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PGP in Machine Learning & AI

9 Months | Online Instructor Led

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22 Lakhs

Median Salary - Data Scientist

Top 3

trending careers in 2022 (#3 Data Science)

1.3 Million

Job Opportunities in India

OUR VISION

“

To make **world class education** accessible for professionals.

- Manvender Singh (Manav),
Founder & CEO, Accredian
MBA - Indian School of Business

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ISB

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Why PGP in Machine Learning & AI?

MASTER
Machine Learning & AI

Recommended
for aspiring Data Scientists & AI Leaders

10000+
Alumni Network

50%
Scholarships

Suchit Majumdar
Chief Data Scientist, Accredian
MBA, Indian School of Business

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Why Machine Learning & AI?

30%

Businesses increasingly prefer **Data-Driven** decision-making. Data Analytics market is growing at CAGR of 30%

Forbes

79%

79% of financial institutions believe that Data Science is essential for gaining a **competitive edge**.

Deloitte.

60%

60% of companies reported positive **ROI** from Data Science initiatives within first year of implementation.

pwc

$900B

Worldwide **AI Market** will grow by a CAGR of 18.9% to reach $900B mark by 2026

IDC

Trending ML & AI Roles in 2023

- Chief Data Officer
- Director of Data Science
- Lead Data Scientist
- AI Engineer
- AI Consultant
- Computer Vision Specialist
- Senior Data Scientist
- Data Scientist
- Machine Learning Engineer
- Data Engineer
- Data Science Consultant
- Data Analyst

Program Highlights

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LIVE
Instructor led Training

9 Months
Weekend Classes

80+
Projects & Guides

Placements
100% Career Assistance

Master 15+ Data Science Tools...

python
NLTK
OpenAI DALL·E 2
Vertex AI
ChatGPT
Google Cloud Functions
scikit learn
SQL
Power BI
TensorFlow
Keras
OpenCV
pillow
GENSIM topic modelling for humans
Flask web development, one drop at a time

Program Syllabus

Term 1: Machine Learning Foundation

Module 1 -Introduction to Machine Learning (ML)

- What does Machine Learning mean?
- Popular applications of Machine Learning
- Types of Machine Learning - Supervised to Unsupervised methods
- Machine Learning workflow

Module 2 - Linear Regression

- Supervised learning: Introduction to Linear Regression
- Use cases of Linear Regression
- How to fit a Linear Regression model?
- Evaluating and interpreting results from Linear Regression models
- Case study: How linear regression helps determine demand?

Module 3 - Logistic Regression

- Supervised Learning: Introduction to Logistic Regression
- Logistic Regression use cases
- Understand the use of Odds Ratio & Logit Function to perform Logistic Regression
- Case study: Predicting default cases in the Banking Industry

Module 4 - Model Evaluation Techniques

- Introduction to evaluation metrics and model selection in Machine Learning
- Importance of Confusion Matrix for predictions
- Measures of model evaluation - Sensitivity, Specificity, Precision, Recall & F1 Score, AUC-ROC Curve
- Case study: Applying model evaluation techniques to prior case study

Apollo HOSPITALS

Healthcare Expense Forecast
Predicting medical expenses for Efficient resource allocation purposes

airtel

Telecom Churn Analysis
To predict Whether a Customer will Churn or not

& many more

Program Syllabus Cont.

Term 2: Machine Learning Intermediate

Module 5 - Decision Trees

- Supervised Learning: Introduction to Decision Trees
- Understanding criterion Entropy used in Decision Trees
- Understanding Information Gain used in Decision Trees
- Case study: Predict passengers' survival in a Ship mishap

Module 6 - Random Forests

- Supervised Learning: Introduction to Random Forest
- Using Ensemble methods in Decision Trees
- Applications of Random Forest
- Case study: Predict passengers' survival in a Ship mishap

Module 7 - Dimensionality Reduction using PCA

- Unsupervised Learning: Introduction to Curse of Dimensionality
- What is dimensionality reduction?
- Technique used in PCA to reduce dimensions
- Applications of Principle Component Analysis (PCA)
- Case study: Optimize model performance using PCA on high di-mension dataset

Module 8 - Naïve Bayes Classifier

- Introduction to Naïve Bayes classification
- Refresher on Probability theory
- Applications of Naive Bayes Algorithm in Machine Learning
- Case study: Classify Junk emails based on probabilitycall & F1 Score

Google

Gender Inference through Voice Anal-ysis
Prediction of gender from voice sample

airbnb

Airbnb Rental Prediction
To predict Whether a Customer will Churn or not

& many more

Program Syllabus Cont.

Term 3: Machine Learning Advanced

Module 9 - KNN (K- Nearest neighbors)

- Introduction to KNN
- Calculate neighbors using distance measures
- Find the optimal value of K in the KNN method
- Advantage & disadvantages of KNN
- Case Study: Classify malicious websites using the close neighbor technique

Module 10 - K-means Clustering

- Introduction to K-means clustering
- Decide clusters by adjusting centroids
- Find optimal ‘k value’ in K-means
- Understand applications of clustering in Machine Learning
- Case study: Segment flower species in Iris flower data

Module 11 - Ensemble Learning

- Introduction to Ensemble Learning
- What are Bagging and Boosting techniques?
- What is the Bias variance trade-off?
- Case study: Predict wage classes across adults

Module 12 - Optimization

- Introduction to optimization in ML
- Applications of optimization methods
- Optimization techniques: Linear Programming using Excel solver
- How Stochastic Gradient Descent (SGD) Works?
- Case study: Applying SGD on data

Google DeepMind

Action Anticipator: Unlocking Human Behaviors

IBM

Employee Gateway Prognosticator

& many more

Major Capstone Project

> Experience a real world simulation of a company Employee Retention Program that needs to be solved using Data Science and Machine Learning. Work with a team of Data Scientists and experience real-world problem solving through Data Science

Program Syllabus Cont.

Term 4: Basics of AI, Tensorflow & Keras

Module 13 - Introduction to Artificial Intelligence

- What is Artificial Intelligence?
- Growth of AI
- Reasons Behind the Boom of AI
- Applications of AI
- Future Possibilities

Module 14 - Introduction to Deep Learning Module

- Basics of Neural Networks
- How Do Neural Networks Work?
- How Do Deep Neural Networks Learn?
- Matrices & Operations in a Nutshell
- Maths Behind Deep Neural Networks

Module 15 - Components Affecting Deep Learning Models Module

- Using Different Hyperparameters
- Learn What Components Affect DL Models
- Learn How Activation Functions Trigger Neurons
- Review Different Activation Functions
- Speed of Learning - Learning Rate for Machines
- Limitations of Gradient Descent

Module 16 - Deep Learning Model Practical with Tensorflow & Keras

- Practical Implementation of the Components Affecting Deep Learning Models
- Learning about Tensorflow and Keras.
- Tuning Using Different Optimizers - Nestrove, Adagrad, RMSprop, Adam
- Understanding Early Stopping, Regularization, Dropout, Batch Normalization

THE Coca-Cola COMPANY

Foretelling Ad Outcomes
Predicting whether an ad will be profitable or not

Microsoft

Threatmeter: Guaging DEFCON levels
Predicting a country's DEFCON level based on data provided

& many more

Program Syllabus Cont.

Term 5: Computer Vision

Module 17 - Intro to Convolutional Neural Networks

- Understand the idea behind Convolution
- Techniques Applied in a CNN - Pooling, Padding
- Components of a Convolutional Neural Network (CNN)
- Building a CNN in Keras.

Module 18 - Decoding Image Components

- Popularly Used Techniques for Image Processing
- Collecting Image data
- Resizing and Reducing Image Dimensions
- Components of an Image

Module 19 - Identifying MNIST Using CNN

- Identifying Numbers Using CNN
- Understanding MNIST dataset.
- Building CNN model using MNIST data.
- Apply a Few Common Architectures to Identify Better

Module 20 - Preprocessing Image Data to Apply CNN

- Use Image Augmentation Techniques on Different Datasets
- Understanding Image Processing Techniques
- Experiment with Scaling, Transformations, Etc. to Get Different Outputs.
- Building CNN models using different Image processing Techniques.

Automated Disaster Tweet Detection
Classify Disaster Tweets using Text Sentiment Analysis

verizon

Real-time SMS Spam Classification
Predict whether a message received by the user is Spam or Not

& many more

Program Syllabus Cont.

Term 6: Natural Language Processing

Module 21 - Introduction to NLP & Word Vectors

- Introduction to NLP
- Bag of Words Model
- Converting Text to Numbers
- Using Word2vec to Convert Text to Numbers
- Using Pre-built Word2vec Embeddings

Module 22 - Decoding Textual Data

- Implement Text to Number Operations
- Build Word2vec Using Regular NLTK Package
- Identify Word to Number Relationship
- Understanding different text processing techniques.

Module 23 - NLP using Recurrent Neural Networks (RNN)

- How Can We Make Neural Networks Remember the Past?
- Introduction to RNN
- Introduction to LSTM
- LSTM & Gated Recurrent Unit (GRU) Theory

Module 24 - NLP using Memory Alterations

- Using Long Short-term Memory (LSTM) in Place of RNN
- Using RNN for Classification in Keras.
- Using LSTM for Classification in Keras
- Using GRU for Classification in Keras.

MONSANTO

Advanced Image Analysis for Fruits 360
Predict What Fruit a particular Image Contains.

MOLINA HEALTHCARE

Instant Gender Classification from Images
Classify Gender from an Image.

& many more

Program Syllabus Cont.

Term 7: Specialization in CV

Module 25 - Transfer Learning

- Can Machines Learn from each other?
- Understanding Transfer Learning
- Image Classification using Transfer Learning
- Train a Model using Imagenet Data
- Classify Objects Using CNN Models

Module 26 - Object Detection Using CNN Based Algorithms

- What is Required to Detect Multiple Objects in an Image?
- Using Region-based Cnn (R-CNN) for Object Detection
- Improving R-CNN Using Fast R-CNN Network
- You Only Look Once (yolo) for Object Detection

Module 27 - Instance Segmentation in Images

- How to Identify Objects at the Pixel Level?
- Understanding Instance Segmentation
- Understanding RNN Model
- Mask R-CNN Model for Instance Segmentation

Module 28 - Generative AI

- Introduction to Generative Models in Computer Vision
- Image Synthesis with Generative Adversarial Networks (GANs)
- Image-to-image Translation
- Variational Autoencoders (vaes) for Image Generation & Manipulation
- Usecases : DALL-E

Term 8: Specialization in NLP

Module 29 - Teach Machines to Generate New Textual Data

- Understanding Language Modeling
- Generating New Text Data
- Building Character Level RNN (char-RNN)
- Building Word Level RNN

Module 30 - Language Translation using Seq2seq Models

- Understanding the Requirements of Machine Translation
- Introduction to Sequence to Sequence (Seq2Seq) Model
- Understanding the advantage of Seq2Seq Model
- Building Seq2seq Model in Keras

Program Syllabus Cont.

Module 31 - Techniques to Enhance Seq2seq Models (Attention Mechanism)

- What is Attention Mechanism
- Breaking down the Attention Mechanism
- Understand the working behind Attension Mechanism
- Applying Attention to Seq2seq Models

Module 32 - Advanced NLP Using BERT

- Introduction to BERT
- Understanding BERT Architecture
- BERT Embeddings
- Case Study: Create Question Answer Model Using BERT

Module 33 - Understanding LLM & their Usecases

- Introduction to Large Language Models
- GPT-3.5 Architecture & Capabilities
- Working with Large Language Models
- Methods for Evaluating the Performance of Large Language Models
- Usecase: ChatGPT

Real World Business Use Cases

AI Capstone Project

In this ever evolving world, solving complex problems get easier using AI. In this capstone project you will be an AI expert who is helping a hypothetical company resolve some major challenges it faces by using AI. Get a chance to work with a team of AI specialists and a simulated environment to help you relate to real world challenges companies face regularly.

Program Syllabus Cont.

Term 9: Building AI Solution

Module 34 - Intro to Cloud Computing

- What is Cloud Computing?
- Features of Cloud Computing
- Essential Characteristics of Cloud Computing
- Key Considerations for Cloud Computing
- Different Cloud Architecture Design Principles

Module 35 - AI on Google AI Platform

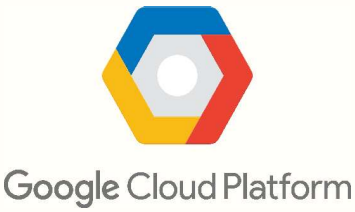
- Using GCP for Google AI Platform
- Introduction to Vertex AI
- Setting up Vertex AI
- Case Study: Creating Automachine Learning Model Using Vertex AI

Module 36 - Building AI Pipeline

- Using Vertex AI for Creating AI Pipeline
- Building Pipeline in Cloud Platform
- Usinf Vertex AI for Creating AI Pipeline
- Case Study: Creating End to End Model Pipeline

Module 37 - Building AI Solution

- Google Cloud Function
- Setting up Google Cloud Function
- Automate AI Pipeline Using Cloud Function
- Testing the AI Pipeline.



World Class Learning Experience

Experience a dynamic and engaging environment that inspires and challenges you to think critically. Become a worldclass Data Science Professional through hands-on learning, collaboration and interaction with experts in the field.

Live Classes
Online Interactive

Top Faculty
Industry Experts

Lifetime
Access to Study Material

Add-On
Sessions

Capstone
Projects

Leadership
Talks with Experts

Add-Ons

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Profile Enhancement Learning Modules

Power BI
Learning the most
emerging BI tool of 2023

SQL
Become an
SQL Master

Industry Mentorship
live sessions with Top Data Scientists from

Microsoft amazon Google Meta

Key Statistics

9 months Comprehensive Learning	**140+** Hours of Live Classes	**9** Terms
20+ Tools & Frameworks	**8** Career Assistance Sessions	

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Data Analytics

Paytm

Data Science
Consultant

Walmart

Lead Data Scientist

Jio

Data & Analytics
Engagement Manager

Shell

Associate Director -
Data Science

NOVARTIS

Why Accredian

"Accredian proved to be the right platform to bridge all gaps and helped me achieve my main goal, which was to work as a Data Scientist."

- Rahul Sinha, Data Analytics Manager, METRO

Career Support with 8 Powerful Sessions

Upon enrolling in the program, you will have access to Accredian Career Support module. This module includes comprehensive career development sessions aimed at enhancing your job profile and helping you excel in your interviews.

RESUME PREP

We'll help you build a sharp DS Resume.

1-ON-1 CAREER COUNSELLING

Get a dedicated career coach for you!

SIMULATED MOCK INTERVIEWS

Participate in mock interviews and be prepared.

DS INTERVIEW RESOURCES

Get access to 2023 Data Science interview resources.

The Career Services provided by Accredian are intended to empower you to actively manage your career and are not a promise of employment.

Success Stories

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I would like to thank Accredian team for helping me develop discipline needed to become a Data Scientist.

- Anirudh Acharya, Data Scientist, DXC Technology

I would like to thank Accredian for wonderful support and beautiful journey. Learnt a lot and intend to use the same in my work.

- Sohamjeet Ganguly, Data Scientist, TCS

Accredian helps you through real-world applications of Data Science in your actual business or work.

- Foram Salva, Data Scientist, MYGLAMM

I found Accredain as the best when compared to other online programs. Accredian's curriculum is way ahead of other institutes.

- Siboli Mukherjee, Data Analyst, Vodafone Idea

Read more on blog.accredian.com

Program Snapshot

START DATE	Check website for latest batch start dates
DURATION	9 Months
PROGRAM TERMS	9 Terms
WEEKLY SCHEDULE	Online classes on weekends Self practice/assignments on weekdays
PROGRAM FEE	₹ 1,80,000 + GST Scholarships upto 50% available

Talk to your Learning Advisor

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