

**AI CERTS™**

AI Certification Program

# AI+ Engineer™



# Executive Summary

The AI+ Engineer certification program offers a structured journey through the foundational principles, advanced techniques, and practical applications of Artificial Intelligence (AI). Beginning with the Foundations of AI, participants progress through modules covering AI Architecture, Neural Networks, Large Language Models (LLMs), Generative AI, Natural Language Processing (NLP), and Transfer Learning using Hugging Face. With a focus on hands-on learning, students develop proficiency in crafting sophisticated Graphical User Interfaces (GUIs) tailored for AI solutions and gain insight into AI communication and deployment pipelines. Upon completion, graduates are equipped with a robust understanding of AI concepts and techniques, ready to tackle real-world challenges and contribute effectively to the ever-evolving field of Artificial Intelligence.

# Certification Prerequisites

- AI+ Data or AI Developer course should be completed.
- Basic understanding of Python
- Basic Math: Familiarity with high school-level algebra and basic statistics.
- Python Programming: Proficiency in Python is mandatory for hands-on exercises and project work.
- Computer Science Fundamentals: Understanding basic programming concepts (variables, functions, loops) and data structures (lists, dictionaries).

# Exam Blueprint

Number  
of Questions

**50**

Passing  
Score

**35/50 or 70%**

Duration

**90 Minutes**

Format

**Online via AI  
Proctoring platform**

Question Type

**Multiple Choice/Multiple  
Response**

# Exam Overview

Module	Weight
Foundations of Artificial Intelligence	5%
Introduction to AI Architecture	10%
Fundamentals of Neural Networks	15%
Applications of Neural Networks	7%
Significance of Large Language Models (LLM)	8%
Application of Generative AI	8%
Natural Language Processing	15%
Transfer Learning with Hugging Face	15%
Crafting Sophisticated GUIs for AI Solutions	10%
AI Communication and Deployment Pipeline	7%
	<b>100%</b>

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**AI<sup>+</sup>  
Engineer™**



# Certification Modules

## Module 1

### **Foundations of Artificial Intelligence**

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**1.1 Introduction to AI**

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**1.2 Core Concepts and Techniques in AI**

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**1.3 Ethical Considerations**

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## Module 2

# Introduction to AI Architecture

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## 2.1 Overview of AI and its Various Applications

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## 2.2 Introduction to AI Architecture

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## 2.3 Understanding the AI Development Lifecycle

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## 2.4 Hands-on: Setting up a Basic AI Environment

## Module 3

# Fundamentals of Neural Networks

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## 3.1 Basics of Neural Networks

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## 3.2 Activation Functions and Their Role

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## 3.3 Backpropagation and Optimization Algorithms

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## 3.4 Hands-on: Building a Simple Neural Network Using a Deep Learning Framework

## Module 4

# Applications of Neural Networks

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## 4.1 Introduction to Neural Networks in Image Processing

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## 4.2 Neural Networks for Sequential Data

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## 4.3 Practical Implementation of Neural Networks

## Module 5

# Significance of Large Language Models (LLM)

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## 5.1 Exploring Large Language Models

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## 5.2 Popular Large Language Models

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## 5.3 Practical Finetuning of Language Models

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## 5.4 Hands-on: Practical Finetuning for Text Classification



## Module 6

# Application of Generative AI

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## 6.1 Introduction to Generative Adversarial Networks (GANs)

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## 6.2 Applications of Variational Autoencoders (VAEs)

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## 6.3 Generating Realistic Data Using Generative Models

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## 6.4 Hands-on: Implementing Generative Models for Image Synthesis

## Module 7

# Natural Language Processing

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## 7.1 NLP in Real-world Scenarios

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## 7.2 Attention Mechanisms and Practical Use of Transformers

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## 7.3 In-depth Understanding of BERT for Practical NLP Tasks

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## 7.4 Hands-on: Building Practical NLP Pipelines with Pretrained Models

## Module 8

# Transfer Learning with Hugging Face

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## 8.1 Overview of Transfer Learning in AI

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## 8.2 Transfer Learning Strategies and Techniques

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## 8.3 Hands-on: Implementing Transfer Learning with Hugging Face Models for Various Tasks

## Module 9

# Crafting Sophisticated GUIs for AI Solutions

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## 9.1 Overview of GUI-based AI Applications

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## 9.2 Web-based Framework

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## 9.3 Desktop Application Framework

## Module 10

# AI Communication and Deployment Pipeline

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**10.1 Communicating AI Results Effectively to Non-Technical Stakeholders**

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**10.2 Building a Deployment Pipeline for AI Models**

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**10.3 Developing Prototypes Based on Client Requirements**

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**10.4 Hands-on: Deployment**

# Certification Outcome

Upon successful completion of AI+ Engineer certification, participants will attain a comprehensive understanding of Artificial Intelligence (AI) fundamentals, ranging from the foundational principles to advanced applications. Through modules focusing on AI architecture, neural networks, Large Language Models (LLMs), generative AI, and Natural Language Processing (NLP), students will gain hands-on experience in building and deploying AI solutions. They will harness Transfer Learning techniques using frameworks like Hugging Face, enabling them to adapt pre-trained models for various tasks efficiently. Furthermore, participants will develop the skills to craft sophisticated Graphical User Interfaces (GUIs) tailored specifically for AI applications. By the course's conclusion, learners will possess the knowledge and proficiency necessary to navigate AI communication and deployment pipelines, ensuring successful integration and utilization of AI technologies in diverse contexts.



## Market Insight

This AI course meets the soaring demand for skilled professionals in Artificial Intelligence. Covering foundational principles to advanced applications like neural networks and NLP, it equips participants with hands-on skills vital across industries. Emphasizing current trends such as Large Language Models and generative AI, graduates are primed to excel in tech, healthcare, finance, and beyond.



## Value Proposition

Our AI course delivers hands-on training from foundational principles to advanced applications like neural networks and NLP. With an emphasis on real-world skills and current industry trends, graduates are equipped to excel across diverse sectors. Join us to unlock your potential and become a sought-after AI professional in today's dynamic job market.



## Additional Features

The program is designed with a focus on real-world application, incorporating interactive modules, hands-on tool exploration, and collaborative project work. Gain access to personalized guidance from industry experts, offering insights and career advice tailored to your goals. Elevate your learning experience and accelerate your career growth in AI with ongoing support and networking opportunities.

# AI Experts



## Jason Kellington

AI Expert

As a consultant, trainer, and technical writer with more than 25 years of experience in IT, I specialize in the development and delivery of solutions focused on effective and efficient enterprise IT.



## Justin Frébault

AI Expert

I'm a boutique data consultant specializing in data mesh and lakehouse solutions. I've dedicated my career to helping organizations transform their approach to data, moving beyond mere knowledge.



## J Tom Kinser

AI Expert

I have over forty years of experience in software development, data engineering, management, and technical training. I am a Microsoft Certified Trainer and a software developer, holding multiple certifications.



## Terumi Laskowsky

AI Expert

Country Manager for Global Consulting Services in Japan, Specialties: Information Security (Compliance, Policy, Application, Host, Network)



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