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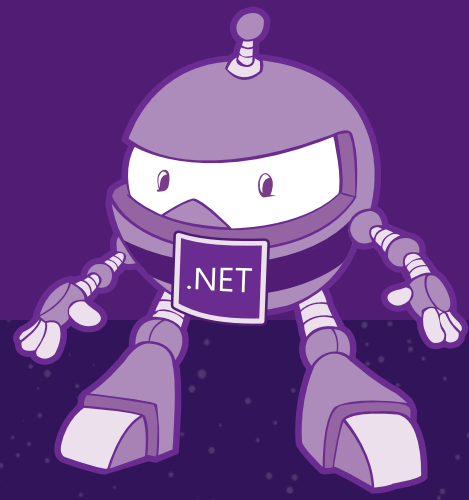
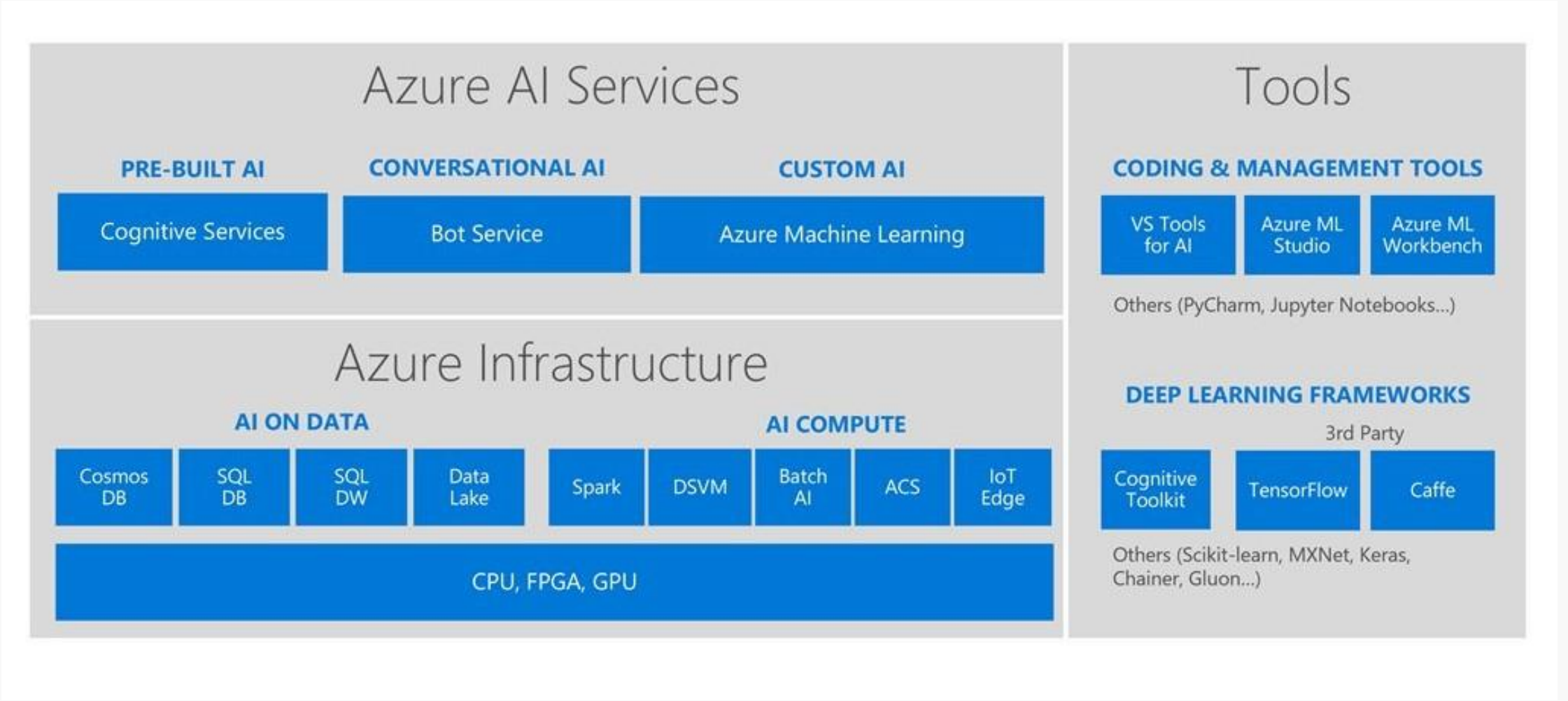
Building real-time image classifiers for mobile apps with Azure Custom Vision

Luis Beltran
Microsoft MVP



Twitter: @darkicebeam
Email: luis@luisbeltran.mx

Microsoft AI Platform



Azure Cognitive Services

Perception

Vision

Computer Vision
Face/Emotion Recognition
OCR/Handwriting
Custom Vision
Video Indexer
Content Moderator

Speech

Text-to-Speech
Speech-to-Text
Translator
Custom Speech

Comprehension

Language

Language Understanding
PII Detection
Text Translator
Text Analytics
QnA Maker

Knowledge

Bing Custom Search
Bing Visual Search

Custom Vision

A customizable web service that learns to recognize specific content in imagery

Upload images

Upload your own labeled images, or use Custom Vision Service to quickly tag any unlabeled images

Train

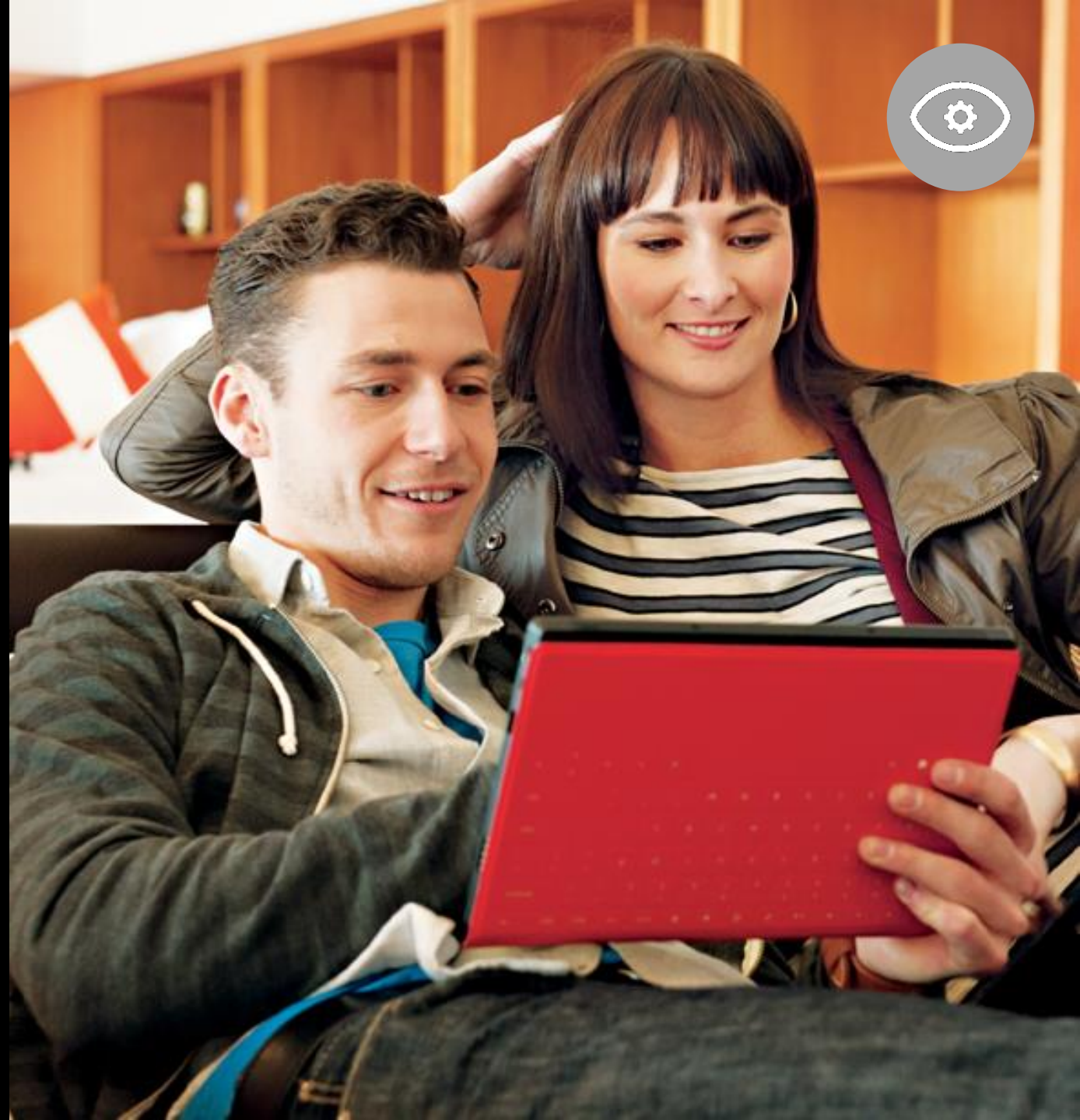
Use your labeled images to teach Custom Vision Service the concepts you want it to learn

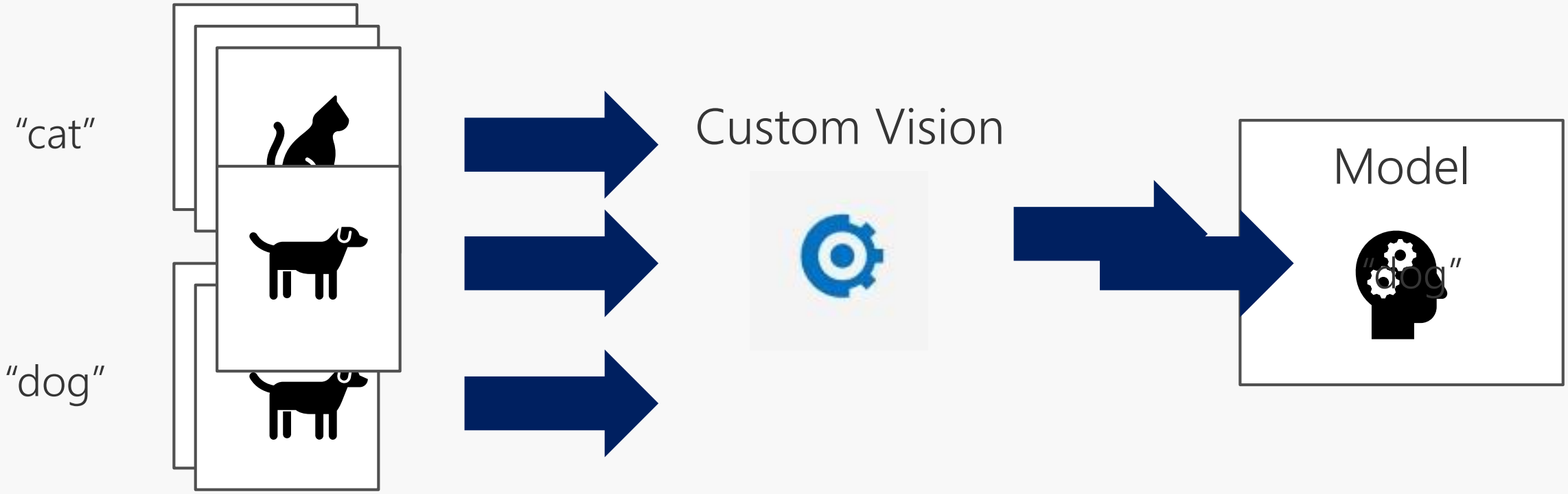
Evaluate

Use simple REST API calls to quickly tag images with your new custom computer vision model

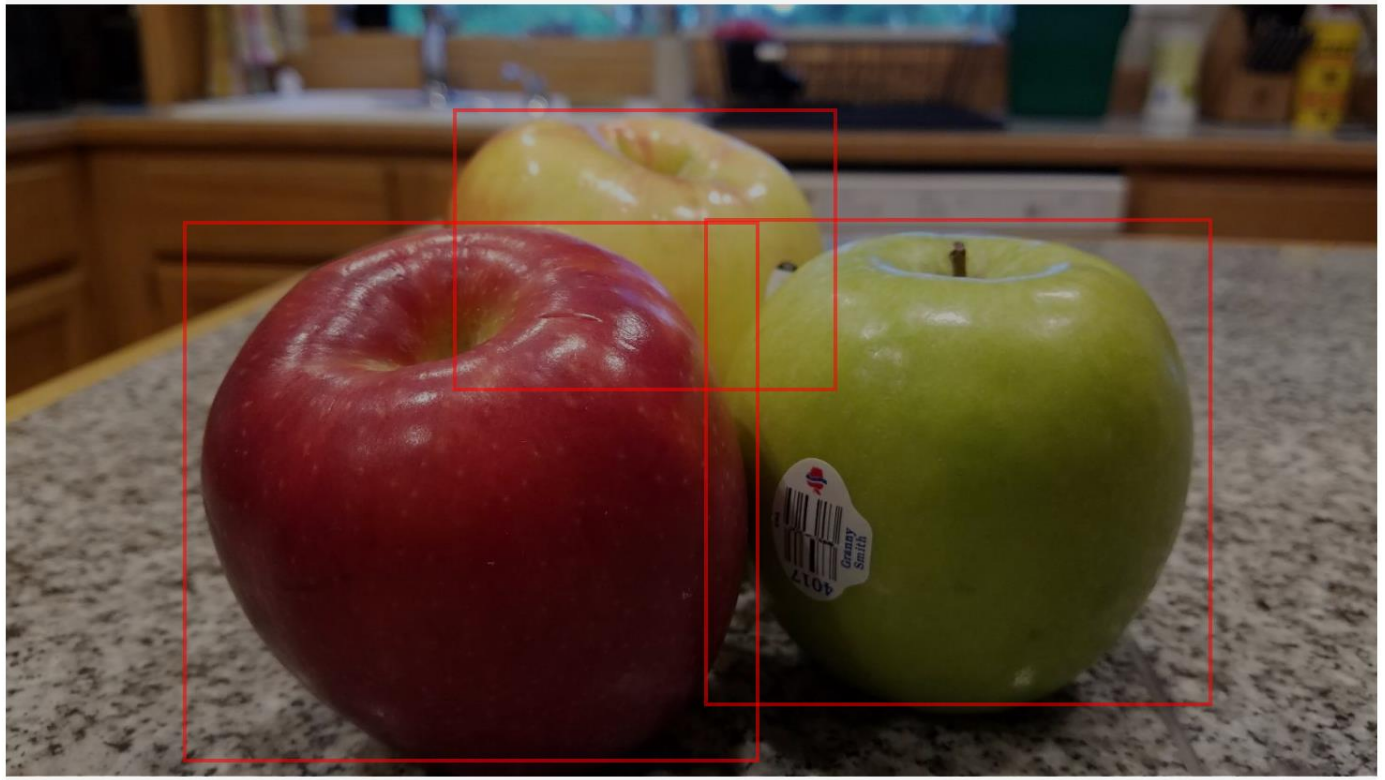
Active learning

Images evaluated through your custom vision model become part of a feedback loop you can use to keep improving your classifier




"cat"
"dog"
Custom Vision
Model
"dog"

Object Detection



My Objects

To tag an object, hover and select the region in the image

Predicted Object Filter

Probability Threshold: 15%

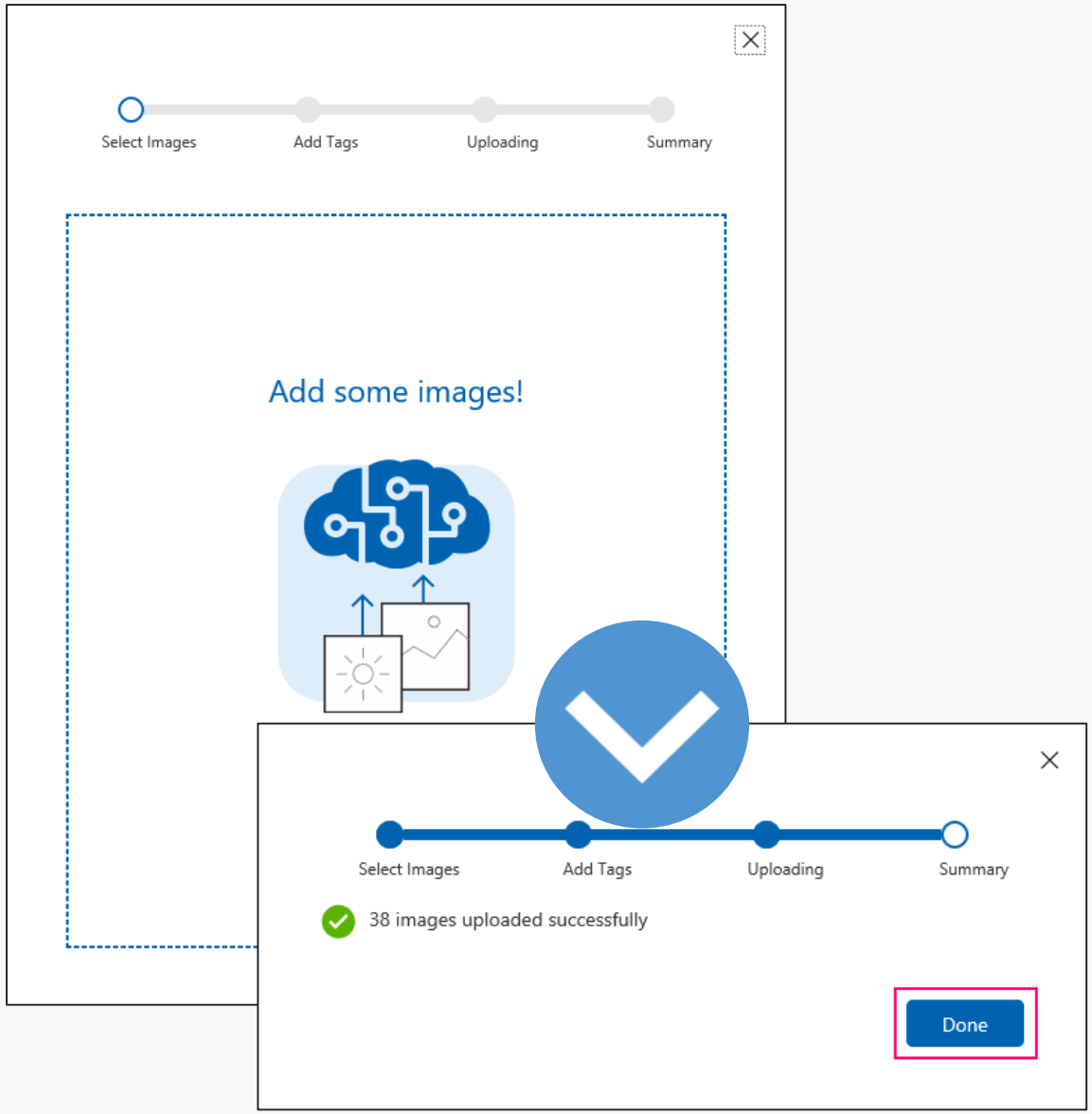
Predictions

Predictions are shown in red

Tag	Probability
apple	99.2%
apple	98.9%
apple	85.3%

Building a Classifier

- Create a project
- Select a domain
- Add images
- Assign tags to images
- Train the classifier
- Evaluate the classifier



Demo – Exploring the Azure Custom Vision portal

Train in the cloud, run anywhere

Train in Custom Vision Service

Deploy & Run Anywhere

CoreML

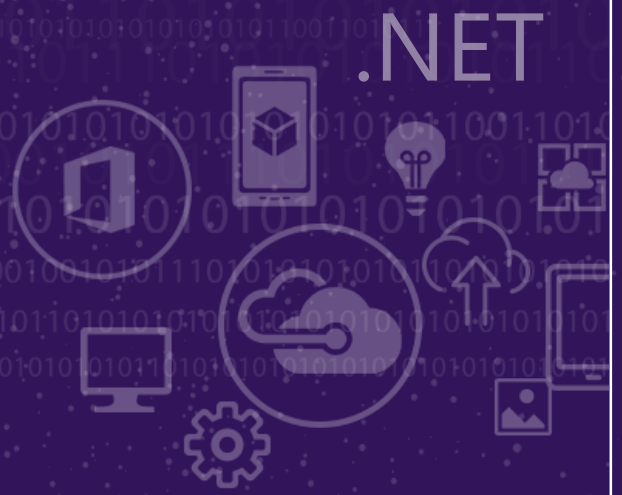
ONNX/
WinML

TensorFlow

Azure
IoT Edge

Demo – Mobile image classifier with Azure Custom Vision

https://github.com/icebeam7/MobileClassifierDemo



Improving a classifier

- The best way to have a quality classifier is to **add more varied tagged images** (different backgrounds, angles, object size, groups of photos, and variants of types.)

- Always to train your classifier after you have added more images. **Include images that are representative of what your classifier will encounter in the real world.**

- Photos in context are better than photos of objects in front of neutral backgrounds, for example.

Q & A

Thank you!

Luis Beltran
Microsoft MVP

Twitter: @darkicebeam
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