



# AI within reach: Zero code solutions at enterprise scale with Azure Machine Learning designer

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Azure AI



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# Agenda

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Azure AI and machine learning

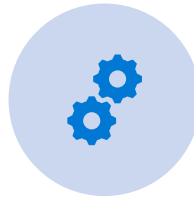
Azure Machine Learning designer for drag and drop ML

Demo – create training and inference pipelines

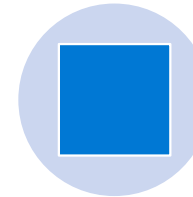
# At the end of this session, you should be better able to...



**Go from ideation to model deployment rapidly with no-code authoring**



**Create pipeline workflows easily using drag and drop capabilities**

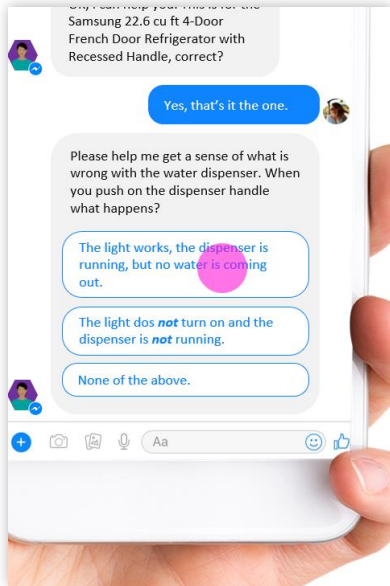


**See how Azure Machine Learning enables various skill levels**

# AI is gaining momentum across industry scenarios

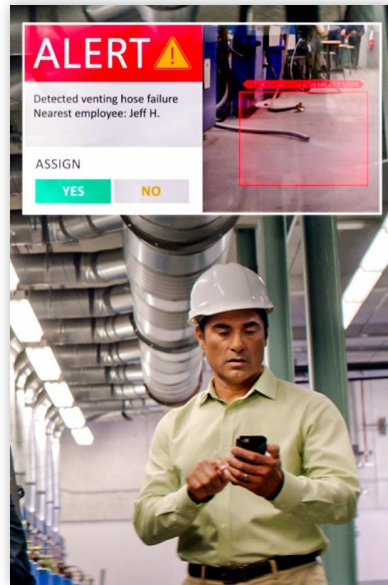
## New generation of business agents

B2B, B2C, B2E



## Person, object, and activity detection

Retail, manufacturing, security



## AI assisted professionals

Marketing, legal, financial



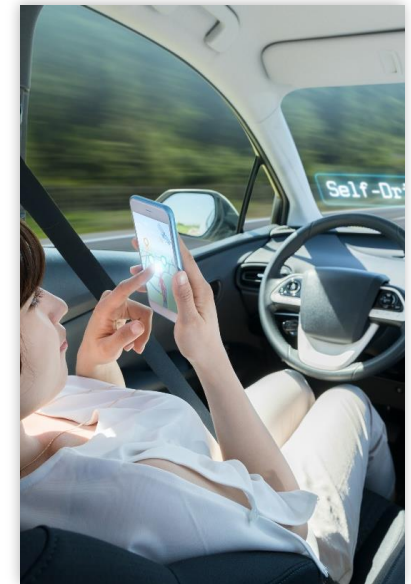
## Knowledge mining

Documents, video

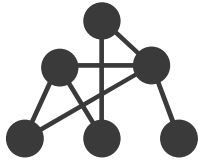


## Autonomous systems

Vehicles, networks, RPA



# Azure AI Momentum



**1 million**

ML experiments per month



**5 billion**

Transactions per month



**6 billion**

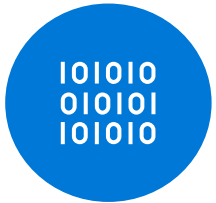
Documents processed per day

# Some challenges with AI adoption

## People



Not familiar with syntax



Talent gap

## Process



Setup development environment



Manage infrastructure and integrate with production

## Technology



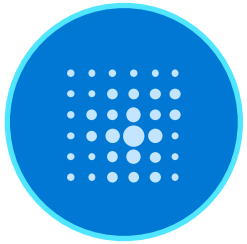
Security and scale



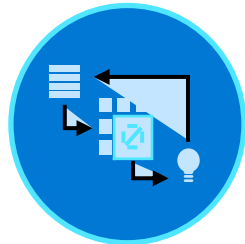
Lack of flexibility



# Azure Machine Learning



**For all skill levels**



**Industry leading MLOps**



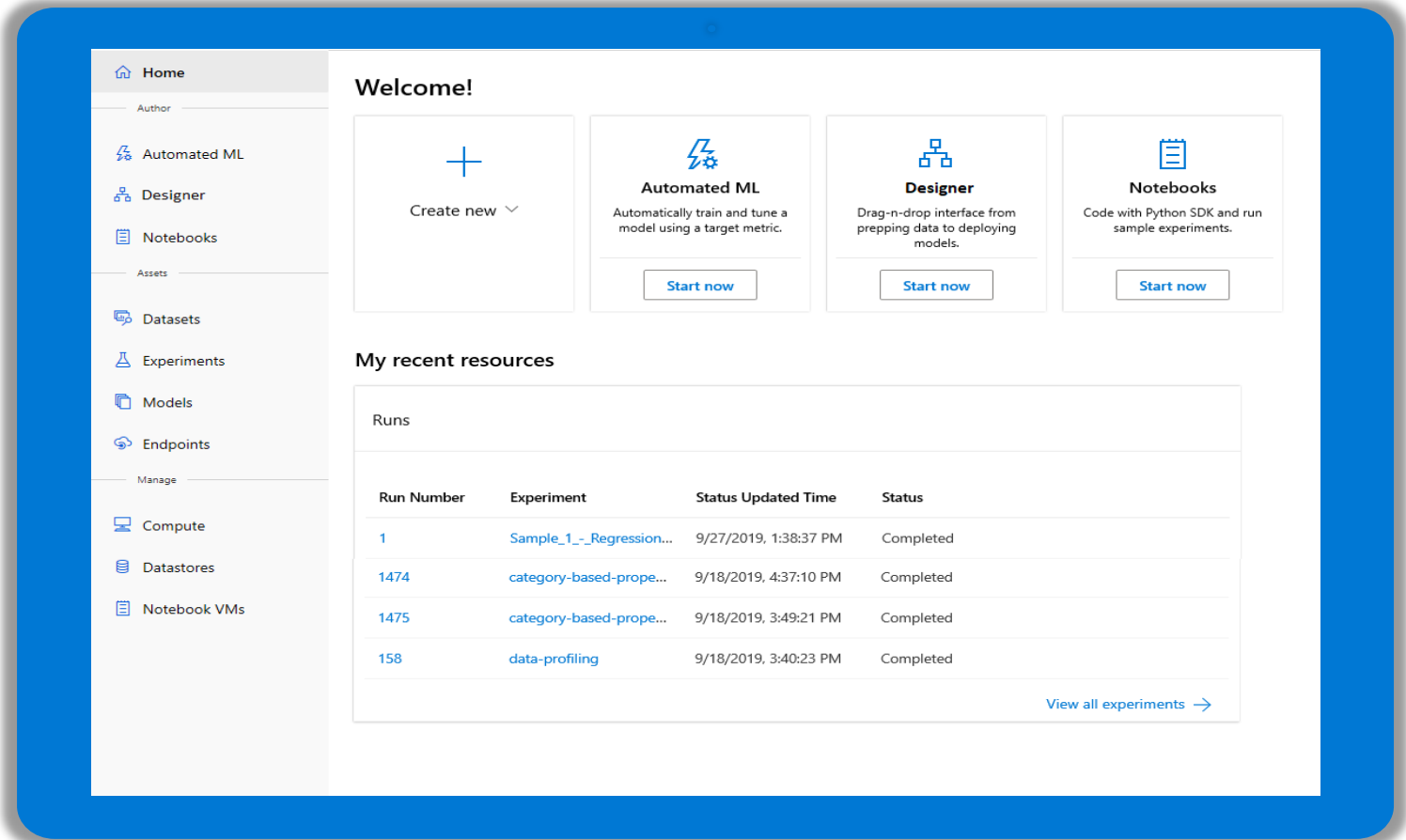
**Open & Interoperable**



**Security and governance**

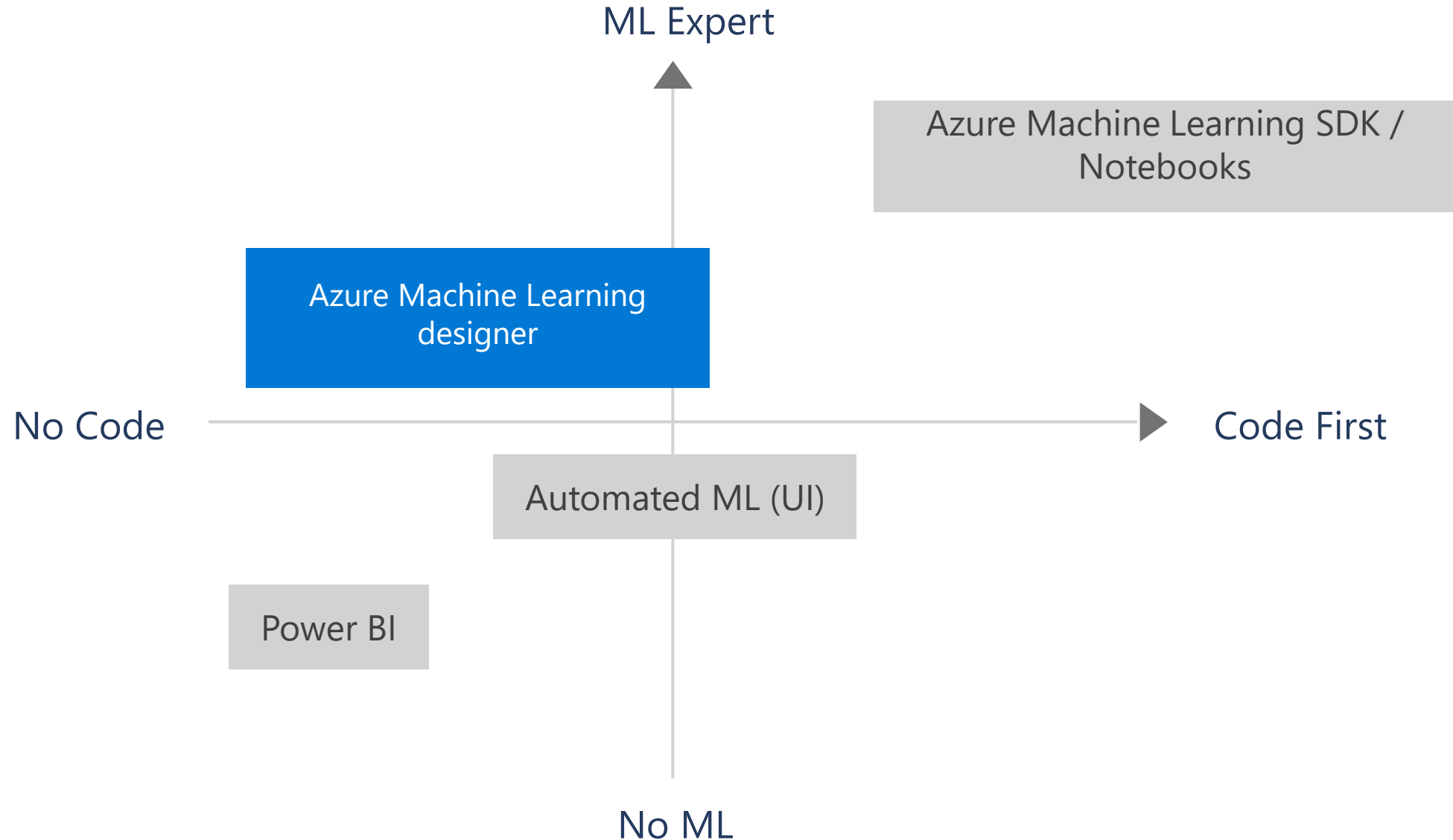
# Azure Machine Learning

For all skill levels  
studio web experience





# Build across skill levels with Azure Machine Learning

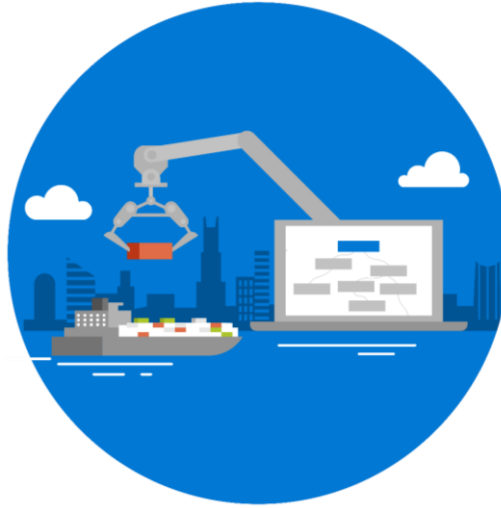


# Who uses designer in the enterprise ?



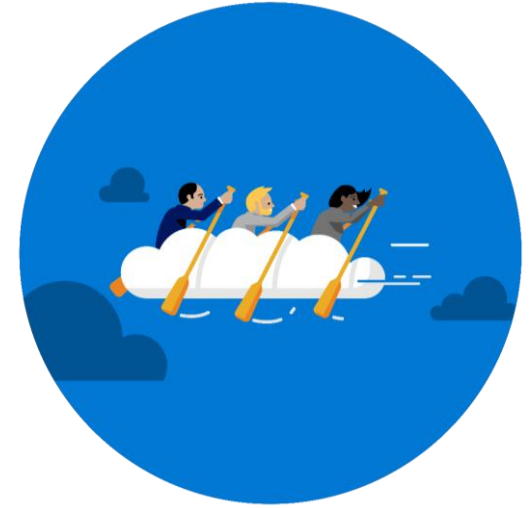
## New to Machine Learning

Learn machine learning



## Novice Data Scientists

Build models and prefer  
visual tools vs coding



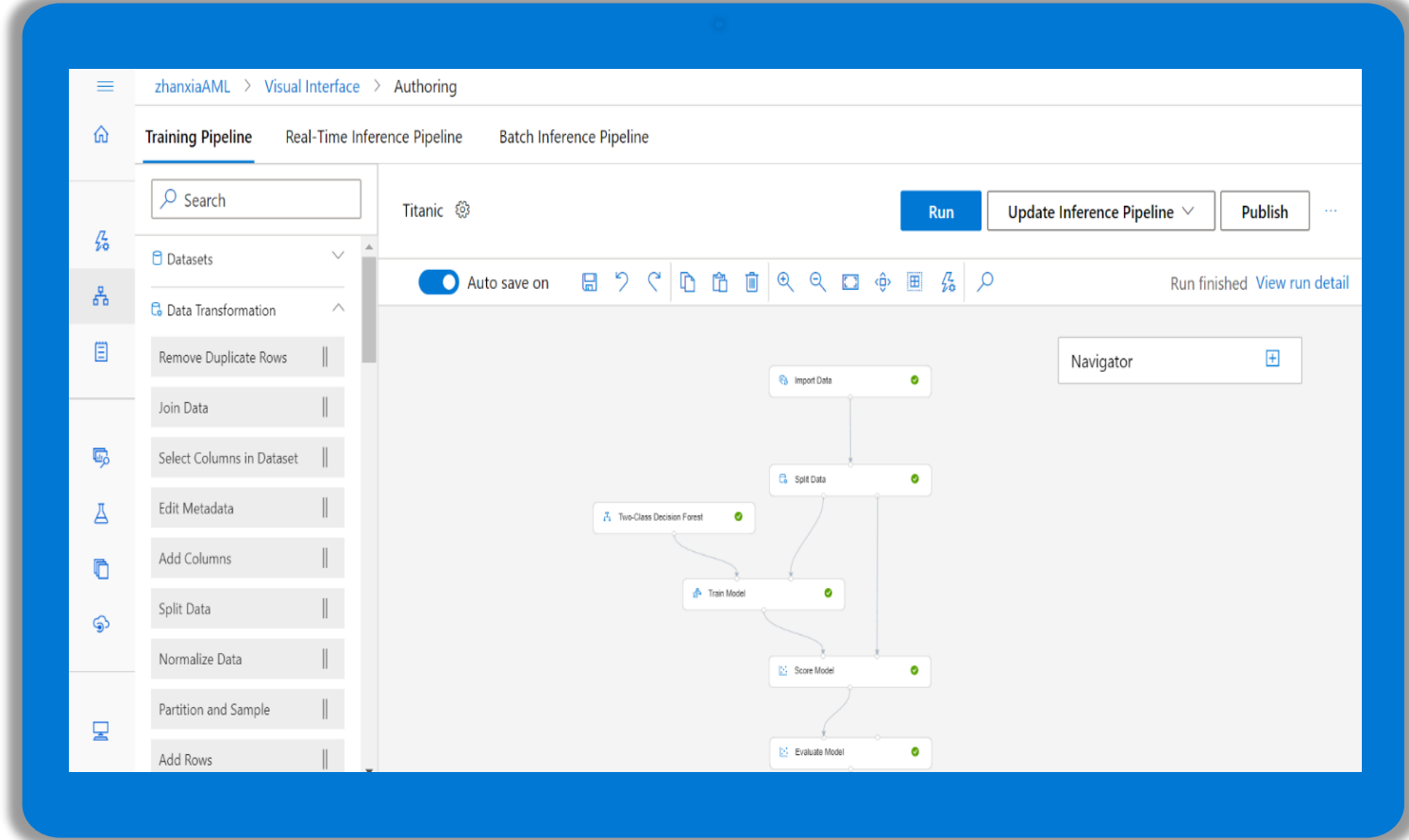
## ML Experts

Quickly prototype



# Azure Machine Learning designer

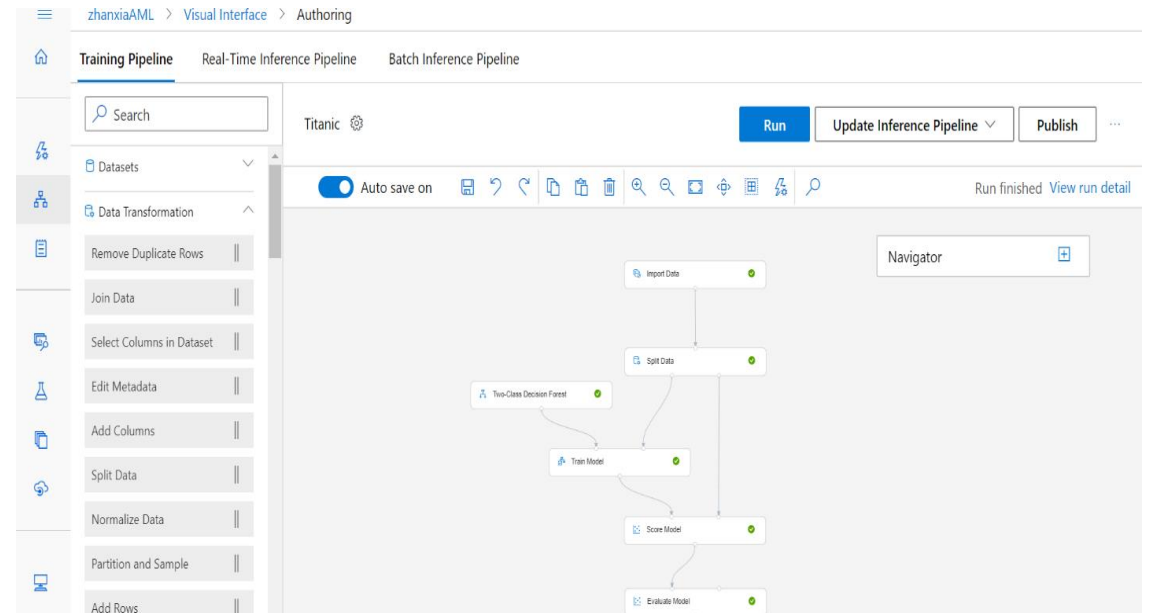
- Simplify the process of building, testing, and operating machine learning models
- Built-in modules and samples to get started and create custom models
- Support for R and Python
- Share easily across workspaces



# designer or ML Studio (classic) ?

## What's new

- New Pipelines for training, real-time inferencing and batch inferencing
- New MLOps integration
- New auto scale, no 10 GB data limits and high performance of Azure Machine Learning
- Popular built-in modules of Studio (classic)
- Same one click publish, R support, notebooks, collaboration, datasets, data sources



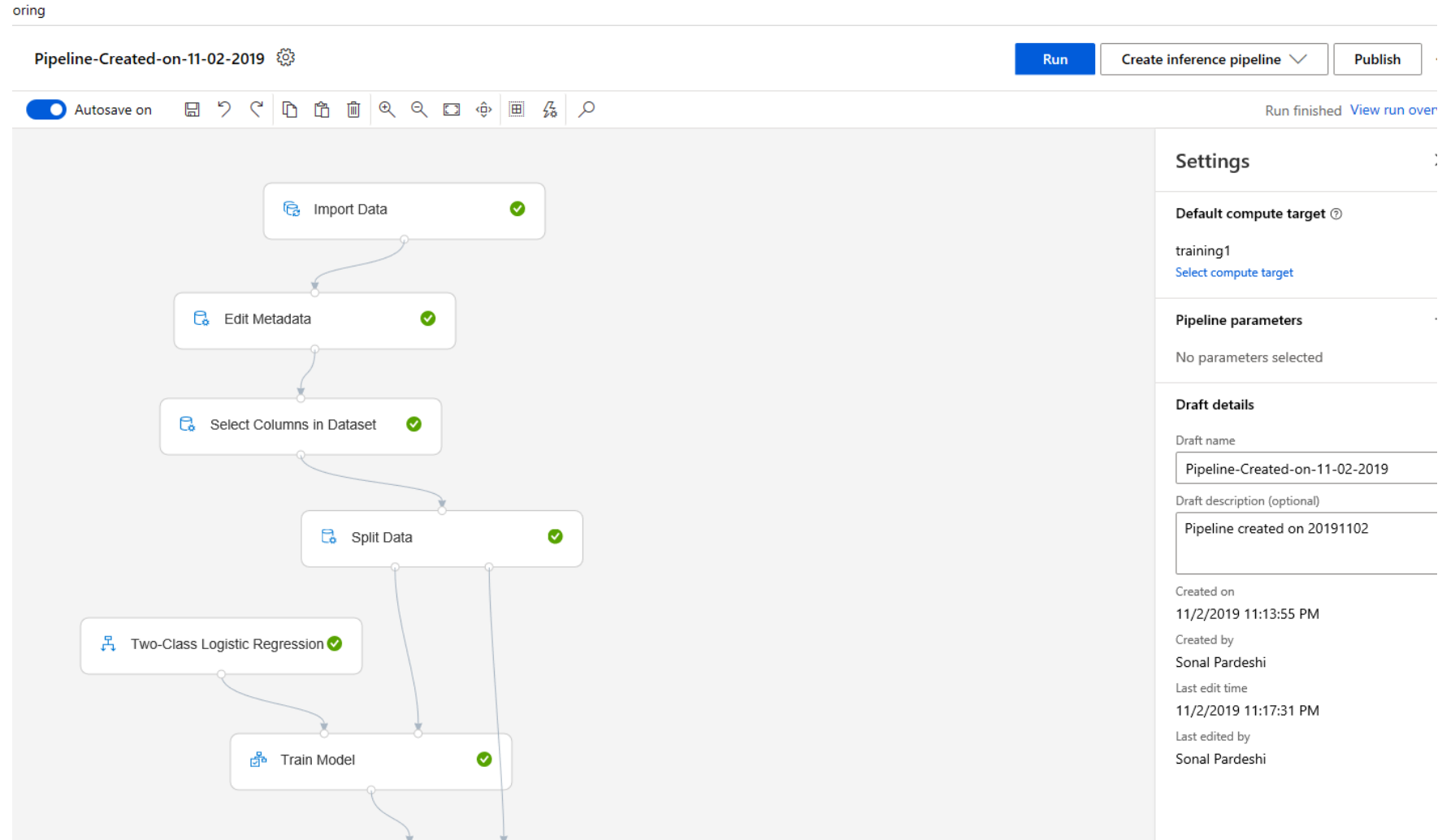
# Designer UI

Drag-n-drop

Built-in modules

Data visualization

Model evaluation



# Custom Code

Run Python and R code

Create Model

Pipeline-Created-on-11-02-2019

Autosave on

Run Publish

Draft autosaved on 11/4/2019, 10:39:49 AM

Create Python Model

Python script \*

```
1
2 # The script MUST define a class named AzureMLModel.
3 # This class MUST at least define the following three methods: "__init__", "train" and "predict".
4 # The signatures (method and argument names) of all these methods MUST be exactly the same as the following example
5
6
7 import pandas as pd
8 from sklearn.linear_model import LogisticRegression
9
10
11 class AzureMLModel:
12     # The __init__ method is only invoked in module "Create Python Model",
13     # and will not be invoked again in the following modules "Train Model" and "Score Model".
14     # The attributes defined in the __init__ method are preserved and usable in the train and predict method.
15     def __init__(self):
16         # self.model must be assigned
17         self.model = LogisticRegression()
18         self.feature_column_names = list()
19
20     # Train model
21     # Param<df_train>: a pandas.DataFrame
22     # Param<df_label>: a pandas.Series
```

Save Cancel

Create Python Model

Compute target

Use default compute target

# Easy Deployment

A few clicks

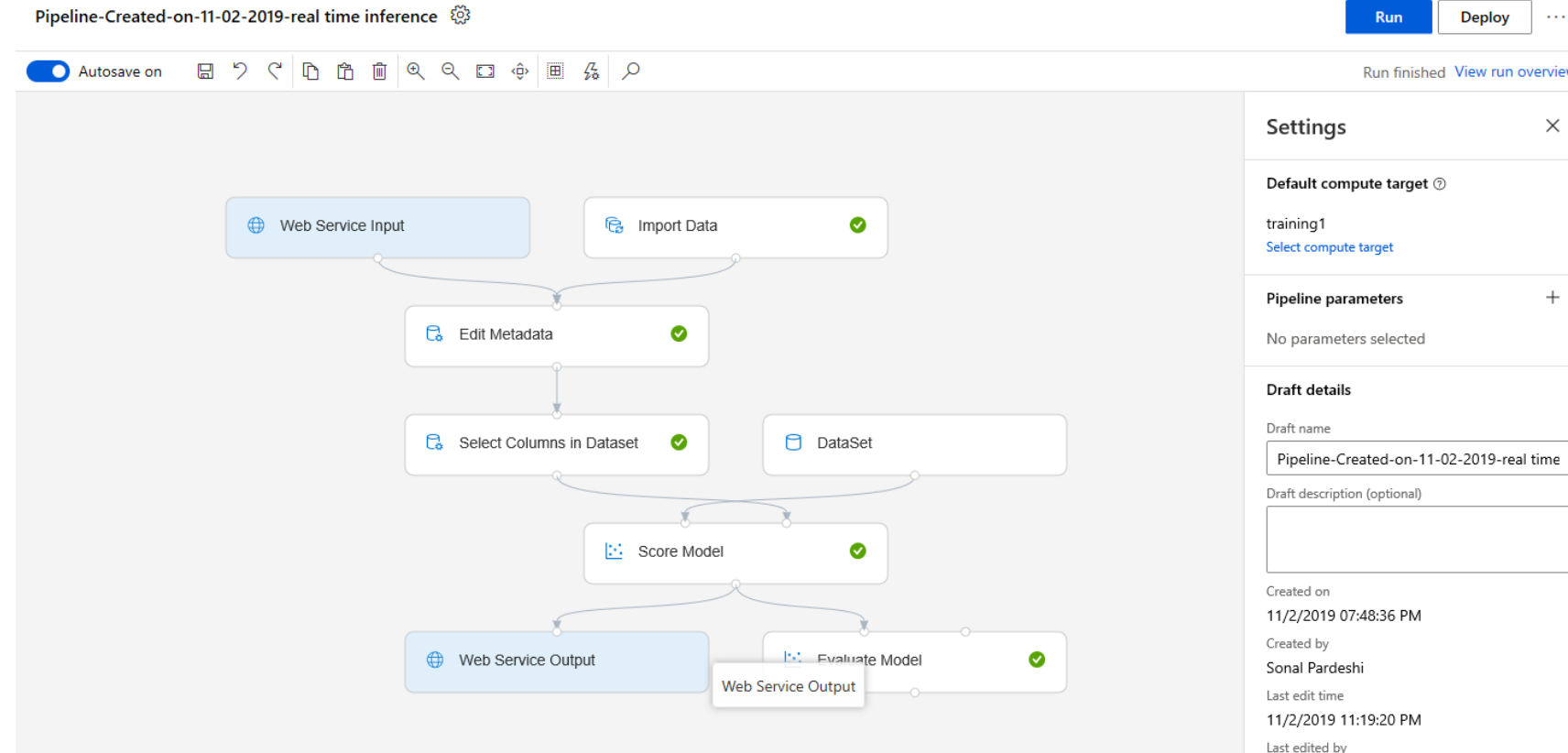
Automatically generate  
scoring file

Batch scoring

Model registration

Build image

AKS for scale



designer demo





# Fully Integrated with Azure Machine Learning

## Compute

Experiments

Pipelines

Compute

Models

Images

Deployments

Compute

+ Add Compute

Refresh

Delete

Detach

<input type="checkbox"/>	NAME	TYPE	PROVISIONING STATE
<input type="checkbox"/>	DefaultAKS	Kubernetes Service	Successful
<input type="checkbox"/>	Secure-AKS	Kubernetes Service	Failed
<input type="checkbox"/>	mem140GB	Machine Learning Compute	Successful
<input type="checkbox"/>	Basic	Machine Learning Compute	Successful
<input type="checkbox"/>	default-compute	Machine Learning Compute	Successful
<input type="checkbox"/>	test-compute	Machine Learning Compute	Successful

## Experiments

Experiments

Pipelines

Compute

Models

Images

Deployments

Experiments

Refresh

NAME
Quora_Test_-_clwan1_Predictive_Exp_
Automobile_price_prediction_Predict
Automobile_price_prediction
Experiment_created_on_4_24_2019
Quora_Test_-_clwan1
Quora_Test_Predictive_Exp____clwan
Sample_3_-_Classification_Credit_Ri
Quora_Test_-_Copy_Predictive_Exp__
Experiment_created_on_4_18_2019
Quora_Test_-_Copy
Quora_Test_Predictive_Exp__
Quora_Test
Tutorial_-_Predict_Automobile_Price_
Tutorial_-_Predict_Automobile_Price
Taxi_Weather_Join_Test
Experiment_created_on_4_16_2019


## Pipelines


Pipelines	
Pipeline runs Pipeline drafts	
Refresh	
Run ID	Description
05d296a0-0ebc-4d27-8e2d-481...	Customer churn 1023
bec3520d-bac3-4571-9f42-efc2...	Customer churn 1023
cec46ce-bb63-4404-8e45-9f68...	Customer churn 1023
5b3aefac-5cab-459c-97f7-4376...	--
bf112b8f-0e04-4a12-af5d-1409...	--
ecd835e9-3df2-44d8-8684-93a...	--
0154e543-65f2-46d3-b249-825...	--
7f4a2002-8de1-4c95-afc2-257b...	--
42919eb2-58f8-4276-bfda-ef6d...	--
bb40ec71-7c2b-410c-ad9a-058...	--


## Models


Experiments Pipelines Compute Models Images Deployments

Models

 Refresh

 Create Image

 Add Model




 Delete

<input type="checkbox"/>	NAME	VERSION	DESC
<input type="checkbox"/>	amlstudio-sample-1---regress...	3	Samp
<input type="checkbox"/>	amlstudio-quora-test---clwan1	1	Quor
<input type="checkbox"/>	amlstudio-sample-2---regres...	2	Samp
<input type="checkbox"/>	amlstudio-automobile-price-...	1	Aut
<input type="checkbox"/>	amlstudio-eduardo---predicti...	1	eduar
<input type="checkbox"/>	amlstudio-quora-test---predicti	1	Quor
<input type="checkbox"/>	amlstudio-tutorial---predict-a	2	Tutor
<input type="checkbox"/>	amlstudio-tutorial---predict-a	1	Tutor
<input type="checkbox"/>	amlstudio-predictive-mainte...	1	predi
<input type="checkbox"/>	AutoML4646c1e90best	1	Auto

## Web Services

Experiments   Pipelines   Compute   Models   Images

Deployments

 Refresh    Edit    Delete

<input type="checkbox"/>	NAME	LAST UPDATED
<input type="checkbox"/>	amlstudio-7d3998f76b27448ea...	04/28/2019, 6:41:25 AM UTC
<input type="checkbox"/>	amlstudio-0b43d7388e4c461e...	04/26/2019, 3:07:20 AM UTC
<input type="checkbox"/>	amlstudio-88349c67064d474e...	04/25/2019, 9:52:44 AM UTC
<input type="checkbox"/>	amlstudio-b8fe35b8a9a5467eb...	04/25/2019, 4:20:42 AM UTC
<input type="checkbox"/>	amlstudio-26696e005d1e420e...	04/18/2019, 10:03:22 PM UTC
<input type="checkbox"/>	amlstudio-77eb563356ac4cd9...	04/18/2019, 11:58:12 AM UTC
<input type="checkbox"/>	amlstudio-d63f4bf44ea94b698...	04/18/2019, 6:04:58 AM UTC
<input type="checkbox"/>	amlstudio-caf3ecf6056b48eaa...	04/18/2019, 3:18:51 AM UTC
<input type="checkbox"/>	amlstudio-eea1c27db7a649329...	04/15/2019, 2:03:49 AM UTC
<input type="checkbox"/>	amlstudio-3ab57ae936f548dd...	04/03/2019, 4:48:03 AM UTC

# Best of Azure Machine Learning

- Bring your own compute, specify compute targets per node
- Auto-scale with data growth or model complexity
- Integrated with datasets, blob and more
- Run history & versioning
- Debug Logs
- Endpoints

Batch inference pipeline

Pipeline-Created-on-11-02-2019-real time inference

Autosave on

### Set up compute target

☐ Select existing ☒ Create new

Compute target configuration

We recommend using below predefined configuration to quickly set up your compute target.

Configuration	vCPU	RAM	Storage	Node count
Predefined	2	4GB	8GB	2

Not suitable for your experiment? Go to [Azure Portal](#) to create your customized compute target.

New compute target name ⓘ

Save Cancel

# Learn More



## Start Free

Build, train, and deploy models  
with an Azure free account

<https://azure.microsoft.com/free>



## Documentation

Dig into our technical  
documentation

<https://aka.ms/AzureMLDocs>



## Give feedback

Tell us what you think, ask for a  
feature

[https://aka.ms/AzureML\\_feedback](https://aka.ms/AzureML_feedback)

