

## MS-AI3004: DEVELOP COMPUTER VISION SOLUTIONS IN AZURE



DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
1 Day	Intermediate	Azure AI	Instructor-led	NA

### INTRODUCTION

Computer vision is an area of artificial intelligence that deals with visual perception. Azure AI Vision includes multiple services that support common computer vision scenarios.

### AUDIENCE PROFILE

This course is designed for professionals such as software developers, data scientists, and IT specialists.

### PREREQUISITES

Before attending this course, delegates must have:

- Familiarity with Azure and the Azure portal.
- Experience programming with C# or Python. If you have no previous programming experience, we recommend you complete the Take your first steps with C# or Take your first steps with Python learning path before starting this one.

### COURSE OBJECTIVES

After attending this course, delegates will be able to:

- Use Azure AI Vision services to analyse images and extract insights.
- Create custom models for classifying images.
- Implement technologies to detect, analyse, and recognize faces.
- Read text from images and documents using Azure AI tools.
- Use Azure Video Indexer to extract insights from video content.

### COURSE CONTENT

#### Module 1: Analyse images

With the Azure AI Vision service, you can use pre-trained models to analyse images and extract insights and information from them.

##### Lessons

- Introduction.
- Provision an Azure AI Vision resource.
- Analyse an image.
- Generate a smart-cropped thumbnail and remove background.
- Exercise - Analyse images with Azure AI Vision.
- Knowledge check.
- Summary.

By the end of this module, you'll be able to:

- Provision an Azure AI Vision resource.
- Analyse an image.
- Generate a smart-cropped thumbnail.

#### Module 2: Read text in images

The Azure AI Vision Image Analysis service uses algorithms to process images and return information. This module teaches you how to use the Image Analysis API for optical character recognition (OCR).

##### Lessons

- Introduction
- Explore Azure AI options for reading text
- Read text with Azure AI Vision Image Analysis
- Exercise - Read text in images
- Module assessment
- Summary

By the end of this module, you'll be able to:

- Describe the OCR capabilities of Azure AI Vision's Image Analysis API.
- Use the Azure AI Vision service Image Analysis API to extract text from images.

#### Module 3: Detect, analyse, and recognize faces

The ability for applications to detect human faces, analyse facial features and emotions, and identify individuals is a key artificial intelligence capability.

##### Lessons

- Introduction.
- Identify options for face detection analysis and identification.
- Understand considerations for face analysis.
- Detect faces with the Azure AI Vision service.

- Understand capabilities of the face service.
- Compare and match detected faces.
- Implement facial recognition.
- Exercise - Detect, analyse, and identify faces.
- Knowledge check.
- Summary.

By the end of this module, you'll be able to:

- Identify options for face detection, analysis, and identification.
- Understand considerations for face analysis.
- Detect faces with the Azure AI Vision service.
- Understand capabilities of the Face service
- Compare and match detected faces.
- Implement facial recognition.

#### Module 4: Classify images

Image classification is used to determine the main subject of an image. You can use the Azure AI Custom Vision services to train a model that classifies images based on your own categorizations.

##### Lessons

- Introduction

- Azure AI Custom Vision
- Train an image classification model
- Create an image classification client application
- Exercise - Classify images
- Module assessment
- Summary

By the end of this module, you'll be able to:

- Provision Azure resources for Azure AI Custom Vision
- Train an image classification model
- Use the Azure AI Custom Vision SDK to create an image classification client application

## Module 5: Detect objects in images

Object detection is used to locate and identify objects in images. You can use Azure AI Custom Vision to train a model to detect specific classes of object in images.

Lessons

- Introduction
- Use Azure AI Custom Vision for object detection
- Train an object detector
- Develop an object detection client application
- Exercise - Detect objects in images
- Module assessment
- Summary

After completing this module, you'll be able to:

- Provision Azure resources for Azure AI Custom Vision
- Understand object detection
- Train an object detector

- Use the Azure AI Custom Vision SDK to create an object detection client application

## Module 6: Analyse video

Azure Video Indexer is a service to extract insights from video, including face identification, text recognition, object labels, scene segmentations, and more.

Lessons

- Introduction.
- Understand Azure Video Indexer capabilities.
- Extract custom insights.
- Use Video Analyzer widgets and APIs.
- Exercise - Analyse video.
- Knowledge check.
- Summary.

In this module, you'll practice how to:

- Describe Azure Video Indexer capabilities.
- Extract custom insights.
- Use Azure Video Indexer widgets and APIs.

## Module 7: Develop a vision-enabled generative AI application

A picture says a thousand words, and multimodal generative AI models can interpret images to respond to visual prompts. Learn how to build vision-enabled chat apps.

Lessons

- Introduction
- Deploy a multimodal model
- Develop a vision-based chat app

- Exercise - Develop a vision-enabled chat app
- Module assessment
- Summary

After completing this module, you'll be able to:

- Deploy a vision-enabled generative AI model in Azure AI Foundry.
- Test an image-based prompt in the chat playground.
- Create a chat app that submits image-based prompts.

## Module 8: Generate images with AI

In Azure AI Foundry, you can use image generation models to create original images based on natural language prompts.

Lessons

- Introduction
- What are image-generation models?
- Explore image-generation models in Azure AI Foundry portal
- Create a client application that uses an image generation model
- Exercise - Generate images with AI
- Module assessment
- Summary

After completing this module, you'll be able to:

- Describe the capabilities of image generation models
- Use the Images playground in Azure AI Foundry portal
- Integrate image generation models into your apps

## ASSOCIATED CERTIFICATIONS & EXAM

There is no Associated Certification or Exam for this course, however, there is an assessment to achieve your Applied Skills credential. ([Assessment Link](#))