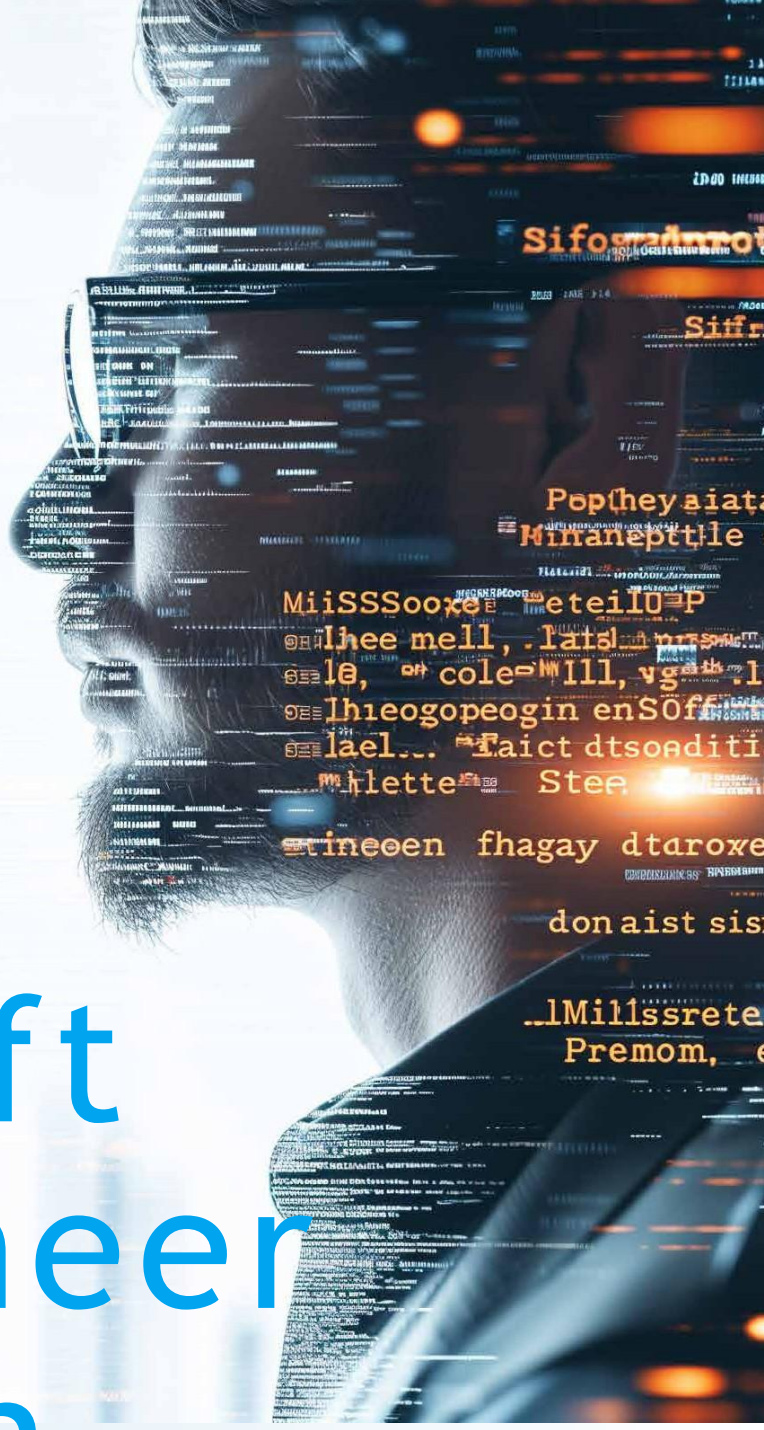

Powered by

Microsoft

# Microsoft AI Engineer Program

Delivered by simplilearn

*From AI Foundations to Agentic AI Excellence*

*Leverage Microsoft's Industry Excellence*

*Become an Industry Ready AI Engineer*

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# About the Program

This Microsoft AI Engineer Program offers an extensive curriculum to equip learners with end-to-end AI expertise. Key topics include Python programming, applied data science, machine learning, and deep learning, with specializations in natural language processing, generative AI, and Microsoft Copilot. Learners gain hands-on experience through real-world projects and a capstone, showcasing their skills in solving industry-specific challenges.

The program features a dedicated module on Microsoft Azure AI Fundamentals (AI-900) certification preparation, Copilot development, and advanced generative AI techniques, leveraging tools like PyTorch and TensorFlow. Electives delve into emerging areas like ChatGPT, prompt engineering, and transformers, enhancing career readiness. Expert-led sessions by Microsoft provide cutting-edge industry insights, preparing participants for impactful AI and ML roles.

# About Simplilearn

Founded in 2010 and based in Plano, Texas and Bangalore, India, Simplilearn, a Blackstone portfolio company, is the world's leading digital skills provider, enabling learners across the globe. Simplilearn offers individuals and businesses worldwide access to world-class work-ready training. Simplilearn offers 1,500+ live online classes each month across 150+ countries, impacting over 8 million learners globally. The programs are designed and delivered with world-renowned universities, top corporations, and leading industry bodies via live online classes featuring top industry practitioners, sought-after trainers, and global leaders. From college students and early career professionals to managers, executives, small businesses, and big corporations, Simplilearn's role-based, skill-focused, industry-recognized, and globally relevant training programs are ideal upskilling solutions

for diverse career or business goals.

# About Microsoft and Simplilearn Collaboration

Microsoft is a global leader in technology solutions, providing software, AI, and cloud services that empower businesses and individuals to achieve more. Through this collaboration, learners will gain access to Microsoft's cutting-edge expertise and earn a completion certificate backed by Microsoft & Simplilearn's industry credibility. Simplilearn, the world's leading digital skills provider, enables learners across the globe. Delivers rigorous and specialized training, offering this program to help students and professionals transition into AI roles successfully.

# Key Features of the Program

- Completion certificate from Microsoft and Simplilearn
- Microsoft Learn Badge: Display your achievements on the Microsoft Learn portal
- 140+ Hours of Core Curriculum: Delivered through live sessions by industry experts
- Master AI Development: 25+ projects and a capstone for hands-on application
- Microsoft Azure AI Fundamentals (AI-900) Preparation: In-depth training for the AI-900 exam
- Build Agentic AI Solutions with Copilot Studio and Open-Source Tools
- Access Industry-Leading Tools: Gain expertise with Azure OpenAI, Copilot, TensorFlow, and PyTorch
- Master Class on Agentic AI Solutions Using Copilot Studio and AutoGen
- Simplilearn's JobAssist helps you get noticed by top hiring companies
- AI & ML Specialization: Explore machine learning, deep learning, and prompt engineering

# Eligibility Criteria

For admission to this Microsoft AI Engineering program, candidates should:

- Be at least 18 years old and have a high school diploma or equivalent.
- Preferably have 2+ years of professional experience, but this is not mandatory.
- Have a basic understanding of programming concepts and mathematics.

# Application Process

The application process consists of three simple steps.

### Submit an Application

Tell us a bit about yourself and why you want to do this program

### Application Review

An admission panel will shortlist candidates based on their application

### Admission

Selected candidates can join the program by paying the admission fee

# Talk to an Admissions Counselor

Our team is available to address your questions or concerns about the application process, financing options, and curriculum.

Our team is available to:

- Answer your questions about the application process.
- Discuss your financing options.
- Provide insight into the curriculum, program outcomes and more.

**INQUIRE NOW**

Contact Us | 1-800-212-7688

# Join the Booming AI Industry

Artificial Intelligence has witnessed rapid growth and widespread adoption across various industries in recent years. This technology has the potential to revolutionize how businesses operate, make decisions, and interact with their customers. The global artificial intelligence market is projected to grow at a CAGR of 36.6% from 2024 to 2030.

## $667.9 bn

Expected Generative AI market size by 2030

*Source: Fortune Business Insights*

## 24.4%

The global Generative AI market's projected CAGR from 2023-2030

*Source: Statista*

## $4.4 tn

Expected value added by Generative AI to the global economy annually

*Source: Mckinsey*

# Career Outlook in the AI Industry

With AI integrating deeper into business operations, the demand for AI professionals is skyrocketing. Roles such as AI engineers, machine learning engineers, and data scientists are among the most sought-after, with substantial salary packages to match.

Some Insights:

- **AI Engineer:** Specializing in building and deploying AI systems, with salaries ranging from $114,000 to $212,000 annually.
- **Machine Learning Engineer:** Focuses on developing algorithms and models, earning between $126,000 and $221,000.
- **Data Scientist:** Analyzes complex datasets to provide data-driven insights, with salaries ranging from $118,000 to $206,000.
- **NLP Engineer:** There is a high demand for developing AI language models like ChatGPT, with average earnings of $156,000 annually.

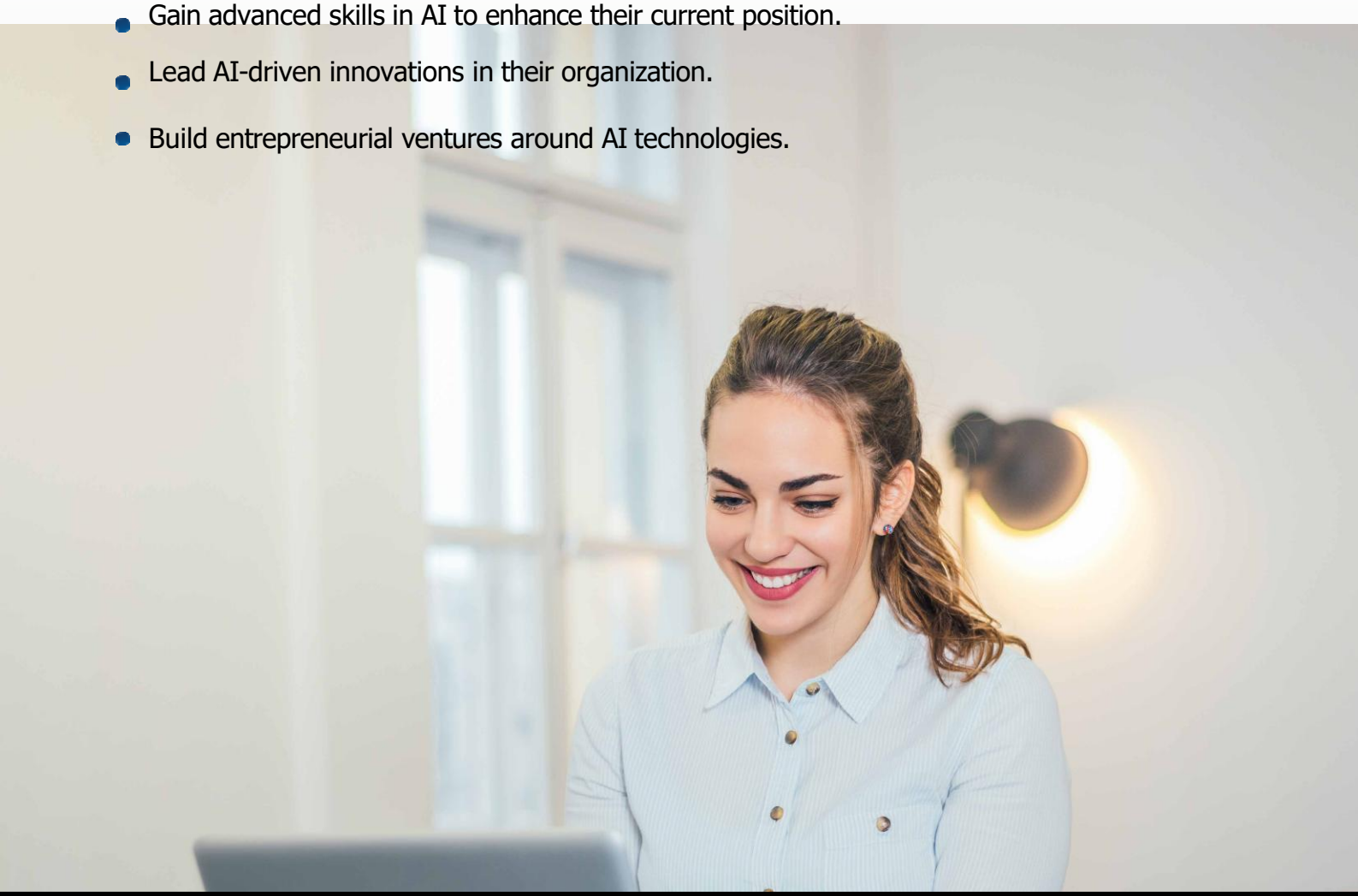
As AI continues to evolve, roles such as AI ethics specialists, AI project managers, and AI cybersecurity experts are also emerging, offering exciting career opportunities for those equipped with the right skills.

# Who Should Enroll in this Program?

This program caters to professionals from a variety of industries and backgrounds. The diversity of our students adds richness to class discussions and interactions. Roles in this space require experience and an understanding of tools and technologies. This program is ideal for professionals seeking a career transition into AI and ML, with knowledge or prior experience in programming and mathematics and an analytical frame of mind.

This program is ideal for professionals looking to:

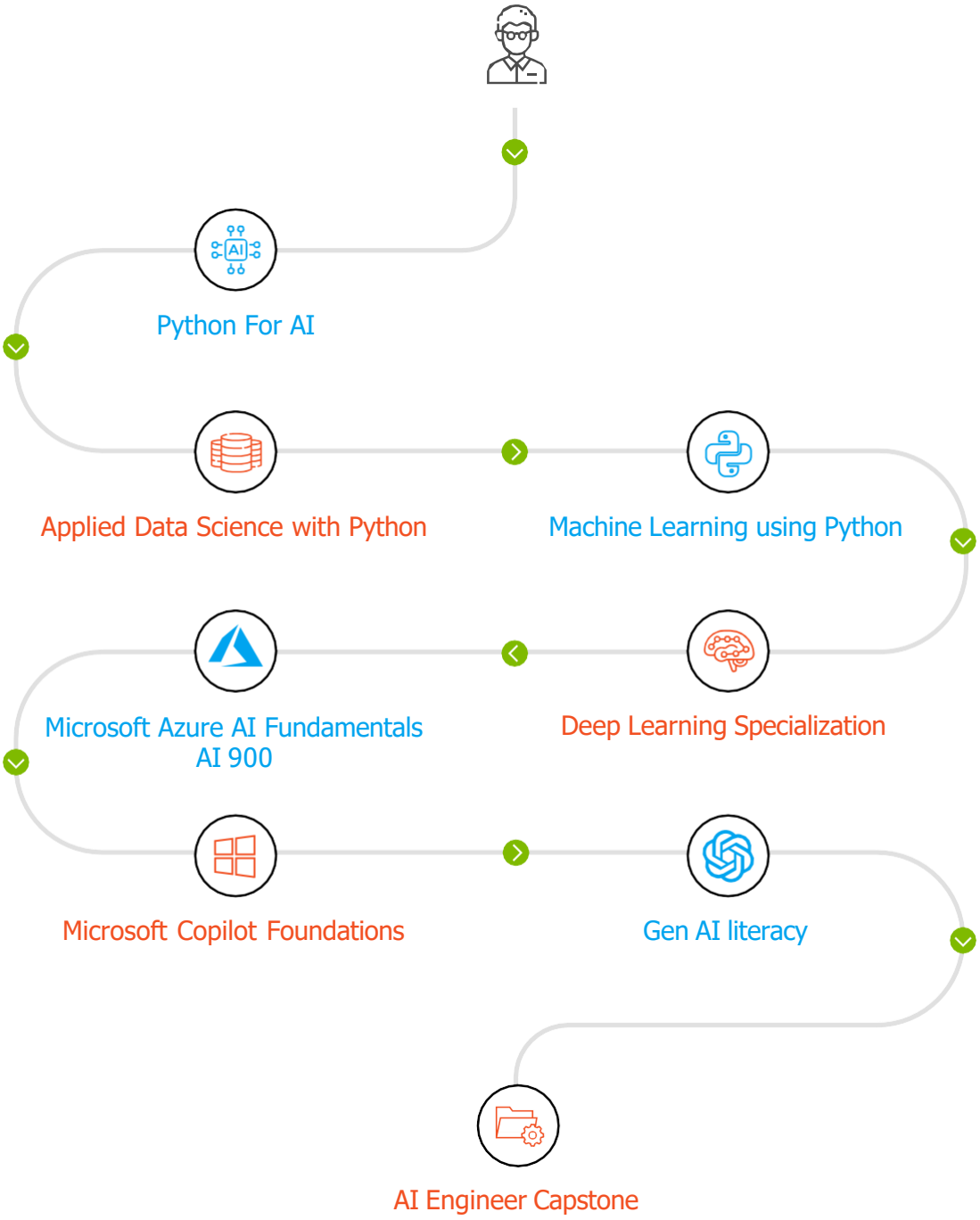
- Transition into AI and ML roles.
- Gain advanced skills in AI to enhance their current position.
- Lead AI-driven innovations in their organization.
- Build entrepreneurial ventures around AI technologies.



# Learning Outcomes

- Build a strong foundation in Python programming, covering data types, object-oriented programming, and efficient coding practices using Jupyter Notebook and Python IDE.
- Develop expertise in machine learning concepts, including model building, optimization, and hands-on projects to apply learning in practical scenarios.
- Prepare for the Microsoft Azure AI Fundamentals (AI-900) certification, gaining comprehensive knowledge of Azure AI services and cloud solutions for AI applications.
- Gain exposure to low-code frameworks like Copilot Studio and open-source tools such as AutoGen to design intelligent, autonomous AI workflows.
- Gain proficiency in natural language processing (NLP), exploring algorithms for text analysis and applications of NLP in the AI industry.
- Apply AI and machine learning techniques in a capstone project to solve real-world challenges, showcasing expertise to potential employers.
- Acquire critical skills in data science with Python, mastering tools and techniques for analyzing data and extracting real-world insights.
- Master deep learning techniques such as neural networks, forward/backward propagation, hyperparameter tuning, and model interpretability, with foundational knowledge in PyTorch.
- Learn to build and optimize Microsoft Copilot solutions using RAG-based architecture, prompt flow, and performance analysis techniques in Copilot Studio.
- Understand advanced generative AI concepts for cutting-edge AI applications, including transformers, attention mechanisms, and architectures like GPT and BERT.
- Attend industry masterclasses on Agentic AI using tools like Copilot Studio and AutoGen.

# Learning Path Visualization




## Electives:

- Natural Language Processing (NLP)
- Advanced Generative AI
- Master Class on Agentic AI Solutions Using Copilot Studio and AutoGen

STEP 1

# Python For AI

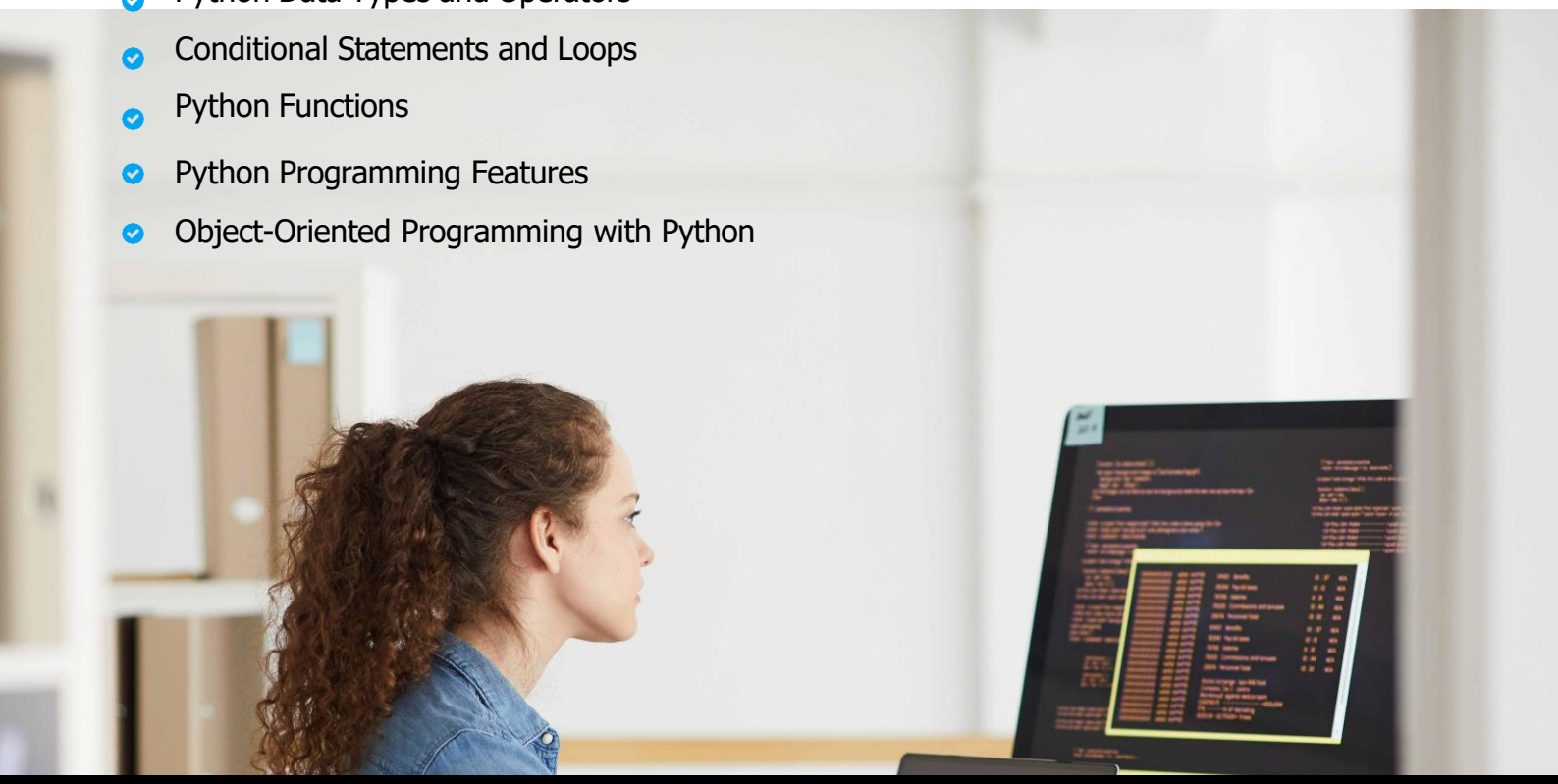
This course equips you with essential Python programming skills that will serve as the building blocks for your entire program journey. You will learn to implement artificial intelligence (AI) algorithms, analyze data, and effectively build intelligent systems using Python.

## Learning Outcomes

- Gain proficiency in Python programming, covering installation, syntax, and basic constructs
- Master Python data types, operators, conditional statements, and loops
- Develop skills in creating and using Python functions
- Understand and apply Object-Oriented Programming (OOP) concepts in Python
- Learn threading and multithreading concepts and their implementation in Python

## Topics Covered:

- Introduction to Python Programming
- Python Data Types and Operators
- Conditional Statements and Loops
- Python Functions
- Python Programming Features
- Object-Oriented Programming with Python



STEP 2

# Applied Data Science with Python

This course covers essential data science principles, including data preparation, model development, and evaluation. You'll learn key Python concepts like strings, Lambda functions, and lists, and dive into NumPy, linear algebra, and statistical concepts such as central tendency, dispersion, skewness, covariance, and correlation. Explore hypothesis testing methods like Z-tests, T-tests, and ANOVA. Additionally, master data manipulation with pandas and enhance your data

## Learning Outcomes

- Develop a comprehensive understanding of the data science process and its components
- Gain proficiency in using Python and its libraries for data science applications
- Master the use of NumPy and Pandas for data manipulation and analysis
- Construct visually appealing and informative graphs using Matplotlib, Seaborn, Plotly, and Bokeh
- Acquire skills in data wrangling and preprocessing techniques

## Topics Covered:

- Introduction to Data Science
- Essentials of Python Programming
- Fundamentals of NumPy
- Linear Algebra
- Statistics Fundamentals
- Probability Distributions
- Advanced Statistics
- Working with Pandas
- Data Analysis
- Data Wrangling
- Data Visualization
- End-to-End Statistics Application in Python

STEP 3

# Machine Learning using Python

Explore different types of machine learning and their applications, study the entire pipeline, and focus on supervised learning with regression models and classification algorithms. Learn unsupervised learning, clustering techniques, and ensemble modeling. Evaluate frameworks like TensorFlow and Keras, and gain hands-on experience with PyTorch to build a recommendation engine.

## Learning Outcomes

- Examine various machine learning types and their characteristics
- Analyze the machine learning pipeline and understand MLOps (Machine Learning Operations)
- Explore supervised learning and its applications in real-world scenarios
- Understand overfitting and underfitting concepts, and learn detection and prevention methods
- Analyze different regression models and their practical applications
- Examine various ensemble modeling techniques such as bagging, boosting, and stacking

## Topics Covered:

- Machine Learning Fundamentals
- Supervised Learning
- Regression Models and Applications
- Classification Models and Applications
- Unsupervised Learning
- Ensemble Learning
- Recommendation Systems

# Deep Learning Specialization

This course delves into the fundamentals and applications of deep learning, highlighting its distinctions from machine learning. Key topics include neural networks, forward and backward propagation, TensorFlow 2, Keras, performance optimization, model interpretability, convolutional neural networks (CNNs), transfer learning, object detection, RNNs, autoencoders, and PyTorch.

## Learning Outcomes

- Understand the distinctions between deep learning and machine learning
- Learn about the practical applications of deep learning
- Master forward propagation and backward propagation in deep neural networks (DNN)
- Comprehend hyperparameter tuning and model interpretability in deep learning
- Implement dropout and early stopping techniques to improve model performance
- Gain expertise in CNNs for tasks like object detection

## Topics Covered:

- Introduction to Deep Learning
- Artificial Neural Networks
- Deep Neural Networks
- TensorFlow
- Model Optimization and Performance Improvement
- Convolutional Neural Networks (CNNs)
- Transfer Learning
- Object Detection
- Recurrent Neural Networks (RNNs)
- Transformer Models for Natural Language Processing (NLP)
- Getting Started with Autoencoders
- PyTorch

STEP 5

# Microsoft Azure AI Fundamentals AI 900

This module prepares you for the Microsoft Azure Fundamentals (AI-900) certification exam. You will learn the advantages, types, and fundamental building blocks of Azure cloud services, focusing on AI applications. The course also covers important aspects of managing costs, governance, and compliance within a cloud environment, preparing you to work confidently with Azure.

## Learning Outcomes

- Understand the fundamental concepts and services of Azure Cloud
- Gain insights into managing costs and governance in Azure
- Prepare for the AI-900 certification with a thorough understanding of cloud and AI basics

## Topics Covered:

- Azure cloud services overview
- Managing costs and enforcing governance
- Compliance and security in the Azure cloud

STEP 6

# Microsoft Copilot Foundation

This module introduces participants to Microsoft Copilot and its core functionalities. You'll learn how to create copilots using the Microsoft Copilot Studio interface, explore how to publish bots and analyze their performance. Additionally, you will dive into building Retrieval Augmented Generation (RAG)-based Copilot solutions and understanding the concept of grounding your language models. The module also covers the basics of prompt flow for Copilot development.

## Learning Outcomes

- Create and manage copilots using Microsoft Copilot Studio
- Build RAG-based Copilot solutions and understand model grounding
- Gain proficiency in prompt flow to enhance Copilot functionality

## Topics Covered:

- Microsoft Copilot Studio interface
- Publishing bots and analyzing performance
- Building RAG-based Copilots
- Prompt flow and grounding language models

STEP 7

# Generative AI Literacy

Build a strong foundation in Generative AI and Machine Learning (ML) by exploring core concepts, key algorithms, and hands-on applications. Gain insights into deep learning, large language models, and AI-powered tools to develop practical expertise in implementing AI solutions.

## Learning Outcomes

- Differentiate between deep learning, machine learning, AI & generative AI
- Learn the key differences and use cases of supervised, unsupervised, and reinforcement learning
- Explore generative AI algorithms such as neural networks, GANs, and transformers
- Understand how LLMs (Large Language Models) power chatbots
- Explore AI models such as ChatGPT, Gemin i, Claude, and Falcon
- Learn about image generation techniques using GANs, diffusion models, and VAEs
- Experiment with AI-driven image creation tools like DALL·E 2, Stable Diffusion, and MidJourney
- Gain practical experience with video generation tools like Runway ML, Synthesia, and Gen-2 by Runway
- Discover open-source AI repositories like Hugging Face and their impact
- Learn how marketplaces help keep track of emerging AI tools and explore prompt marketplaces like PromptBase
- Develop a solid understanding of prompt engineering for chatbots and AI search
- Experiment with OpenAI Playground settings such as temperature and sampling techniques

## Topics Covered:

- Machine Learning & Generative AI Basics
- Types of Machine Learning: Supervised, Unsupervised, and Reinforcement Learning
- Generative AI Algorithms: Neural Networks, GANs, Transformers (GPT & Others)
- Large Language Models (LLMs) and Chatbots (ChatGPT, Gemini, Claude, Falcon, etc.)
- Image Generation: GANs, Diffusion Models, VAEs & Hands-on Tools (DALL·E 2, Stable Diffusion, MidJourney)
- Video Generation: Architectures (GANs, Diffusion Models, Transformers) & Hands-on Tools (Runway ML, Synthesia, Gen-2 by Runway)
- Open-Source AI Model Landscape: Hugging Face & AI Marketplaces
- Prompt Engineering: Chatbot

STEP 8

# AI Engineer Capstone

The capstone project is the culmination of all the skills and knowledge you've acquired throughout this program. You will apply AI and machine learning techniques to solve industry-specific challenges. This hands-on project is designed to showcase your expertise in real-world scenarios, giving you a valuable portfolio piece to present to potential employers.

## Learning Outcomes

- Apply AI and ML techniques to real-world industry challenges.
- Gain hands-on experience in building AI-driven solutions.
- Showcase your expertise through a capstone project.

## Topics Covered:

- Industry-specific AI problem-solving.
- End-to-end implementation of AI and ML models.
- Project presentation and portfolio development.

# Elective Courses:

## Natural Language Processing (NLP)

This advanced course comprehensively explores applying machine learning algorithms to process vast amounts of natural language data. It focuses primarily on natural language understanding, feature engineering, natural language generation, automated speech recognition, speech-to-text conversion, text-to-speech conversion, voice assistance devices, and building Alexa skills. By the end of the course, you will have a deep understanding of the science behind natural language processing and speech recognition, enabling you to develop advanced applications in these domains.

## Advanced Generative AI

This Generative AI course offers a detailed exploration of AI's innovative capabilities, focusing on generative models such as Variational Autoencoders (VAEs), Generative Adversarial Networks (GANs), large language models (LLMs), and Transformer architectures. Participants will delve into attention mechanisms, LangChain Workflow Design, and advanced prompt engineering. The course equips professionals to develop and refine applications using cutting-edge LLMs, focusing on architecture, design principles, and practical applications in generative AI.

## Master Class on Agentic AI Solutions Using Copilot Studio and AutoGen

This masterclass offers exclusive live sessions on low-code agentic solutions, including tools like Copilot Studio and open-source frameworks such as AutoGen. Discover how these cutting-edge platforms are transforming AI development and enabling rapid deployment of intelligent workflows.

# Tools Covered

ChatGPT

Claude

uizard

miro

descript

zapier

Julius

Otter.ai

python

TensorFlow

Keras

NLTK

NumPy

scikit learn

Microsoft Copilot Studio

matplotlib

AG AutoGen

# Industry Projects

## Project 1: MLB Digital Platform Enhancement

Build backend modules for MLB's platform to manage stats, schedules, and bookings; add multi-threaded reporting to improve load times and user experience.

## Project 2: EdTech Backend System

Create backend modules for SL Tech's platform, manage learner credentials and courses, enhance user experience, and support interface upgrades.

## Project 3: Sales Strategy Analysis

Analyze sales data by state, identifying top revenue states and guiding sales programs for weaker regions to support expansion decisions.

## Project 4: Marketing Strategies with EDA

Conduct EDA and hypothesis testing to explore customer acquisition factors, enhancing marketing strategies based on behavior and product performance.

## Project 5: Predicting Employee Iteration

Build an ML model for Portobello Tech to predict attrition, analyzing work habits, tenure, and satisfaction levels to inform employee retention strategies.

## Project 6: Song Classification with Cluster Analysis

Use cluster analysis to create personalized playlists based on user behavior, improving song recommendations and enhancing customer engagement.

## Project 7: Home Loan Data Analysis

Develop a deep learning model to predict loan defaults with imbalanced data, using historical data for a more secure lending process.

## Project 8: Lending Club Loan Data Analysis

Create a deep learning model for Lending Club to predict loan defaults using 2007-2015 data, tackling imbalanced data challenges for risk assessment.

## Project 9: ChatGPT-Based Storytelling

Design interactive storytelling with ChatGPT, enabling collaborative narrative building without coding, and enhancing creative writing skills.

## Project 10: Virtual Project Management Consultant

Develop prompts enabling ChatGPT to provide project management advice, focusing on planning, risk management and team collaboration guidance.

## Project 11: AI-Powered HR Assistant for Nestlé

Build an HR assistant using OpenAI GPT and Gradio to answer policy-related questions by extracting data from PDFs for efficient HR support.

## Project 12: Creating Designs with OpenAI and Gradio UI

Create a platform using DALL-E and Gradio UI that transforms text prompts into designs, showcasing AI's role in digital marketing creativity.

# Certificates

Upon completing this program, you will earn a prestigious certificate from Microsoft and Simplilearn, showcasing your expertise in artificial intelligence, machine learning, and data science. Additionally, you will receive individual certificates from Simplilearn for each course in the learning path, validating your proficiency across the program's core components. These credentials will position you as a skilled professional in the high-demand fields of AI and ML, ready to take on advanced roles in the industry.


# Classroom-Level Immersion: Delivered Digitally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