

Microsoft의 Machine Learning Service

김대우 부장 / daewoo.kim@microsoft.com



Democratizing AI

For every person and every organization



Agent

Cortana

Knows you | Knows your work + life

Knows the world

Across all your devices

145 million users | 17 billion questions



Applications

Office 365 and Dynamics 365

Know how you work | your org |
your business processes

Deeper knowledge + insight +
action

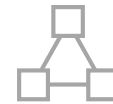


Services

Cortana Intelligence Suite

Bot Framework

Cognitive Services



Infrastructure

Azure

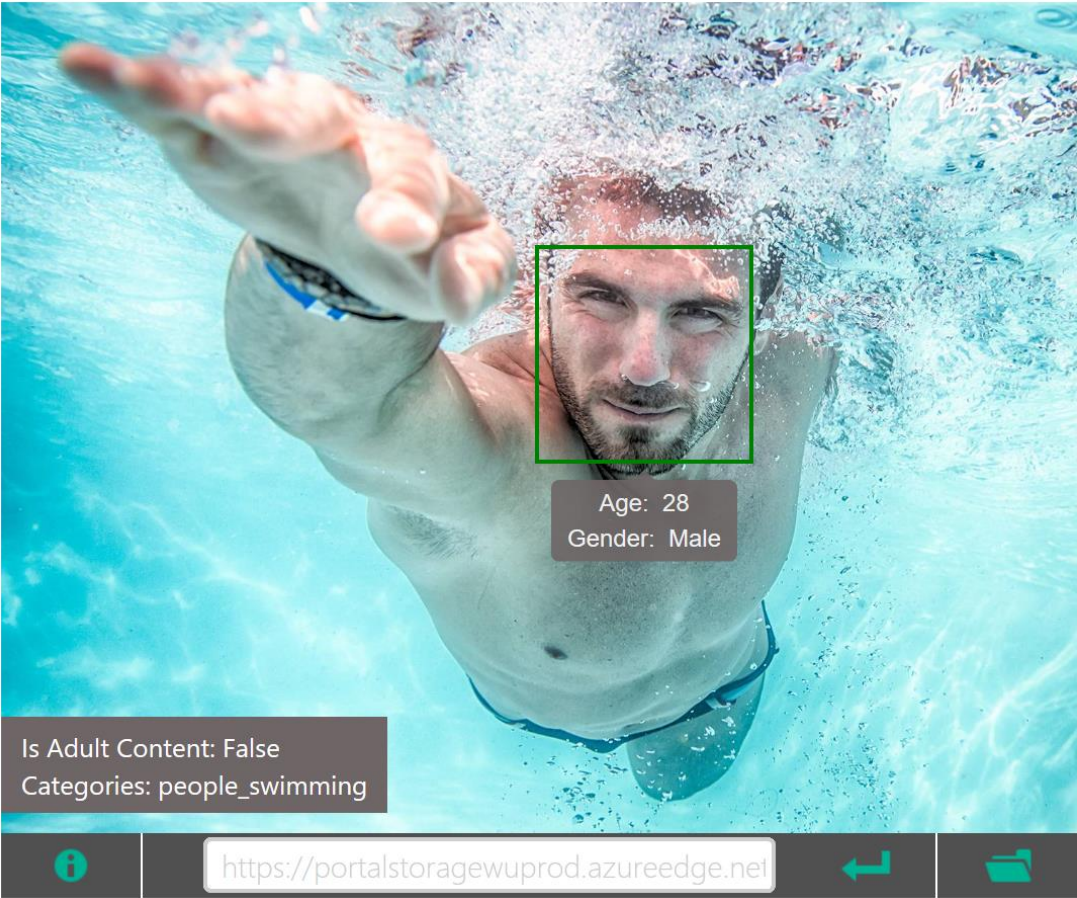
Global

Trusted

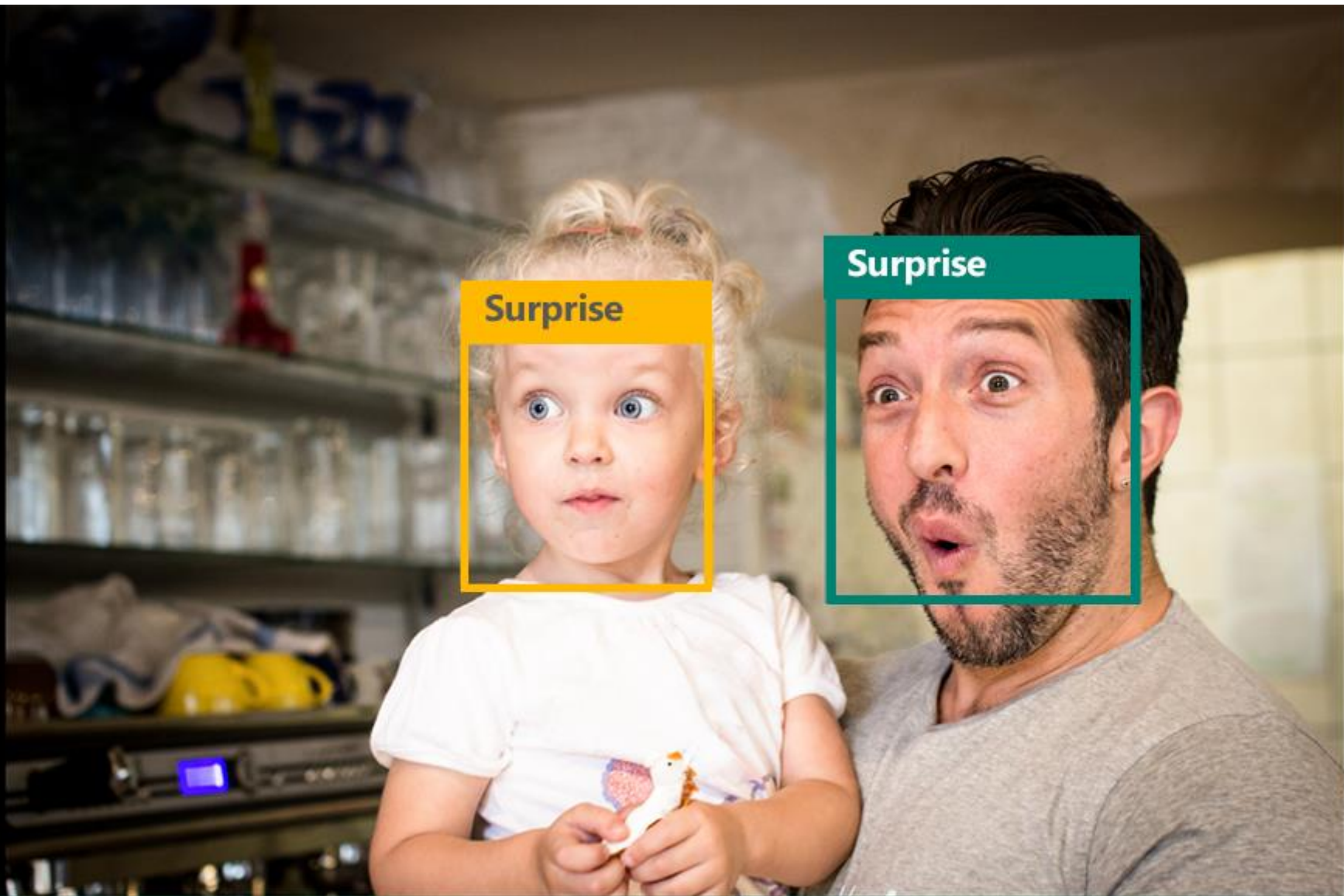
Intelligent

From silicon to cloud

Microsoft Cognitive Services – Computer Vision API



Features:	
Feature Name	Value
Description	{ "type": 0, "captions": [{ "text": "a man swimming in a pool of water", "confidence": 0.7850108693093019 }] }
Tags	[{ "name": "water", "confidence": 0.9996442794799805 }, { "name": "sport", "confidence": 0.9504992365837097 }, { "name": "swimming", "confidence": 0.9062818288803101, "hint": "sport" }, { "name": "pool", "confidence": 0.8787588477134705 }, { "name": "water sport", "confidence": 0.631849467754364, "hint": "sport" }]
Image Format	jpeg
Image Dimensions	1500 x 1155
Clip Art Type	0 Non-clipart
Line Drawing Type	0 Non-LineDrawing
Black & White Image	False



Neutral: 
Happiness: 
Surprise: 
Sadness: 

Anger: 
Disgust: 
Fear: 
Contempt: 



Get started for free at projectoxford.ai



UBER



Microsoft Cognitive Service helping
Uber's security precautions for its drivers and passengers

Identify Rare Diseases with a Selfie

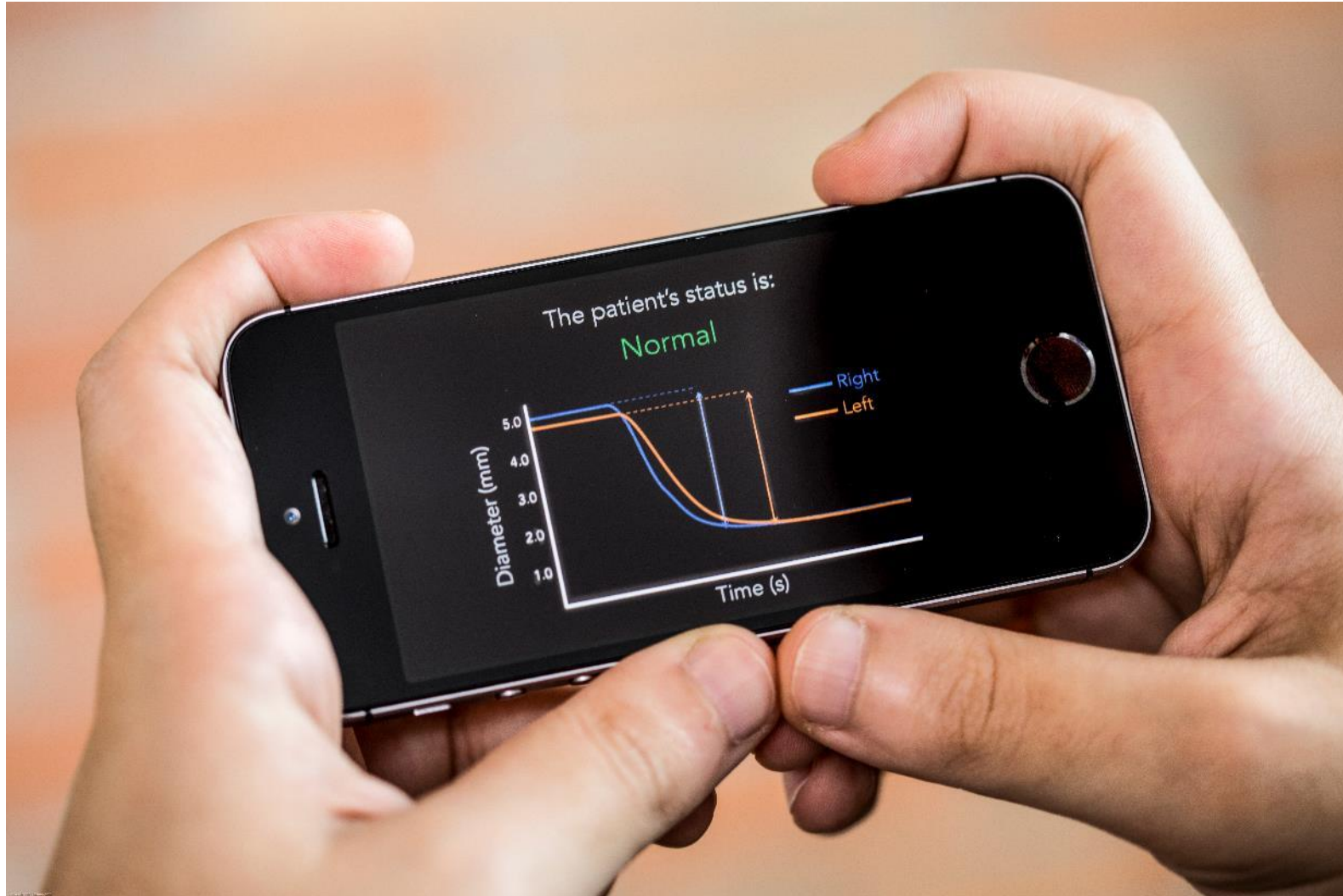


Deep Learning Algorithm Diagnoses Skin Cancer Better than Human Dermatologists



Source: The New Stack (2017/02/05)

Detect concussion, brain injuries with a smartphone



Cognitive Services



Vision



Language



Speech



Search



Knowledge

Computer vision

Face

Emotion

Content Moderator

Video

NEW

Video Indexer

NEW

Cognitive Services Labs

Text analytics

Spell check

Web language model

Linguistic analysis

Translator

Speaker recognition

Speech

Web search

Image search

Video search

News search

Autosuggest

Academic knowledge

Entity linking service

Knowledge exploration

Recommendations

QnA maker

NEW

Custom

Vision Service

Custom

Language
Understanding

Custom

Speech Service

NEW

Custom

Search

NEW

Custom

Decision Service

Machine Learning Framework



Drone-based electric grid inspector powered by deep learning

Challenge

- Traditional power line inspection services are costly
- Demand for low cost image scoring and support for multiple concurrent customers
- Needed powerful AI to execute on a drone solution

Solution

- Deep learning to analyze multiple streaming data feeds
- Azure GPUs support Single Shot multibox detectors
- Reliable, consistent, and highly elastic scalability with Azure Batch Shipyards

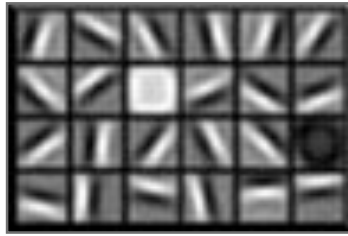
Identifying Snow Leopards

Computer vision and classification on Spark

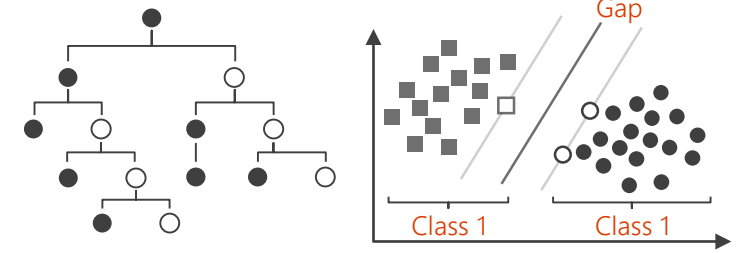
Image



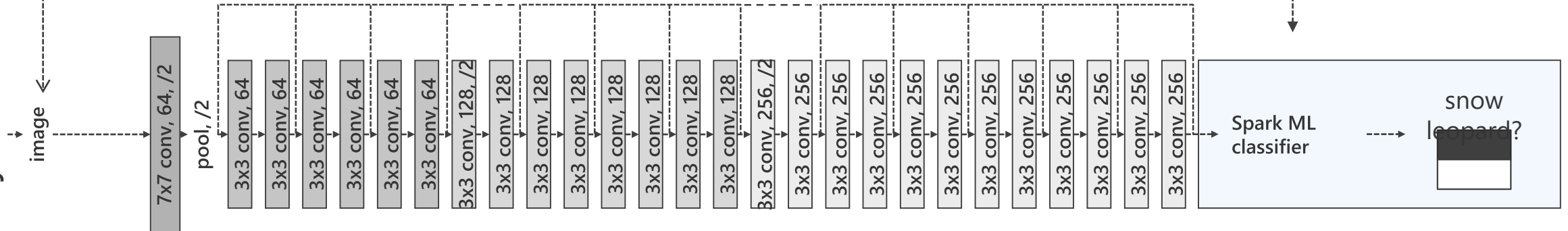
Image features



Decision tree or logistic regression



34-layer residual



Deep neural network

Spark ML classifier

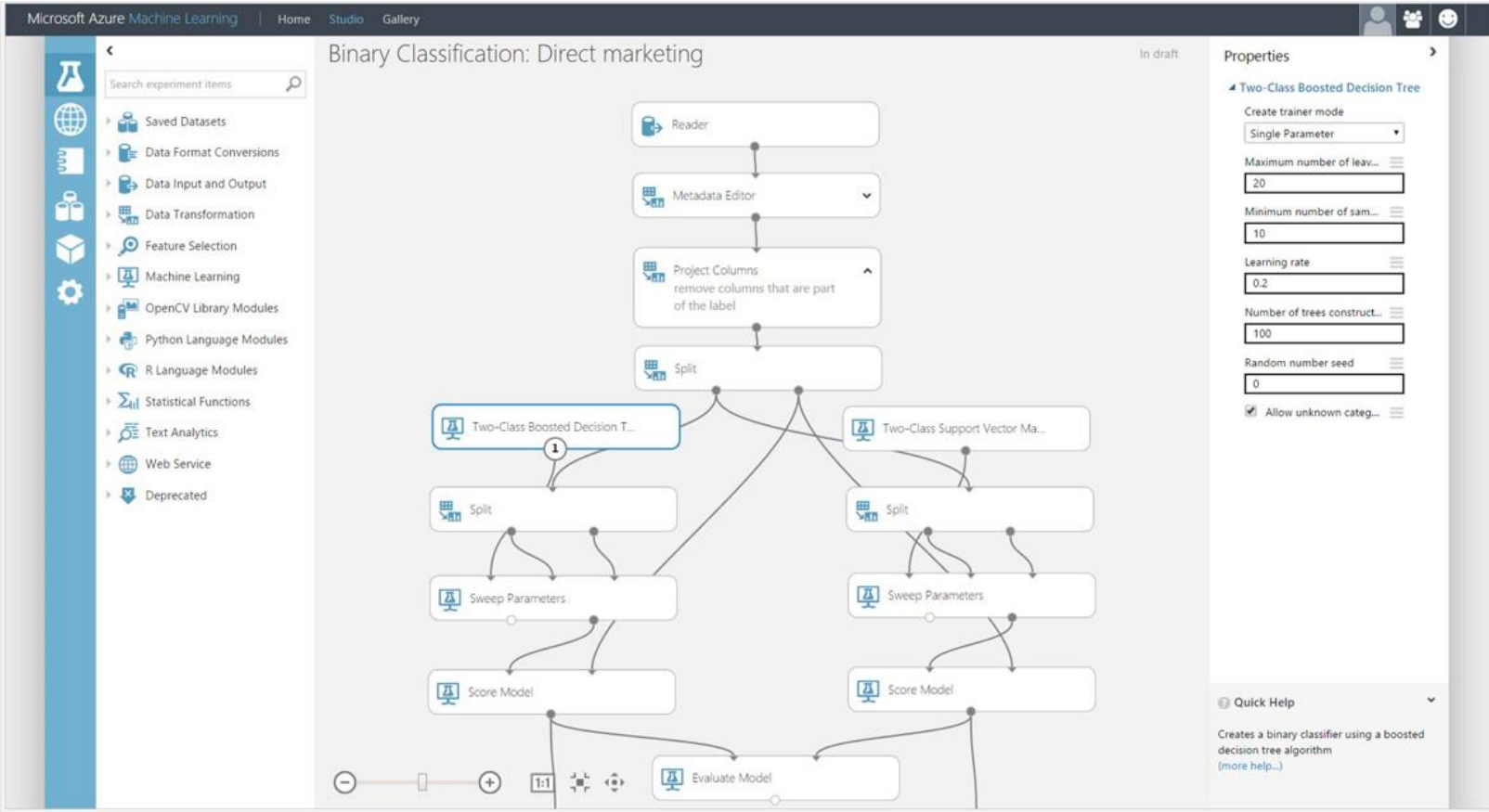
Azure Machine Learning Studio

Platform for data scientists to graphically build and deploy experiments

- Rapid experiment composition
- > 100 easily configured modules for data prep, training, evaluation
- Extensibility through R & Python
- Serverless training and deployment

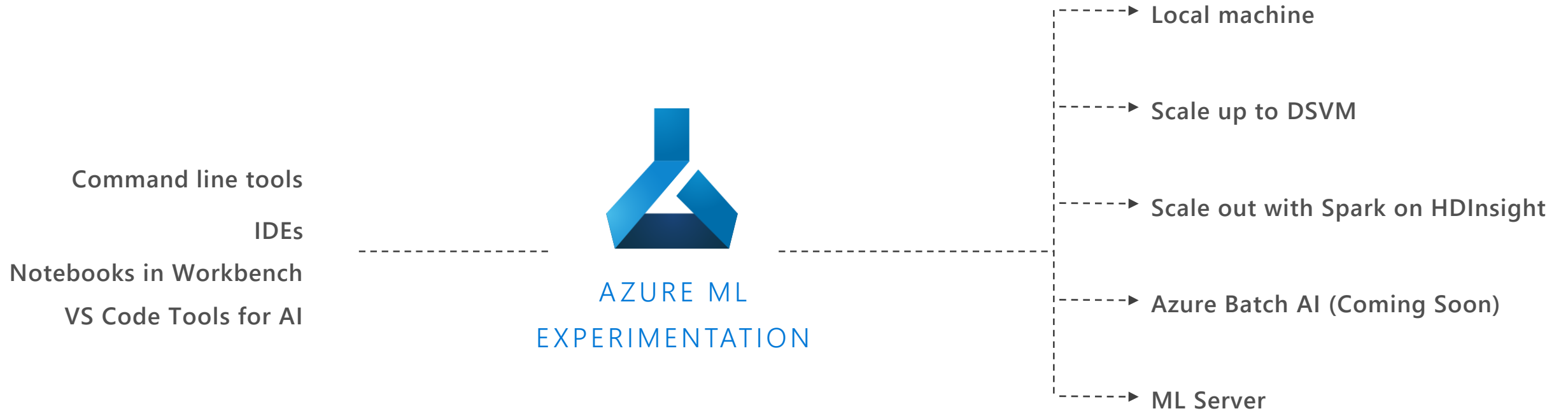
Some numbers:

- 100's of thousands of deployed models serving billions of requests



Experimentation service

Experiment Everywhere



Experimentation service

Manage project dependencies

Manage training jobs locally, scaled-up or scaled-out

Git based checkpointing and version control

Service side capture of run metrics, output logs and models

Use your favorite IDE, and any framework

USE ANY FRAMEWORK OR LIBRARY



USE ANY TOOL



USE THE MOST POPULAR INNOVATIONS



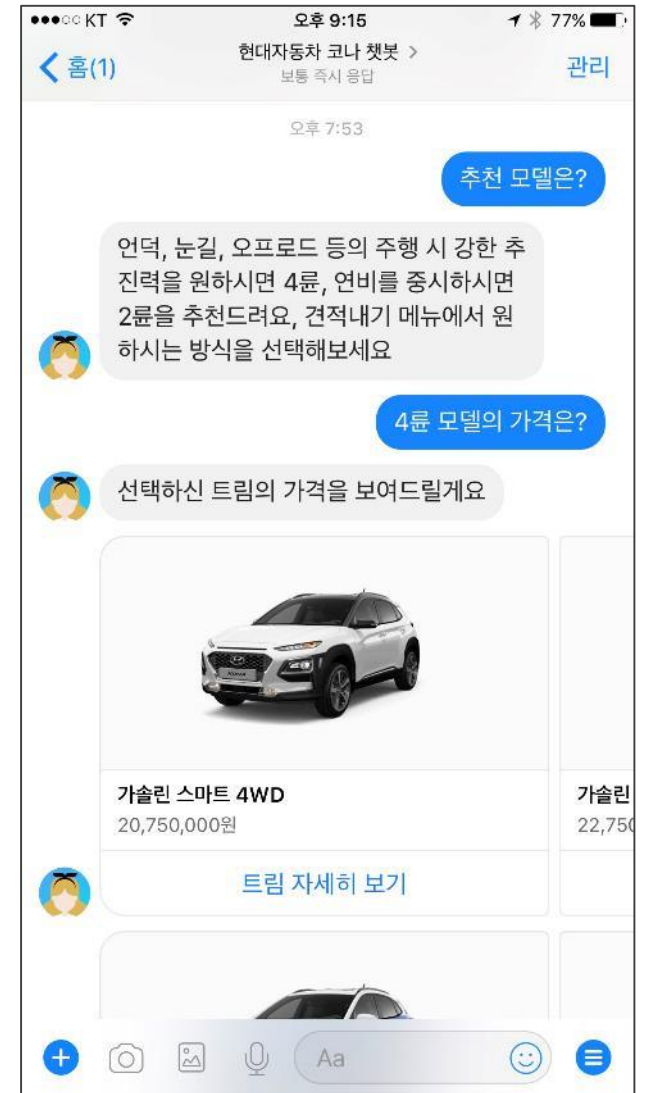
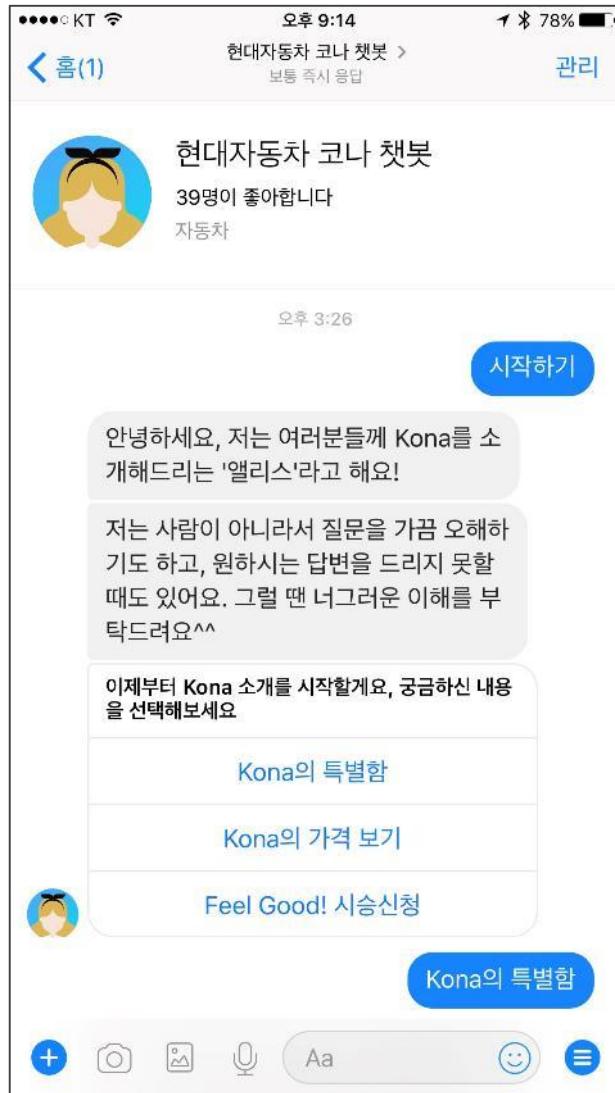
AI for workplace safety

At the Build conference in May, Microsoft showcased how AI might make a construction site safer and more productive





페이스북 연동 현대자동차 코나 챗봇





“With a full utilization of Web Apps and Azure Machine Learning for Azure PaaS, we could develop a perfect prototype by concentrating on an immediate predictive analytics service.”

Dong-Geon Kim, Director of Nexon DevCat HQ

Azure ML

[Read Case Study Here](#)

[See Video Here](#)





“Azure Machine Learning Matchbox was able to produce very good quality in a short amount of time. Also, the server-less development method of Azure Functions using the existing AWS infrastructure can be built without any interruption of legacy”

Ohgyun Ahn, Technical Director of Hogangnono

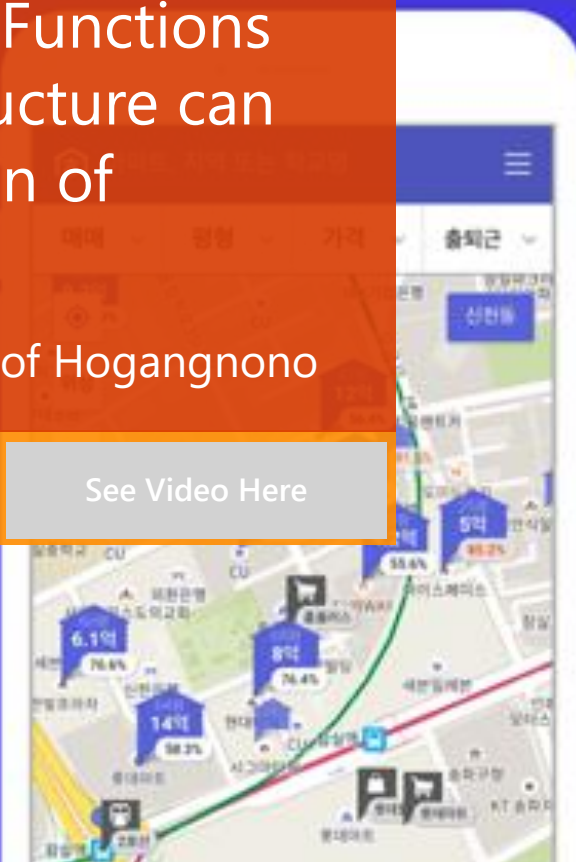
Azure ML,
Cognitive Service Recommendations

[Read Case Study Here](#)

[See Video Here](#)

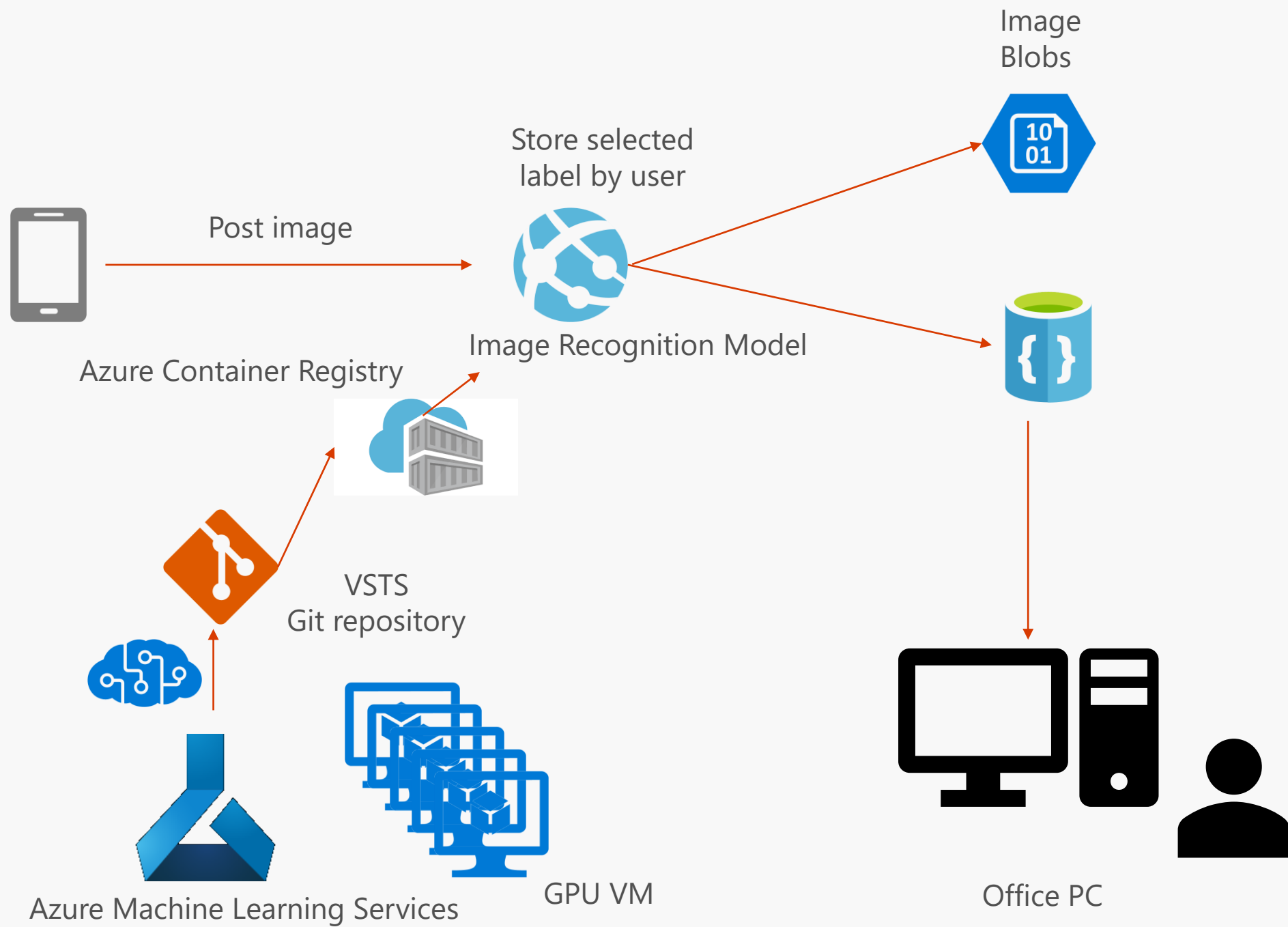
아파트 알아볼 땐 호갱노노

실거는 물론 학군, 편의시설, 출퇴근 정보까지 한눈에!



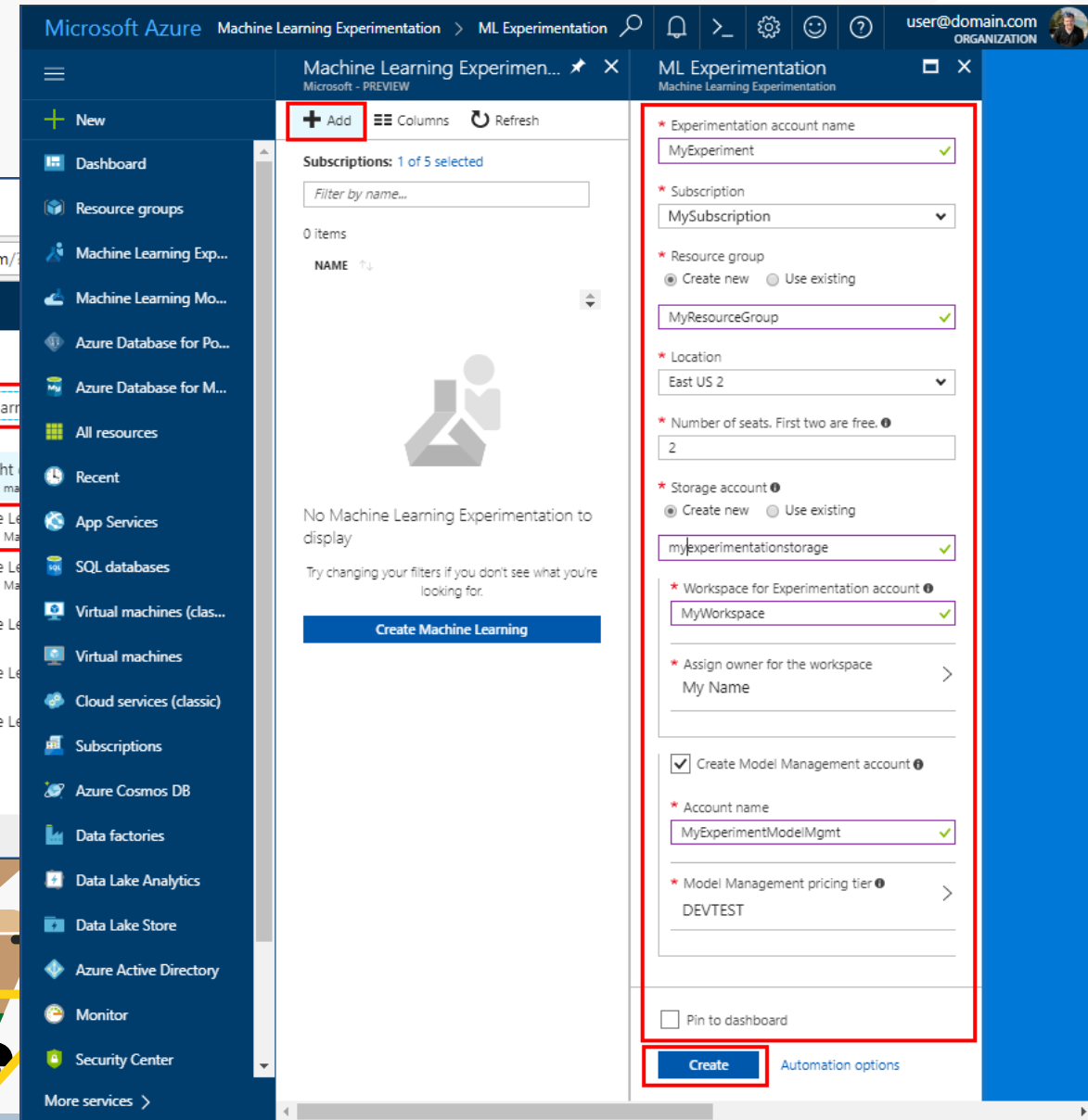
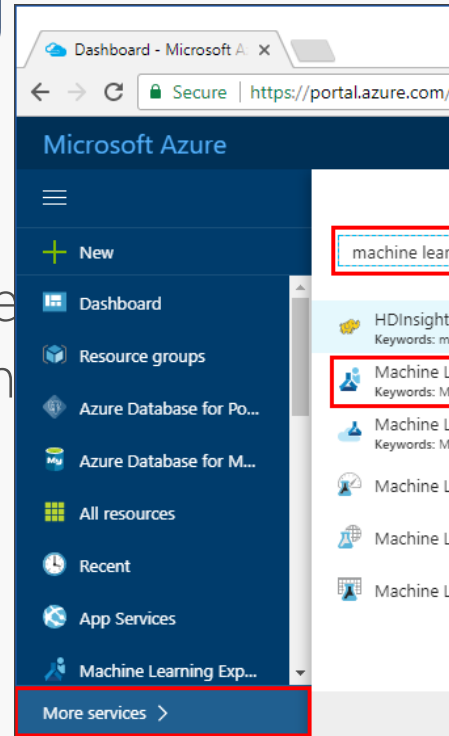
DEMO





Model Training

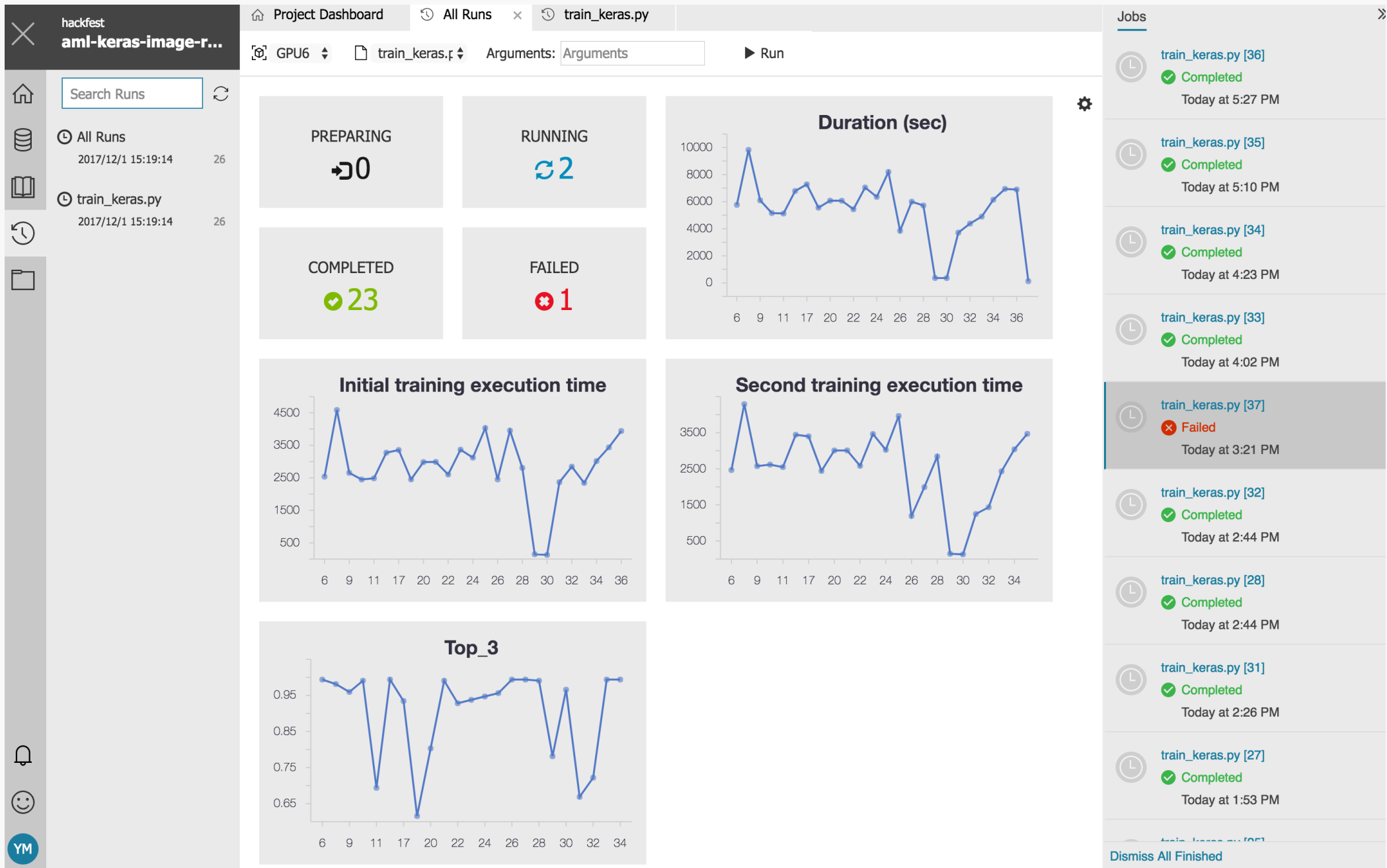
- Azure Machine Learning Experimentation
- Azure Machine Learning Workbench



Multi GPU machine in workbench

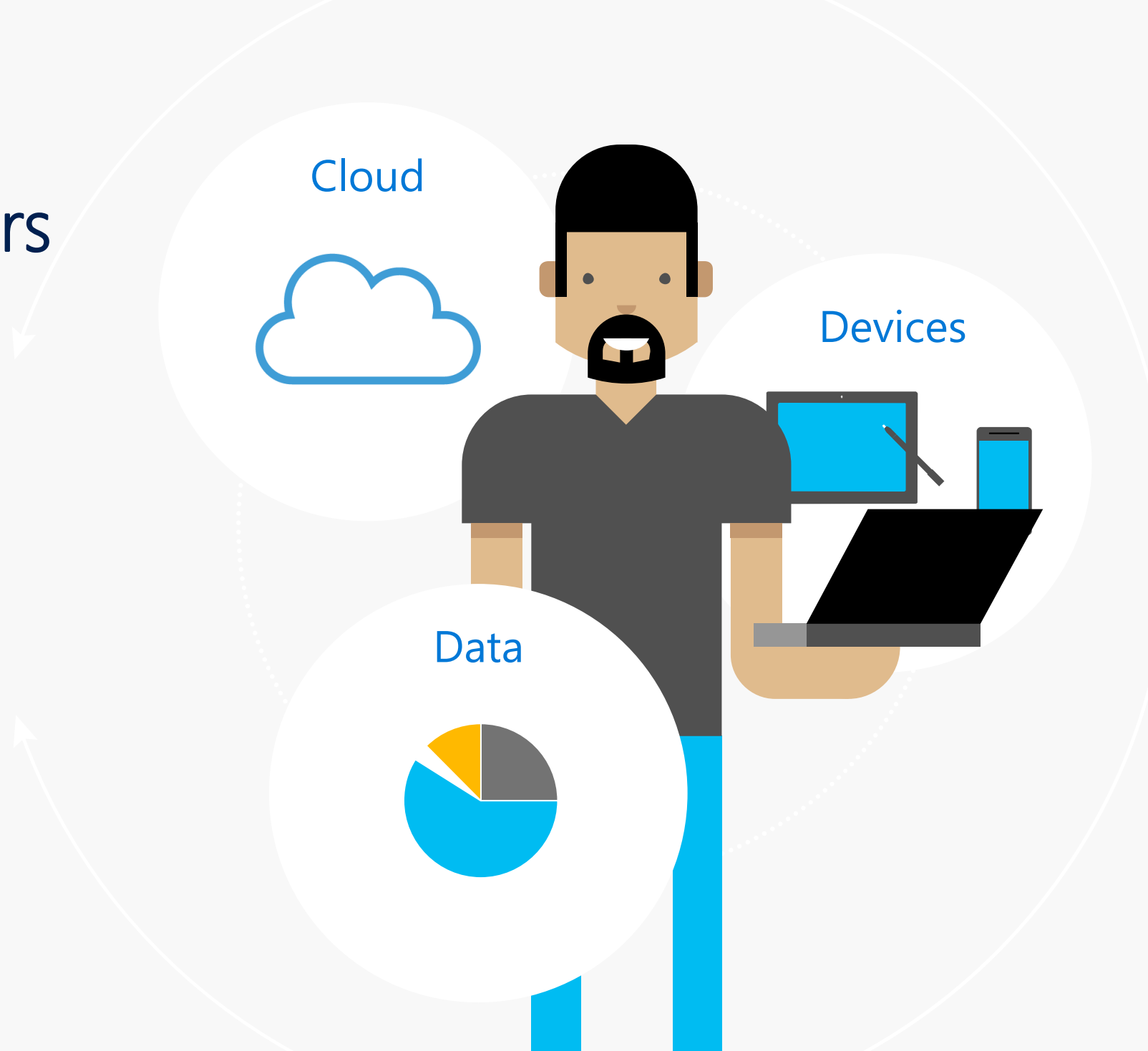
- Variables
 - Keras pre-trained models
 - InceptionResNetV2
 - Xception
 - VGG19
 - ResNet50
 - InceptionV3
 - Data Augmentation
 - Unbalanced correction
 - Optimizer
 - Activation function





Deploy Web app for Containers

- Staging
- Scaling
- PaaS
- Python
- Docker
- ...



Machine Learning & AI Portfolio

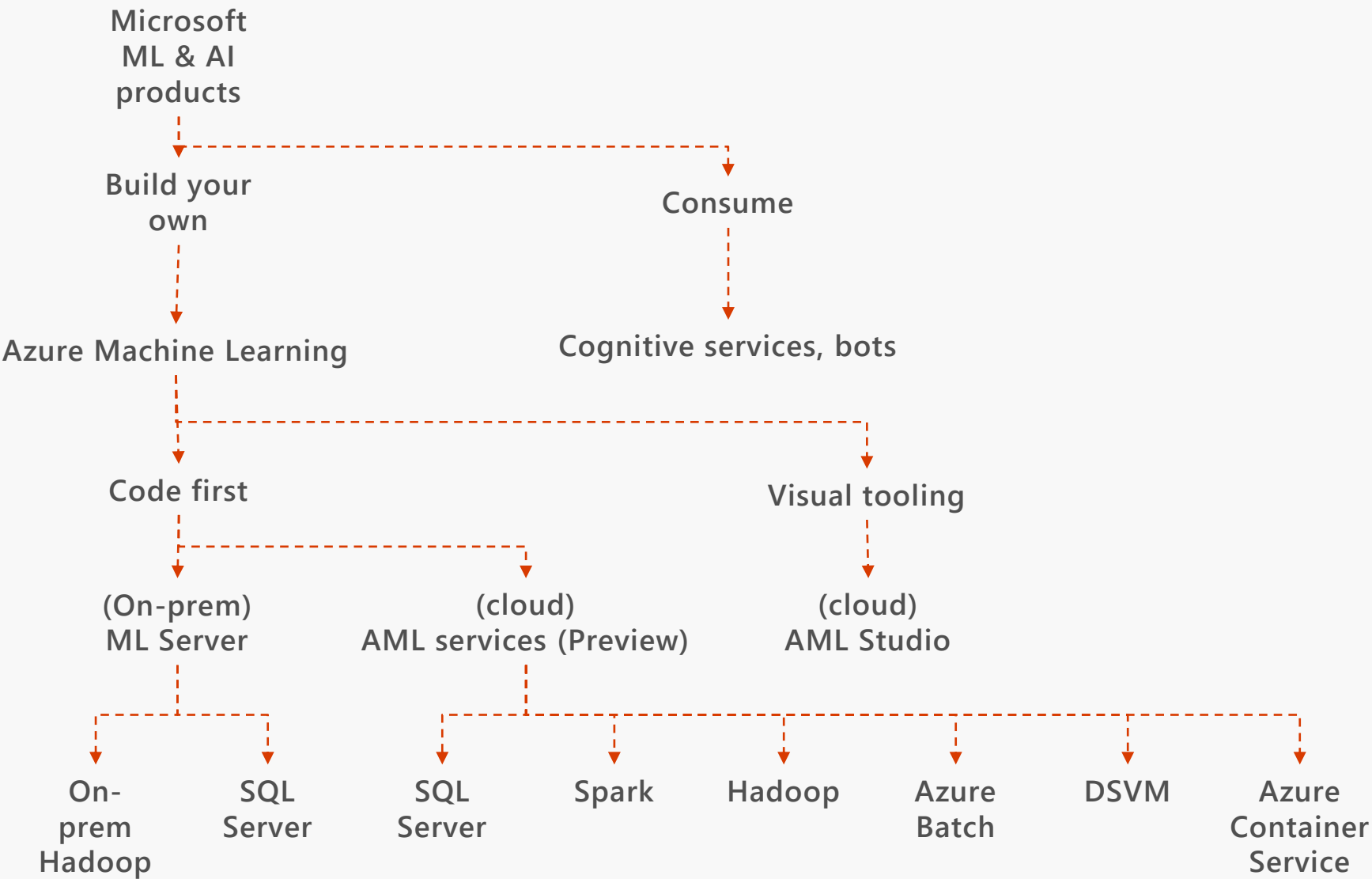
When to use what?

Build your own or consume pre-trained models?

Which experience do you want?

Deployment target

What engine(s) do you want to use?



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