



# Building An End-To-End AI Solution With Microsoft Azure

AIE2E - Version: 1

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 1 days Course

## Description:

You are the leader of a group of climate scientists who are concerned about the dwindling polar-bear population in the Arctic. As such, your team has placed hundreds of motion-activated cameras at strategic locations throughout the region. Rather than manually examine each photograph to determine whether it contains a polar bear, you have been challenged to devise an automated system that processes data from these cameras in real time and displays an alert on a map when a polar bear is photographed. You need a solution that uses artificial intelligence (AI) to determine whether a photo contains a polar bear. And you need it fast, because climate change won't wait.

In this workshop, you will build such a system using Microsoft Azure. Specifically, you will use Azure Blob Storage to store photographs, Azure's Custom Vision Service to analyze photographs for polar bears, Azure Functions to pass each photograph to the Custom Vision Service, Microsoft Power BI to build a dashboard for visualizing results, and Azure SQL Database as a data source for Power BI. It's a great example of how Azure services are combined to form end-to-end solutions, and a great introduction to Azure if you lack experience building cloud-based applications.

## Intended audience:

Software Developers

## Prerequisites:

## Objectives:

## Topics:

### Azure Storage and Database Services

- Learn about key data-storage options that Azure provides, including blob storage and the Azure SQL Database service.
- Then deploy a storage account and a SQL database to store wildlife photos and the results of analyzing those photos.

### Azure Functions

- Azure Functions let you deploy code to the cloud in a serverless manner and use triggers to specify when the code should execute.
- Write, test, and deploy an Azure Function that executes when a wildlife photo is uploaded to blob storage.

### Azure Custom Vision Service

- Azure's Custom Vision Service lets you train sophisticated convolutional neural networks (CNNs) to perform domain-specific image-classification tasks.
- Use it to train a CNN to differentiate between different types of Arctic wildlife and detect when and where polar bears are being spotted.
- Then deploy it to the cloud and use Power BI to build a dashboard for visualizing polar-bear sightings.