



Artificial Intelligence Machine Learning and Data Science

TRAINING PROGRAM

(with Generative AI)



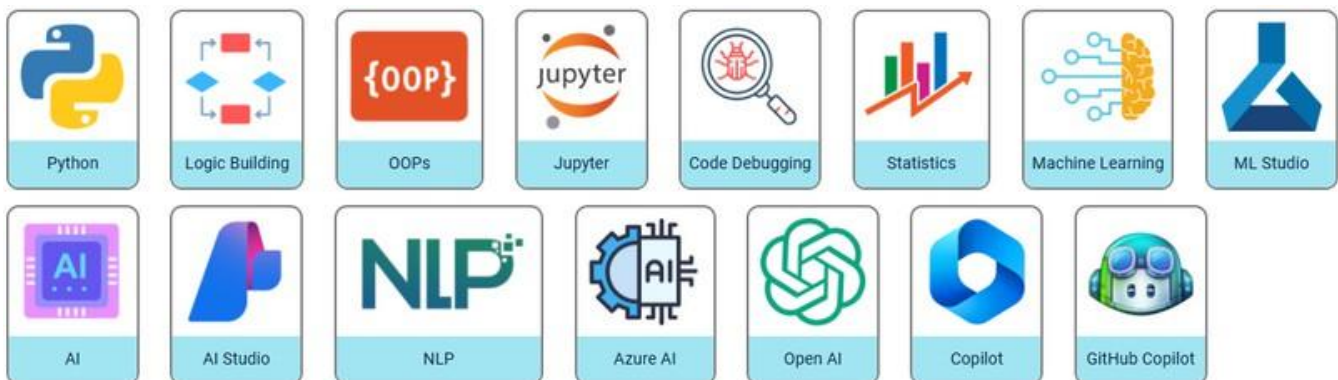
Course by
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2.5 Months Hands-on Training to Transition your Career into AI

The Azure AI/ML and Generative AI Program is designed to cover essential areas, including mastering Python, Machine Learning, and Azure AI and Generative AI. Participants will gain expertise in implementing workloads and security within the Azure framework, skillfully creating and deploying applications in Azure, and ensuring robust data security.

This curriculum provides a comprehensive and hands-on understanding of Azure, preparing you to excel as a proficient Azure AI/ML Engineer.

Tools and Technologies Covered



Course Curriculum

Module 1 Python for AI/ML

Python Programming

- Introduction to Python Programming
- Variables & Data Types
- Operators
- Data Structures
- Functions
- Conditional Flow statements
- Lambda, Map, Filter & Reduce functions
- Types of Errors & Error Handling

Python for Data Science

- **Mathematical Computing using NumPy**
- creating 1d, 2d and 3d arrays
- Accessing Array Elements
- Indexing, Slicing, Iteration
- **Data Analysis using Pandas**
- Understanding Pandas
- Series & DataFrames
- DataFrame Operations
- Handling Missing data
- Filtering, Grouping and Joining
- Loading Data from Datasets to DataFrames
- **Data Visualization using Matplotlib & Seaborn**
- Different types of Plots & Charts

Module 2 Statistics & EDA

- Descriptive Statistics & Inferential Statistics
- Data & Variables in Statistics
- Measures of Central Tendency (Mean, Median & Mode)
- Variance & Standard Deviation
- Univariate Analysis (Histograms, Box plots & Bar charts)
- Bivariate/Multivariate Analysis (Line plots, Scatter plots, Heat maps)

- Probability Distribution & Central Limit Theorem
- Normal distribution & Standard Normal distribution
- Outlier detection
- Confidence Intervals & Hypothesis Testing
- Correlation & Regression.

Module 3 Machine Learning

- Introduction to Machine Learning
- Types of Machine Learning
- Steps to build an ML Model
- Supervised ML vs Unsupervised ML
- **Supervised Learning: Regression**
- Linear Regression: Simple & Multiple
- Gradient Descent & Cost function
- R^2 & MSE evaluation metrics
- Polynomial, Lasso & Ridge regression
- Overfitting & Underfitting
- L1 & L2 Regularization
- Bias Variance Trade off
- **Supervised Learning: Classification**
- Logistic Regression: Binary & Multi-class
- SVM & KNN algorithm
- **Ensemble Methods:** Decision Trees & Random Forest
- Bagging (Ensemble Methods)
- Boosting (Ada Boost, XG Boost, Gradient Boosting & Stacking)
- **Unsupervised ML: Clustering**
- K-means clustering
- Hierarchical clustering
- Dbscan clustering
- Regression Evaluation Metrics
- Classification Evaluation Metrics
- Feature Engineering
- Model Tuning & Performance
- Optimization Techniques to improve ML models

Note: each ML algorithm will be taught with real-time Projects.

Module 4 Deep Learning & NLP

- Introduction to Neural Networks
- Types of Neural Networks
- Computer Vision
- Natural Language Processing (NLP)

Module 5 Artificial Intelligence & Generative AI

- Introduction to Artificial Intelligence
- History of AI
- Types of AI
- Areas and related disciplines of AI
- Understanding AI Subdomains
- Applications of AI
- Tasks AI can solve
- Introduction to Generative AI
- Evolution of Gen AI
- Gen AI vs Traditional ML
- How Gen AI works
- Applications of Gen AI
- Popular Gen AI Tools
- Introduction to ChatGPT
- Large Language models (LLM)
- Prompt Engineering
- Building Gen AI models on Azure

Module 6 Azure Machine Learning

- Getting started with Azure AI Services
- Azure Machine Learning Studio & Workspace
- Train a ML Model strategy using Azure ML Designer
- Working with Automated Machine Learning (Auto ML)
- Finding the best Regression model with Auto ML
- Finding the best Classification model with Auto ML
- NLP Text classification

- Computer Vision
- Generative AI using Azure OpenAI.

Real World Projects

- 1. Food Hub Order Analysis [Pandas, Statistics, & EDA]**
perform exploratory data analysis and provide actionable insights for a Retail Food company.
Tools: Python Pandas, Seaborn, Statistics and EDA
- 2. Data Science Project**
- 3. Regression Project [Machine Learning]**
- 4. Classification Project [Machine Learning]**
- 5. Generative AI Project [Generative AI]**

Bonuses

- ✓ AI/ML Interview questions & answers
- ✓ Real-time scenarios and solutions
- ✓ Azure AI-102 and DP-100 certification support
- ✓ Resume/CV preparation
- ✓ Building Project Portfolio
- ✓ LinkedIn profile optimization
- ✓ Placement Assistance
- ✓ On-Job Support

Target Jobs

Post training you will be able to successfully apply for the following AI jobs:

- ⦿ Machine Learning Engineer
- ⦿ Data Scientist
- ⦿ Azure Cloud AI/ML Engineer
- ⦿ AI Data Analyst

Program Outcome

- Transition your career to AI/ML Engineer
- Land high-paying AI, ML, Data Science jobs globally
- Up to ~300X times increment in your current salary
- Switch to Top IT & Product based companies
- Have a secured career and work in a Future trend
- Become a top & highly paid IT professional

Azure AI/ML Engineer Career Scope

Why Become Azure AI/ML Engineer?

Becoming an Azure AI/ML Engineer or Azure Data Scientist offers a dynamic career with high demand and competitive salary globally. These stats back the statement.

Azure AI/ML Engineer salary trends in USA:

Total Salary Range for Microsoft AI Engineer

Confident · 5 Salaries Submitted · Updated Oct 29, 2023

United States

All Years Of Experience

Total Pay

\$181K-\$261K/yr

\$216K (Median Total Pay)

The estimated total pay range for a AI Engineer at Microsoft is \$181K-\$261K per year, which includes base salary and additional pay. The average AI Engineer base salary at Microsoft is \$161K per year. The average additional pay is \$54K per year, which could include cash bonus, stock, commission, profit sharing or tips.

The "Most Likely Range" reflects values within the 25th and 75th percentile of all pay d [How is this calculated?](#)

Pay Breakdown



Pay Type ⓘ	Range	Median	% of Total Pay
Base Pay	\$140K - \$185K	\$161,154/yr	74.8%
Bonus	\$15K - \$29K	\$20,585/yr	9.6%
Stock	\$25K - \$47K	\$33,765/yr	15.7%

Azure AI/ML Engineer salary trends in India:

No.1 Public Cloud Provider Globally	~3M Websites use Azure Cloud	200+ Cloud Services offered by Azure
~42 LPA Azure AI/ML Engineer Salary	~2.5M Career Opportunities in AI/Gen AI	~47.5% Growth in AI/Gen AI market Size

