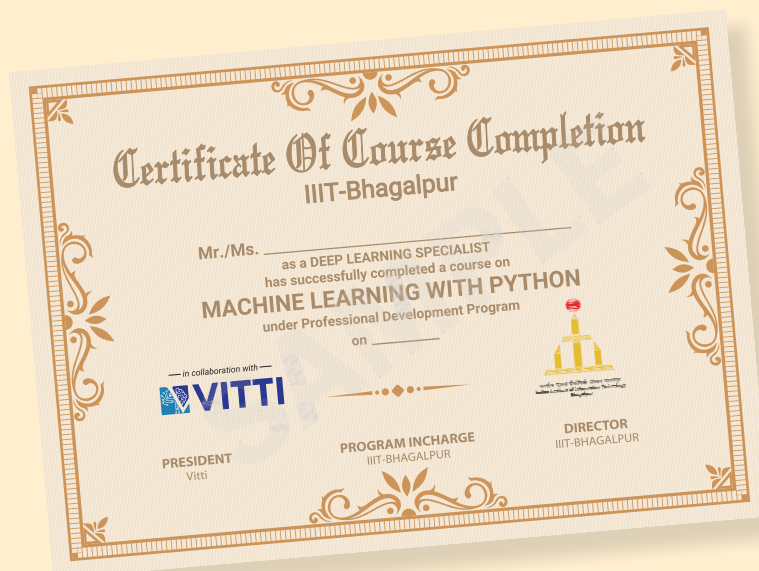
WHO SHOULD ATTEND

- Developers aspiring to be a 'Data Scientist' or "Machine Learning Engineer/Specialist"
- Business Analysts who want to understand Machine Learning (ML) Techniques
- Analytics Manager who is leading a team of Data & Business analysts
- Python professionals who would like to design predictive, prescriptive and cognitive models
- Information Architects who want to gain expertise and practical experience in Predictive Analytic.

PRE-REQUISITES

- Basic programming knowledge in Python

IIIT - BHAGALPUR CERTIFICATION “MACHINE LEARNING WITH PYTHON”



FACULTY PROFILE

DR. A. K. SINHA



He is one of the members of the Advisory Board of Universal Systems Technology, Inc, USA. Holds a PhD degree in Systems Modelling from IIT Delhi, M.Tech (Control System) from IIT Delhi and B.Sc. Engineering from Bihar University.

He has 35 years of teaching, research, and consultancy experience in the various fields of computer science along with AI & ML. Guided 7 Ph.D. and more than 30 M.Tech scholars.

He is a well-known name in the field of Artificial Intelligence space.

DR. DEEPTI YADAV



She is an enthusiastic Data Scientist with 16 years of experience in teaching, research & consultancy and holds Ph.D. in machine learning based data analysis from IIT (Roorkee). Currently, she resides in Silicon Valley, USA and provides consultancy services.

KUNAL GERA



Kunal is a educator, mentor author and consultant. Worked as a business and data Analyst with 10+ years of international and domestic experience. Worked for numerous industries in US, Canada, Africa, Australia and Gulf countries. Worked on project such as consumer analytics, credit card analytics, NLP implementation and computer vision.



DR. RUPAM BHATTACHARYYA

Rupam Bhattacharyya is Ph.D. in Computer Science & Engineering from Tezpur University. Recipient of Scholarship by University of Stirling, Scotland, UK, GATE Scholarship and got Williamson Magor Scholarship. Certified FPGDST from CDAC Bangalore. Presently Teaching at IIIT Bhagalpur.



DR. SANDEEP RAJ

Sandeep Raj (Member, IEEE), Ph.D in Electrical Engineering from IIT, Patna, Currently serving as an Assistant Professor with the Deptt. of Electronics and Communication Engineering, IIIT- Bhagalpur. He served as a Visiting Faculty with the National Institute of Technology Patna. His current research interests include biomedical signal & image processing, embedded systems, machine learning, and Internet-of-Things.



DR. DILIP KUMAR CHOUBEY

He is Ph.D. in Engineering from Birla Institute of Technology, Ranchi and has more than 9 years teaching & research experiences. He is an Assistant Professor in the Deptt. of Computer Science & Engineering, IIIT- Bhagalpur. He is a author of 2 book and has more than 44 reputed research publications in international journals, book chapters and conference proceedings. He has also one project as a Co-PI funded by TEQUIP Collaborative Research Scheme.

INDUSTRY EXPERTS



KUNDANA LAL

As part of the founding team of Vitti, Kundana Lal is the President @ Vitti. Kundana brings over 25 years of industry experience in various IT-related senior leadership role, building businesses, handling corporate and marketing strategies, solidifying profitable relationships with Fortune 500 companies. He was Vice President with Capgemini heading Cloud & AD deliveries for Continental Europe. He has done his Masters in EEE from BIT, Ranchi with specialization in Artificial Intelligence.



SHWETANK SHARAD

He is a Managing Partner on the Executive Board of Vitti. He is a Senior Executive with over 25 years of experience in IT, ITES/ Business Process Services covering Business Transformation, Robotic Process Automation (RPA), Artificial Intelligence and Service Excellence. He is a GE certified Six Sigma Master Black Belt, Certified Robotic Process Automation and Artificial Intelligence-Machine Learning (AI-ML) professional.



SHASHIKANT CHOUDHARY

He completed his MBA in Marketing & IT in 2001 from Symbiosis Institute of Management Studies, Pune. He has more than 19 years of enriched and diverse experience in IT Sales and Business Development in Companies such as, Oracle India, Wipro Technology, and BMC Software etc. He has rich experience of engaging at leadership levels in Govt. and PSUs.



DR. DILIP NANDKEOLYAR

An alumnus of Asian Institute of Management Manila Philippines, DR. DILIP NANDKEOLYAR is a Management post graduate, specialized in Marketing and Strategic Planning & is a B.Sc. (Hons) in Chemistry. He has a Doctoral degree from Thapar University, Patiala.

The guiding philosophy behind all the endeavours of Dr. Nandkeolyar has always been to succeed because his Employers, Peers, Subordinates, Customers, Clients, Students/ Trainees or anyone choosing to associate with him must – by delivering value plus.



SOUMITRA PODDAR

He is one of the distinguished alumni of Vinod Gupta School of Management, IIT Kharagpur. He graduated from the institute in the year 1995 after achieving his specialization in Finance and Information Systems. Before coming to VGSoM, he worked with Mastek Limited as a consultant and gained a good technical exposure of the industry. Later in 2002, he joined IBM and with his managerial acumen, today he has reached the level of Delivery Project Executive.



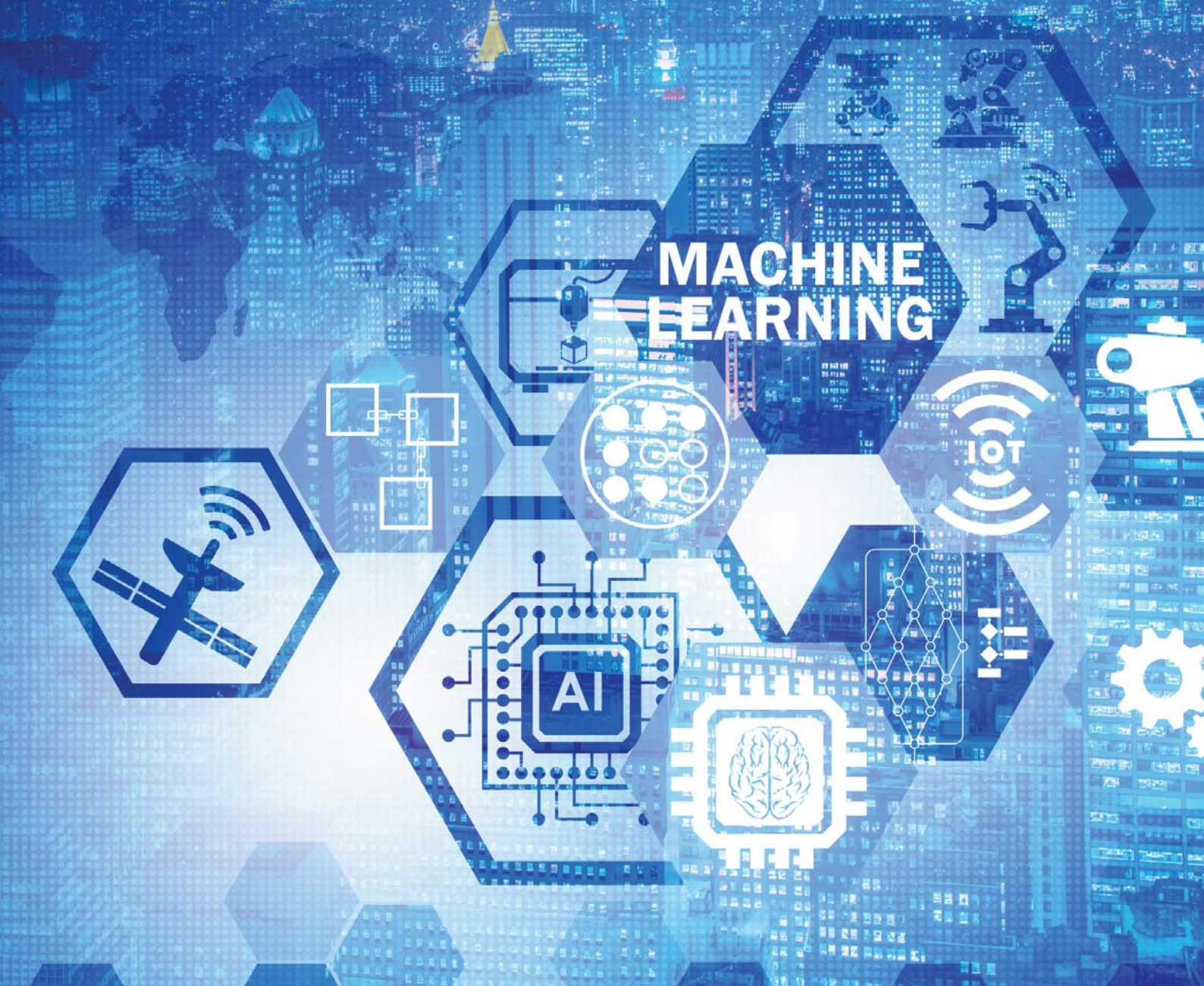
VANESSA KLOTZMAN

A USA based Software Engineer Gained experience with performance analysis and optimization from a database perspective. She has worked closely with the SIMBA administration team in the Walt Disney Company to develop a self-service portal for all SIMBA users. This portal assist the SIMBA users in submitting requests to the administration team and aid in the automation of manually intensive tasks.



YOGESH PARGAIEN

Experienced and driven data scientist with rich experience in the industry. Conducted individual training sessions for employees in Microsoft Azure, Big Data Tools & Technology, Machine Learning and Amazon Web Services. Trained 30+ groups in Big Data technology stack along with machine learning and projects.



भारतीय सूचना प्रौद्योगिकी संस्थान भागलपुर
Indian Institute of Information Technology
Bhagalpur

in collaboration with



ADDRESS FOR COMMUNICATION

Comm. Off: 8/3, 2nd Floor, Abdul Aziz Road,
W.E.A. Karol Bagh, Delhi - 110005

Write to us at: contact@vittiai.com

Or Call at: **1800 270 2060**