Azure ML

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Hello AI

약력

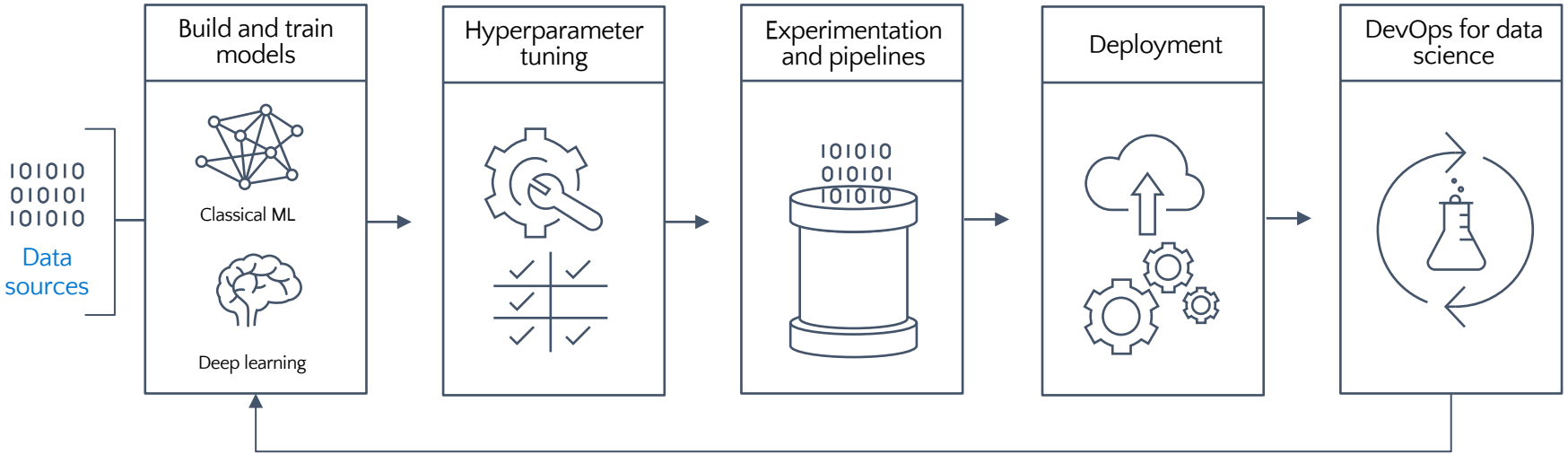
- **Hello AI**
- **Microsoft 플랫폼 사업부 근무**
  Technical Evangelist
  Software Engineer
- **Microsoft 공공사업부 근무**
  Account Technology Strategist
  Microsoft Certificate Trainer
- **Microsoft MVP**
  Azure MVP 2021
  ASP.NET MVP 2006~2008
- **저서**
  '가장 빨리 만나는 챗봇 프로그래밍'
  'War of IT' 출간 (지앤선 출판사)

- *웹 접근성 2.0 표준 자문위원*
- *디지털 교과서 프로젝터 리더*
- *한국방송통신대학교 출강(2020년)*
- *인천재능대학교 출강(2021년)*
- *국가과학기술인력개발원 KIRD*
  최우수강사 2018, 2020

Overview

- Machine Learning on Azure
- Custom AI
- Compute Targets (DSVMs and Managed Compute)
- DevOps for Machine Learning
- Azure Machine Learning Pipelines
- Flexible and Support for Open Source Frameworks
- Deployment
- Tool Agnostic Python SDK

Building blocks for a Data Science Project



Machine Learning on Azure

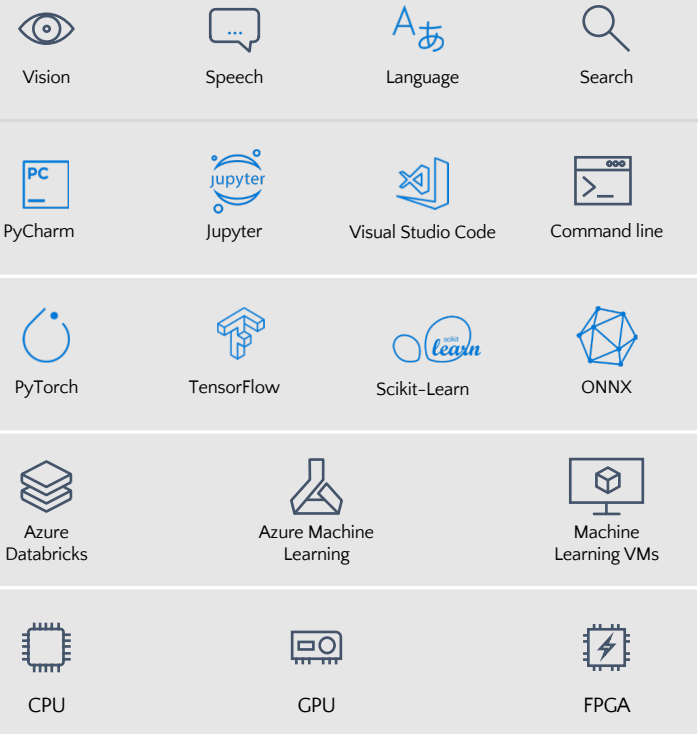
Domain Specific Pretrained Models
To reduce time to market

Familiar Data Science Tools
To simplify model development

Popular Frameworks
To build machine learning and deep learning solutions

Productive Services
To empower data science and development teams

Powerful Hardware
To accelerate deep learning



From the Intelligent Cloud to the Intelligent Edge

Azure Machine Learning Service

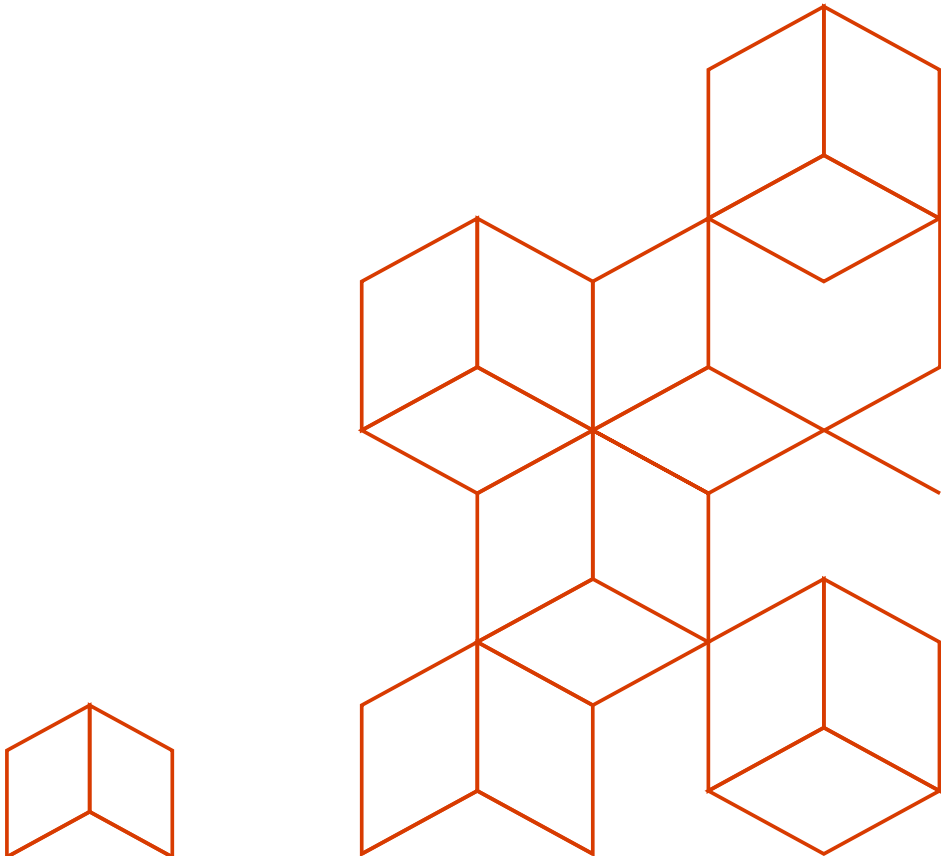
Set of Azure Cloud Services

Python SDK

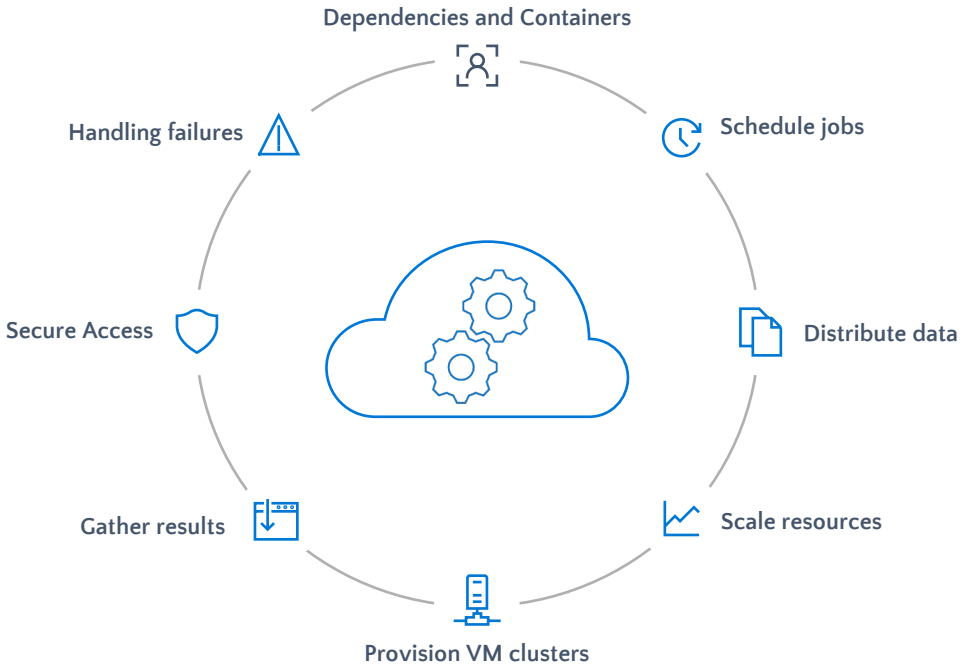
That enables you to:

- ✓Prepare Data
- ✓Build Models
- ✓Train Models
- ✓Manage Models
- ✓Track Experiments
- ✓Deploy Models

Managed Compute



Distributed training on managed compute



Training Infrastructure

Dependencies and Containers

Leverage system-managed AML compute or bring your own compute

Distribute data

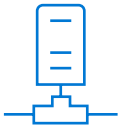
Manage and share resources across a workspace

Schedule jobs

Train at cloud scale using a framework of choice

Scale resources

Autoscale resources to only pay while running a job



Provision VM clusters

Use the latest NDv2 series VMs with the NVIDIA V100 GPUs

Powerful Infrastructure

Accelerate deep learning

CPUs

General purpose machine learning

D, F, L, M, H Series

GPUs

Deep learning

N Series

FPGAs

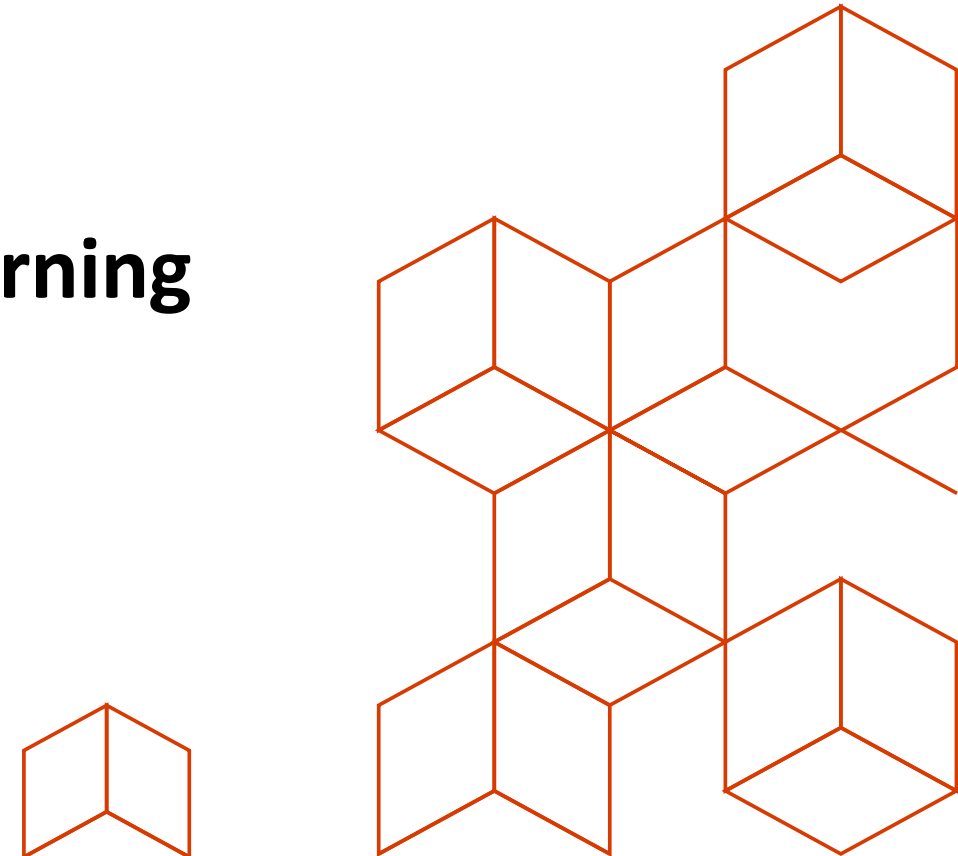
Specialized hardware accelerated deep learning

Project Brainwave

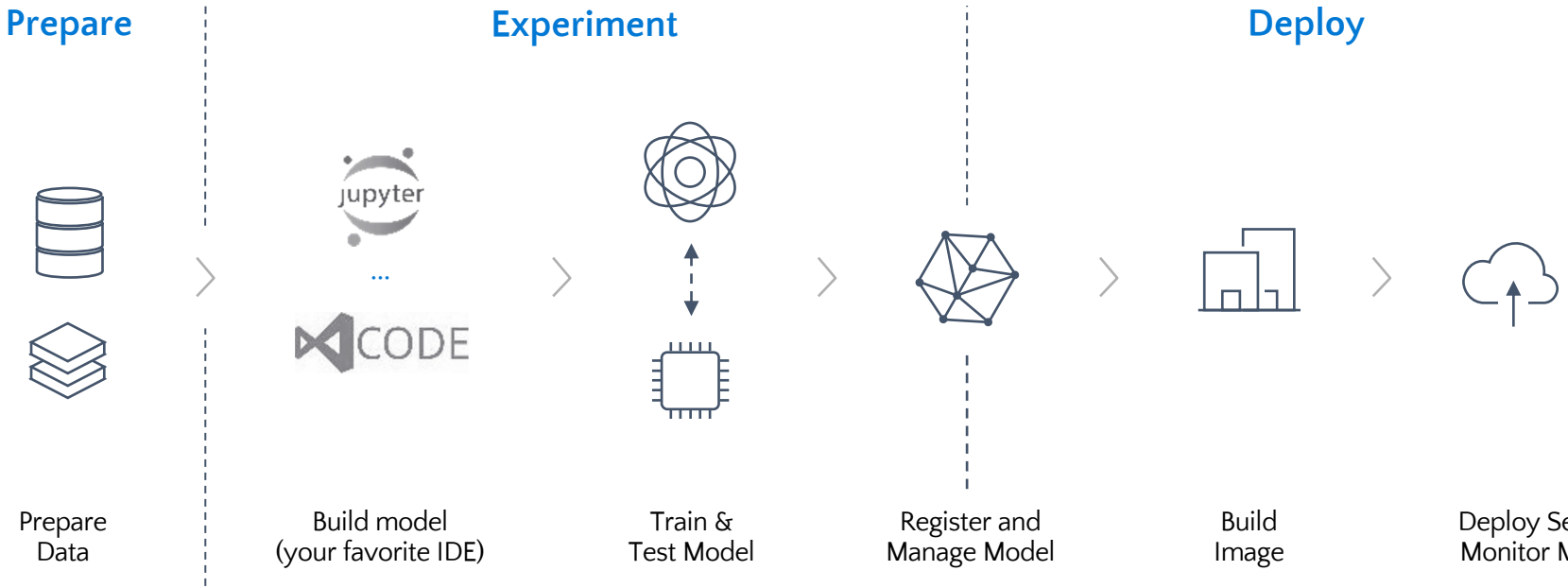
FPGA NEW UPDATES:

Support for image classification and recognition scenarios
ResNet 50, ResNet 152, VGG-16, SSD-VGG, DenseNet-121

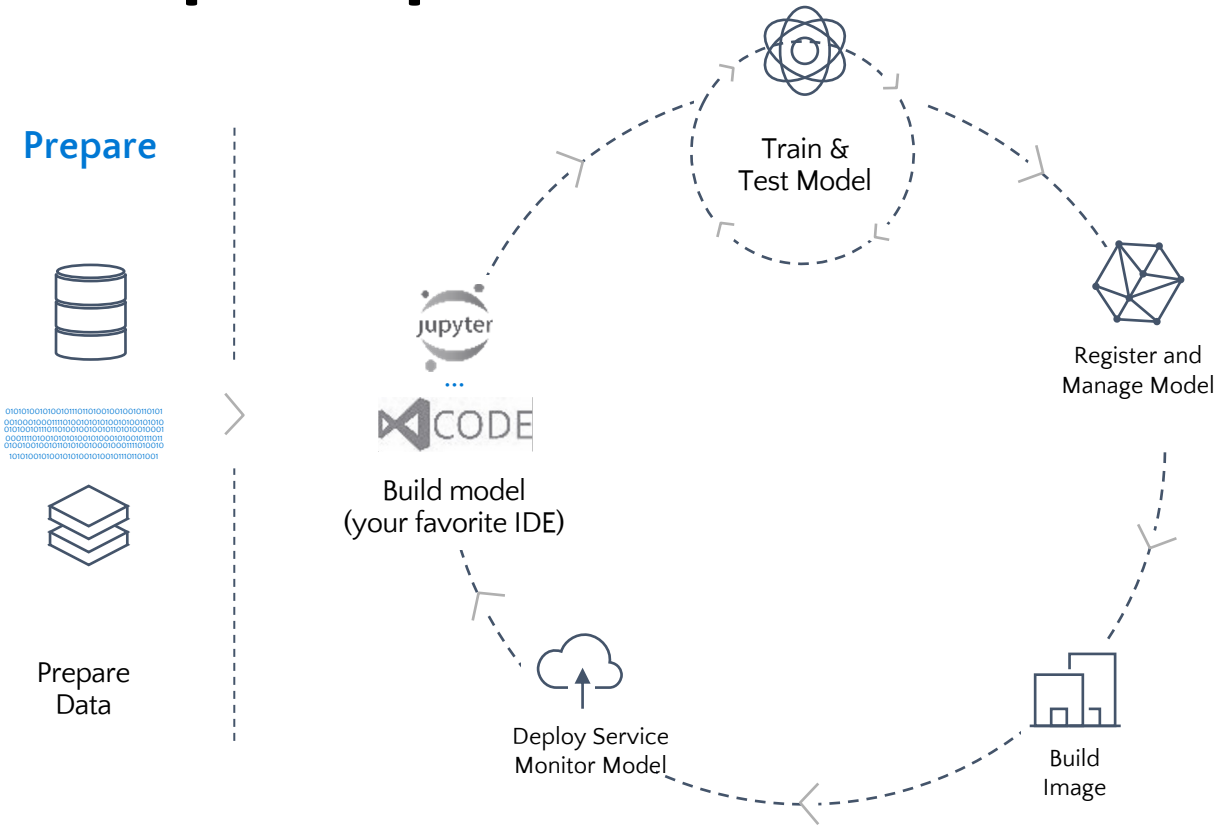
DevOps for Machine Learning



DevOps loop for data science



DevOps loop for data science



Model Management in detail

Create/Retrain Model

Enable DevOps with full CI/CD integration with VSTS

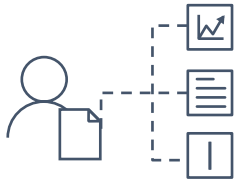
Register Model

Track model versions with a central model registry

Monitor

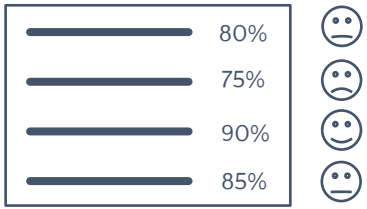
Oversea deployments through Azure AppInsights

Experimentation

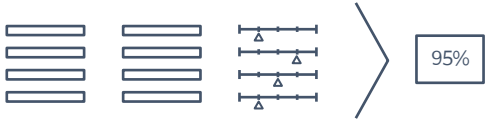


Leverage service-side capture of run metrics, output logs and models

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

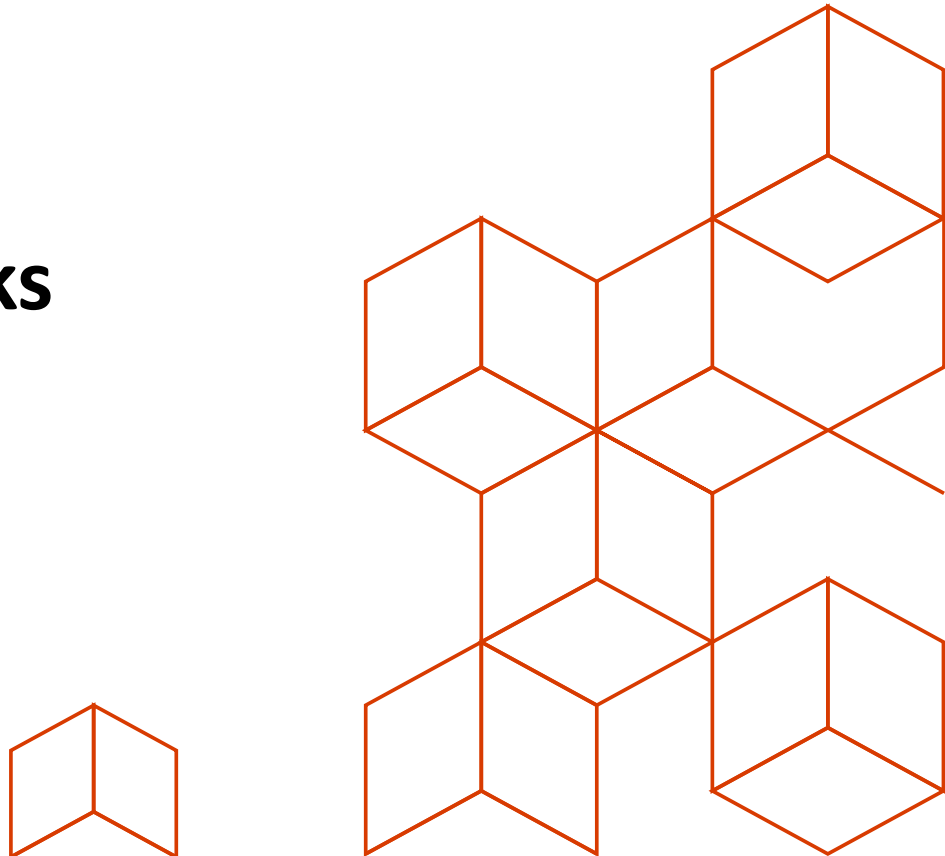


Use leaderboards, side by side run comparison and model selection



Conduct a hyperparameter search on traditional ML or DNN

Support for
Open source frameworks



Popular Frameworks

Use your favorite machine learning frameworks


TensorFlow


PyTorch


Scikit-Learn


MXNet


Chainer


Keras

+

without getting locked into one framework


ONNX

Community project created by Facebook and Microsoft

Use the best tool for the job. Train in one framework and transfer to another for inference



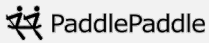







Create

Frameworks



Services

Azure Custom
Vision Service

Native support

Converters

Native support

Converters

ONNX Model

Deploy

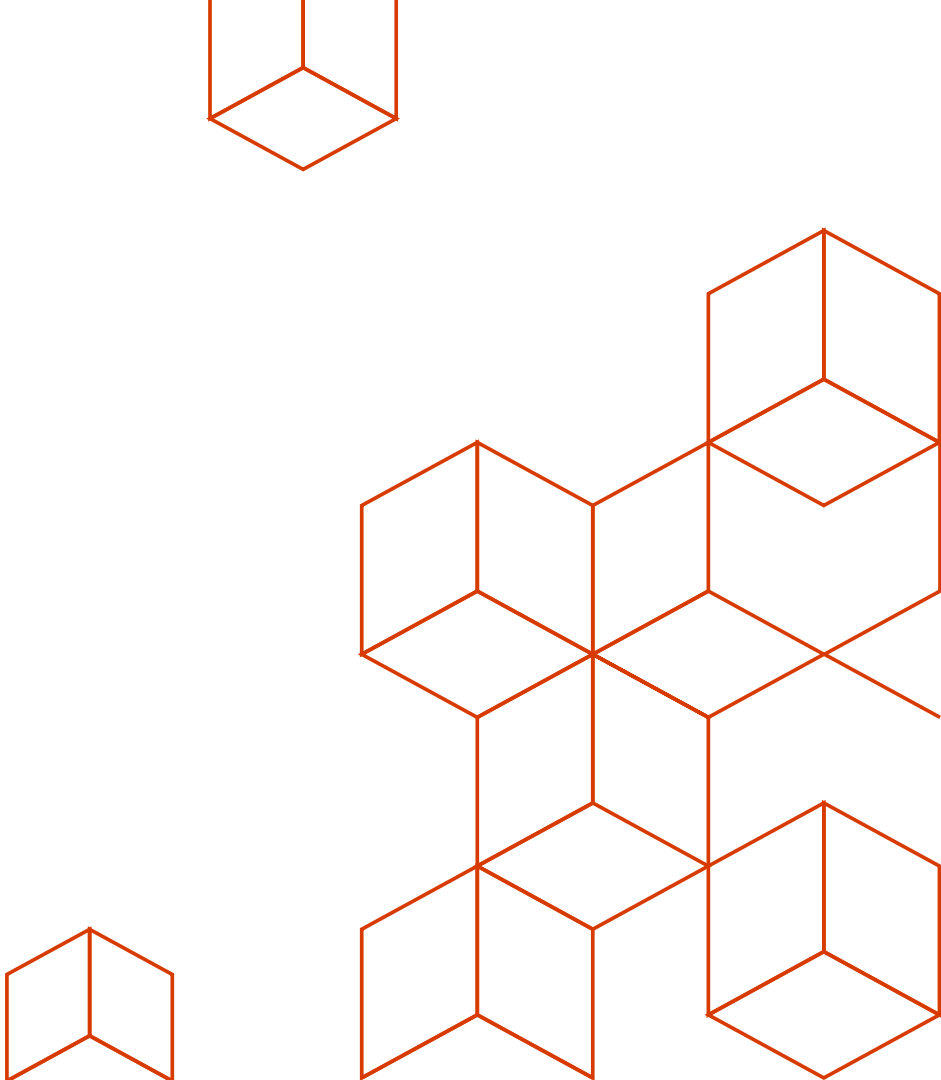
Azure

- Azure Machine Learning services
- Ubuntu VM
- Windows Server 2019 VM

Windows Devices

Other Devices
(iOS, etc)

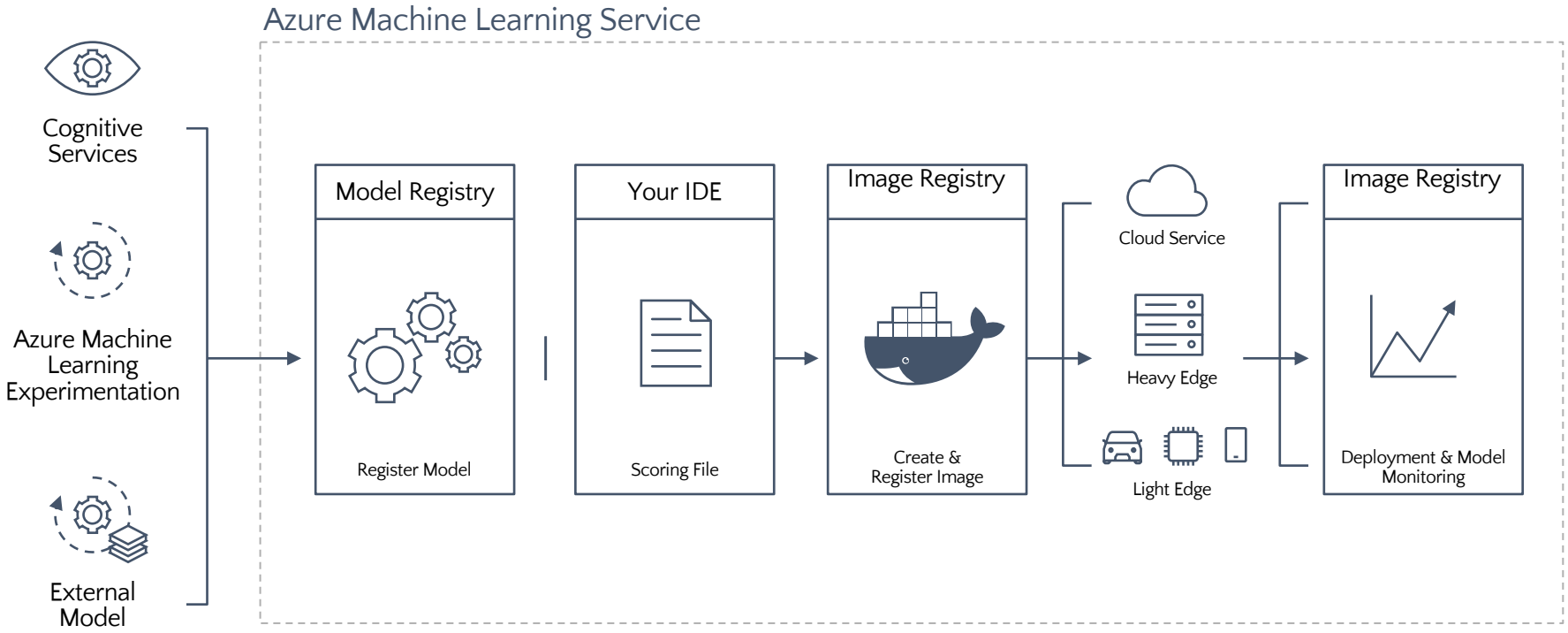
Deployment



Flexible Deployment

Deploy and manage models on intelligent cloud and edge

Deploy Azure ML models at scale



Deployments to Compute Targets

Compute target	Deployment type	Description
Azure Container Instances (ACI)	Web service	Fast deployment. Good for development or testing.
Azure Kubernetes Service (AKS)	Web service	Good for high-scale production deployments. Provides autoscaling, and fast response times.
Azure IoT Edge	IoT module	Deploy models on IoT devices. Inferencing happens on the device.
Field-programmable gate array (FPGA)	Web service	Ultra-low latency for real-time inferencing.

Tool Agnostic Python SDK

Tool Agnostic Python SDK

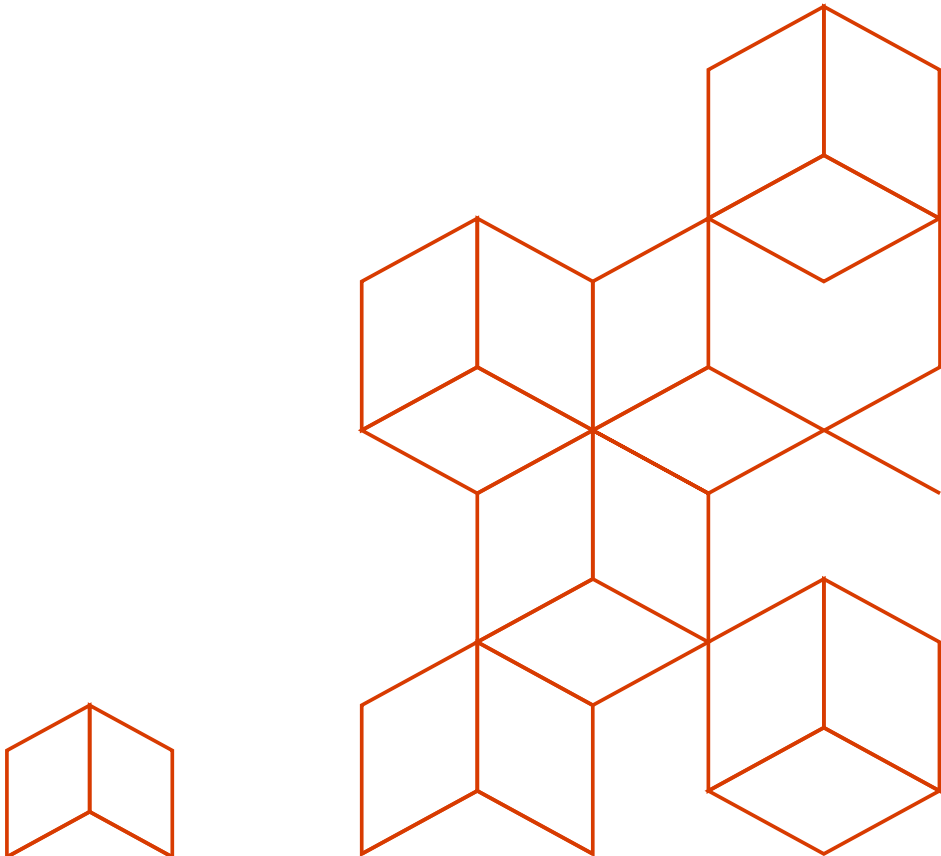
Use your favorite IDEs, editors, notebooks, and frameworks

Flexibility of your local environment or curated cloud environment

Integrate with other services like Azure Databricks

Get started quickly without any complex pre-requisites

Summary



Azure Machine Learning service

Bring AI to everyone with an end-to-end, scalable, trusted platform

Boost your data science productivity

Increase your rate of experimentation

Deploy and manage your models everywhere

Built with your needs in mind

- Automated machine learning
- Managed compute
- Simple deployment
- DevOps for machine learning
- Support for open source frameworks
- Tool agnostic Python SDK

Seamlessly integrated with the Azure Portfolio

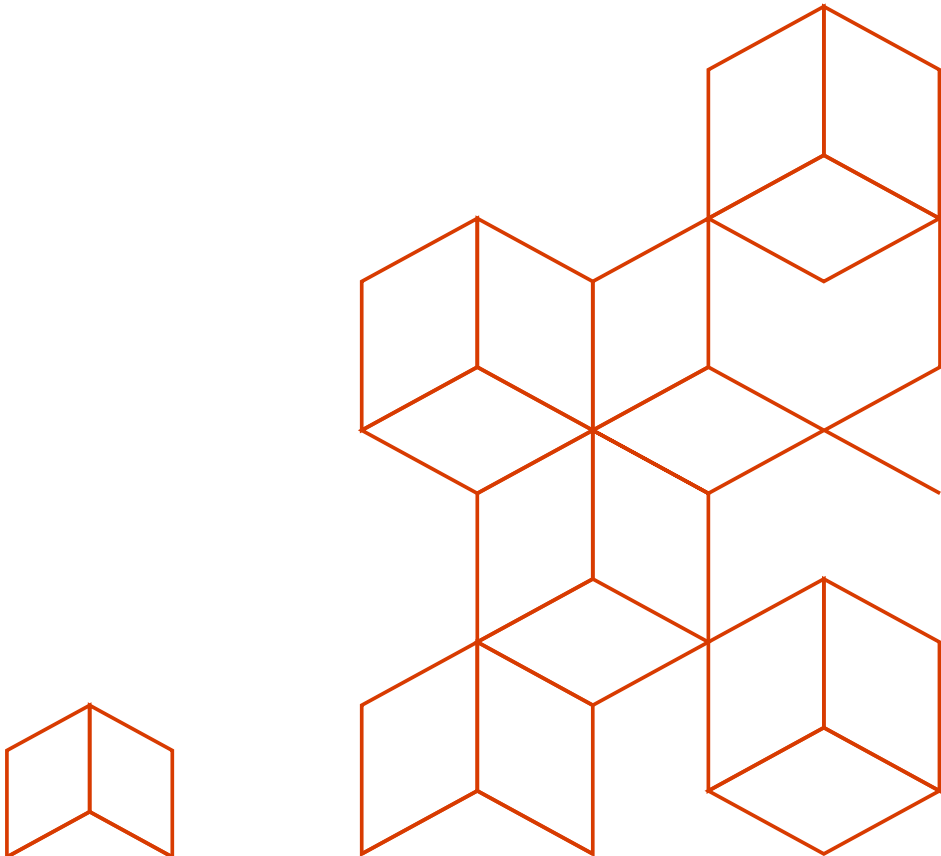
Resources beyond this AI Airlift

Azure Machine Learning with Azure Databricks
https://aka.ms/aml-notebook-databricks-e2e

Azure Notebooks
https://notebooks.azure.com/azureml/projects/azureml-getting-started

Azure ML Docs
https://docs.microsoft.com/en-us/azure/machine-learning/service/

Questions



Resources for this Airlift

Azure Subscriptions
https://aka.ms/learnAIsubscriptions

Azure Databricks Notebooks
https://aka.ms/learnAInotebooks.dbc

Git Repository for LearnAI CustomAI Partner Airlift
https://github.com/azure/learnai_azure_ml