AI 101 - Options for using AI in the Power Platform

by Julian Sharp

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Julian Sharp

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Business Applications MVP

Speaker

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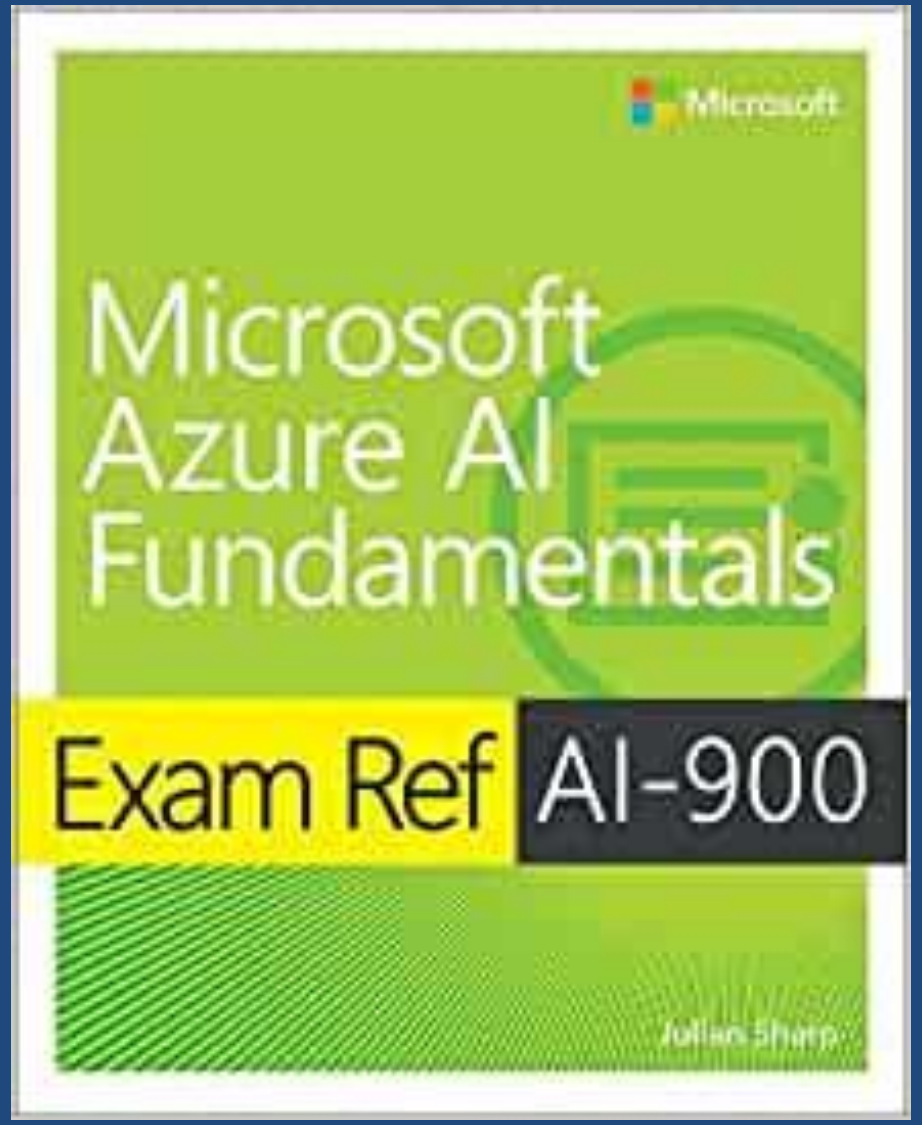
My latest book



Session Agenda

What is AI

AI Builder

Using AI Builder in apps and flows

Azure Cognitive Services

Azure Machine Learning

Demos

Questions

What is AI

What is AI?

"Artificial Intelligence is computers doing things that we would normally think of as intelligent in humans."

Rick Barazza, Microsoft

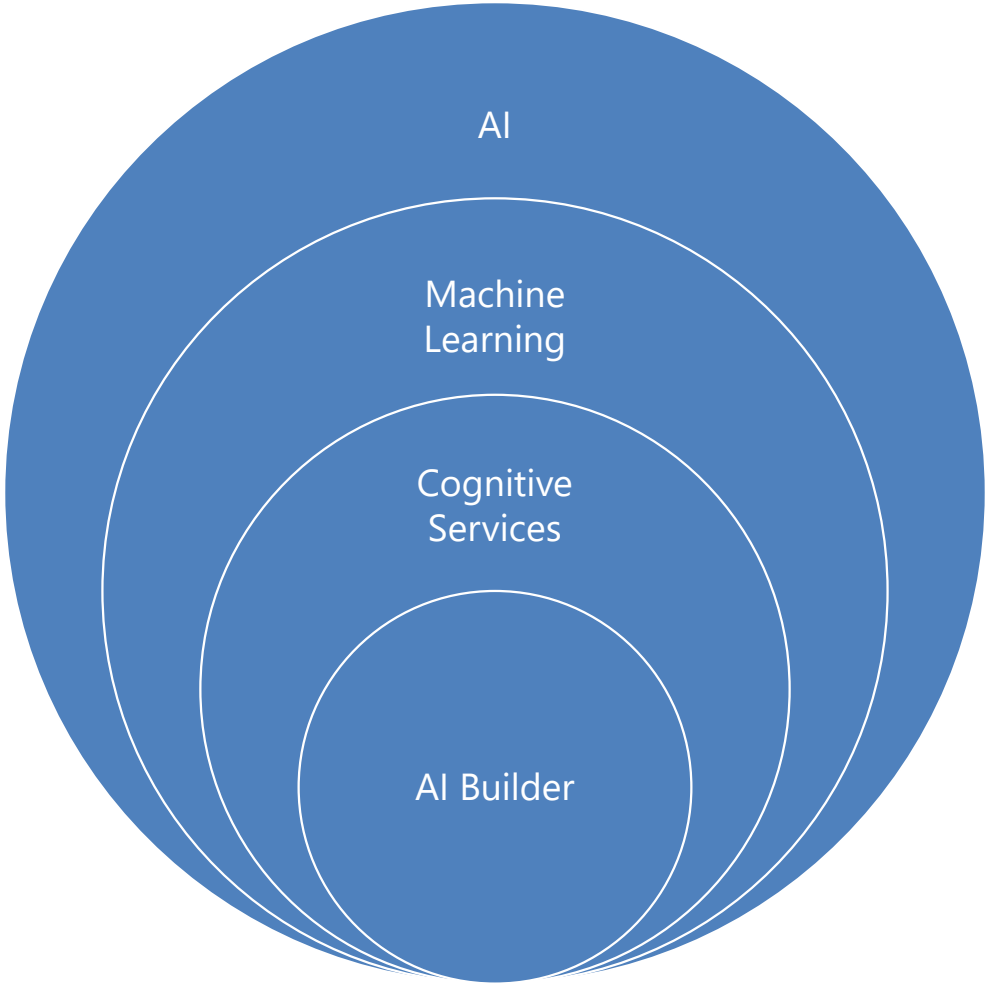
Machine Learning

- Foundation of modern AI
- Build and train AI models
- Creating predictive models by finding relationships in data
- Requires lots of data

Options for AI with Power Platform

- Azure Machine Learning
- Azure Cognitive Services
- AI Builder
- Lobe.ai
- Azure Bot Service
- Power Virtual Agents

Comparing AI options



AI Builder

VISION

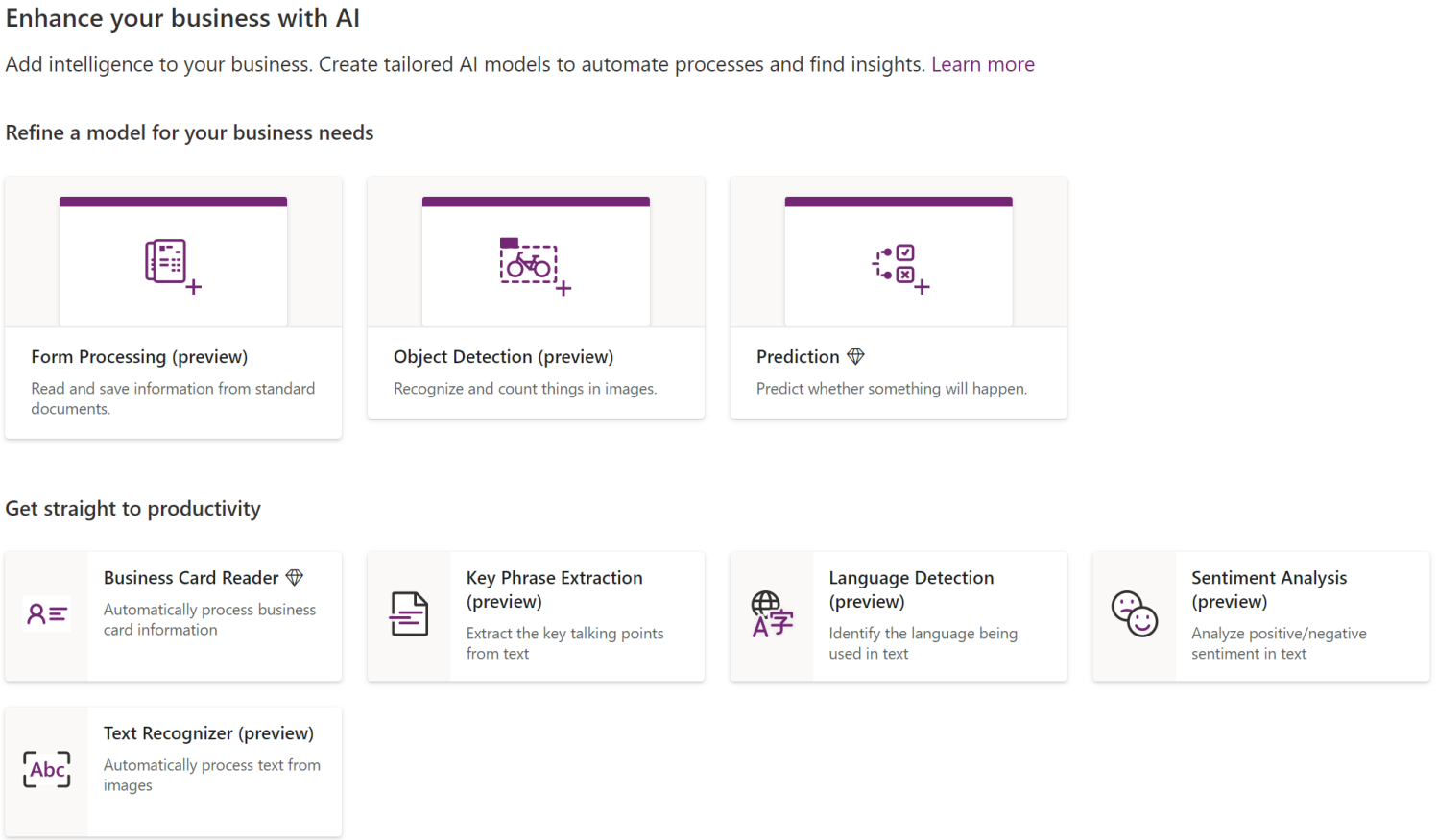
LANGUAGE

PREDICTION
(REGRESSION)

AI for Dataverse

AI Builder

- Model Types
- Prebuilt Models



AI Builder Pre-Built Models

Business card reader

Text recognition

Category classification

Key phrase extraction

Language detection

Sentiment analysis

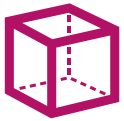
Receipt processing

Text translation

AI Builder Model Types

Prediction

Form processing

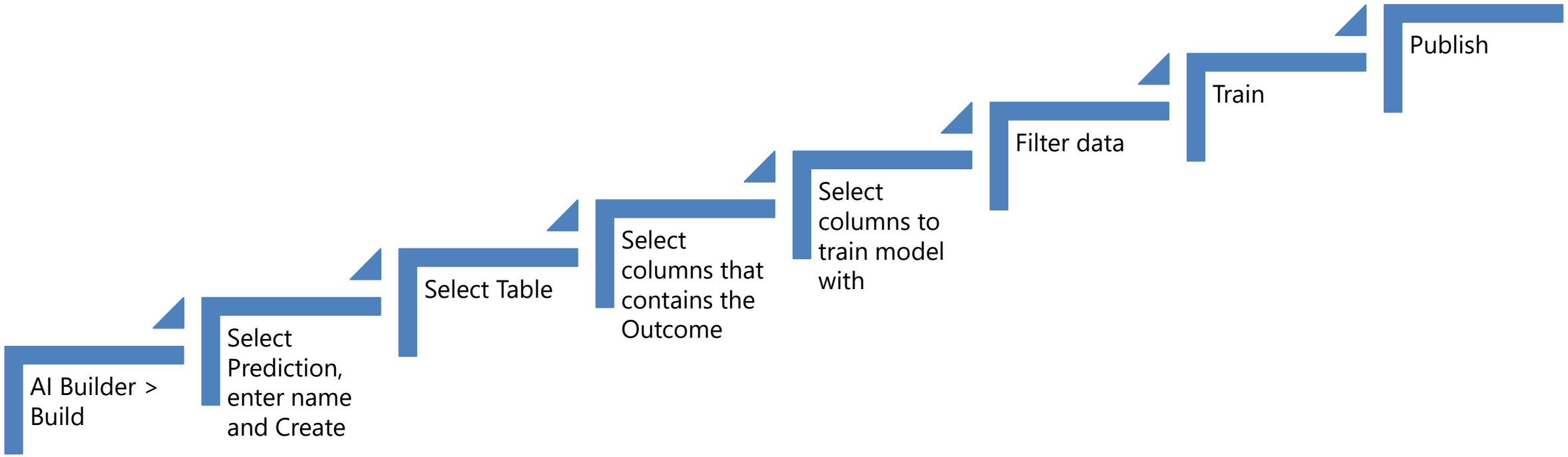


Object detection

Category classification

Entity extraction

AI Builder Process

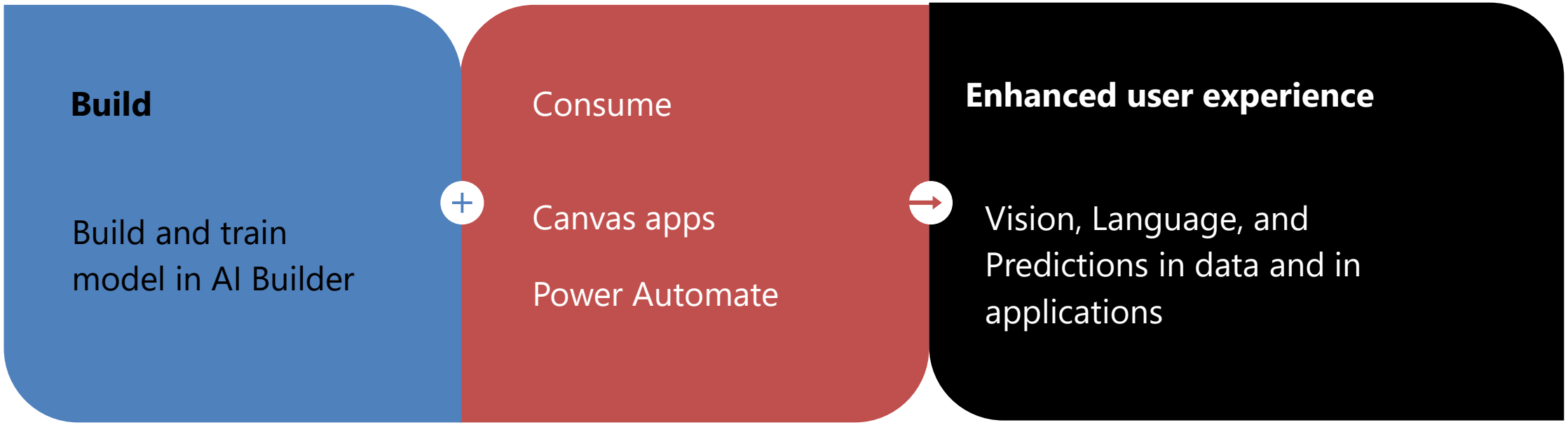


Consumption of AI Builder

Power Apps can use AI Builder

Power Automate can use AI Builder

Consumption of AI Builder



Demo

AI Builder in a canvas app

https://docs.microsoft.com/ai-builder/formula-bar

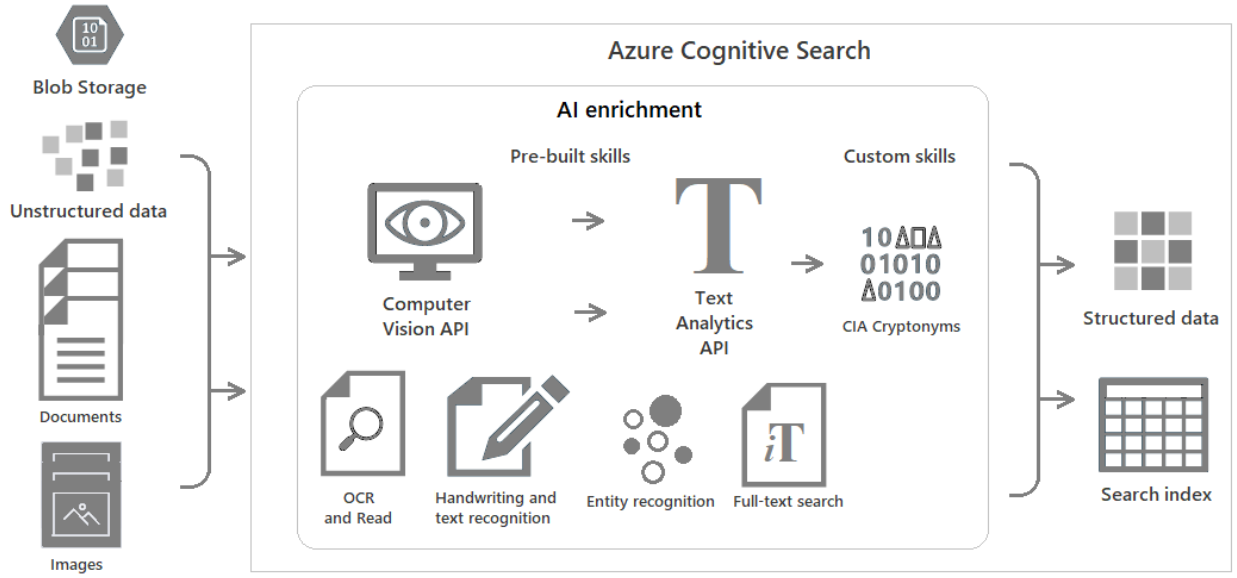
Azure Cognitive Services

Azure Cognitive Services

- Pre-Built Artificial intelligence
- Common AI requirements
- Models trained with data by Microsoft
- Add AI more quickly to apps with less expertise
- REST APIs

Azure Cognitive Services

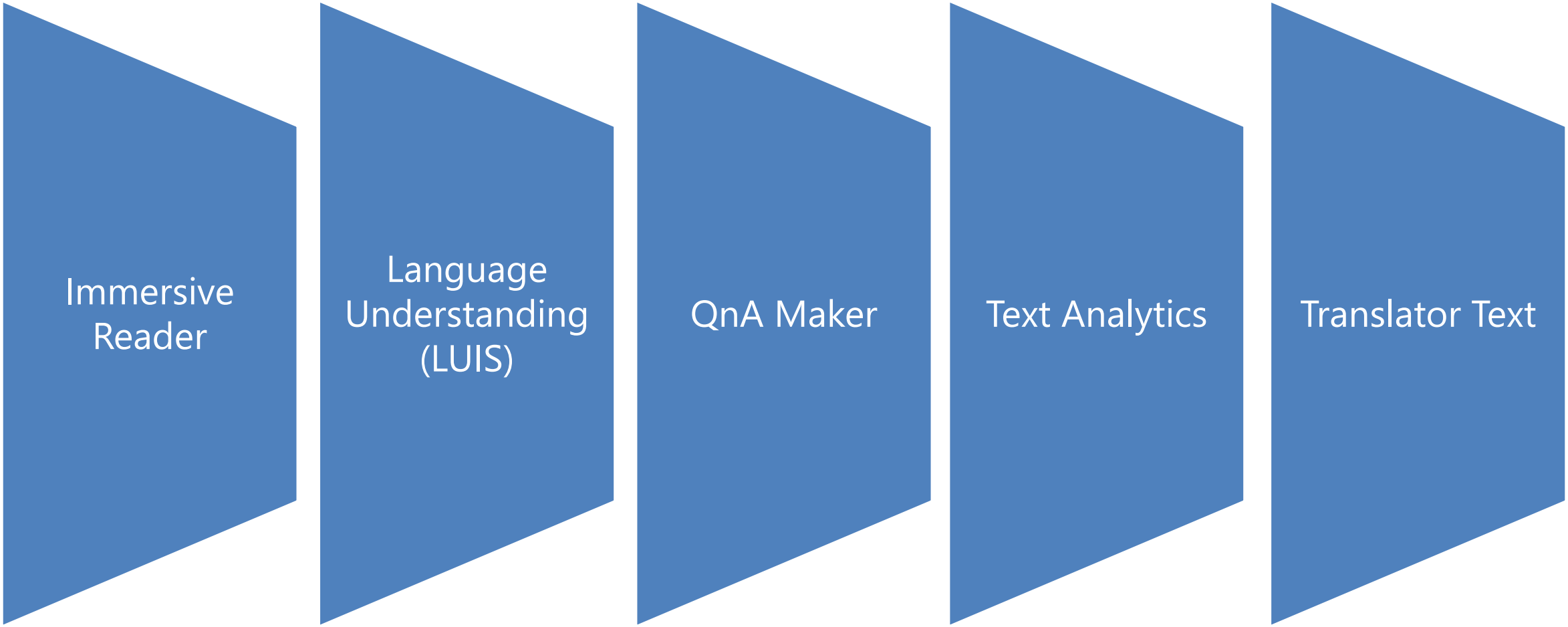
- Text analysis
- Computer vision
- Video
- Speech
- Natural language understanding
- Intelligent search



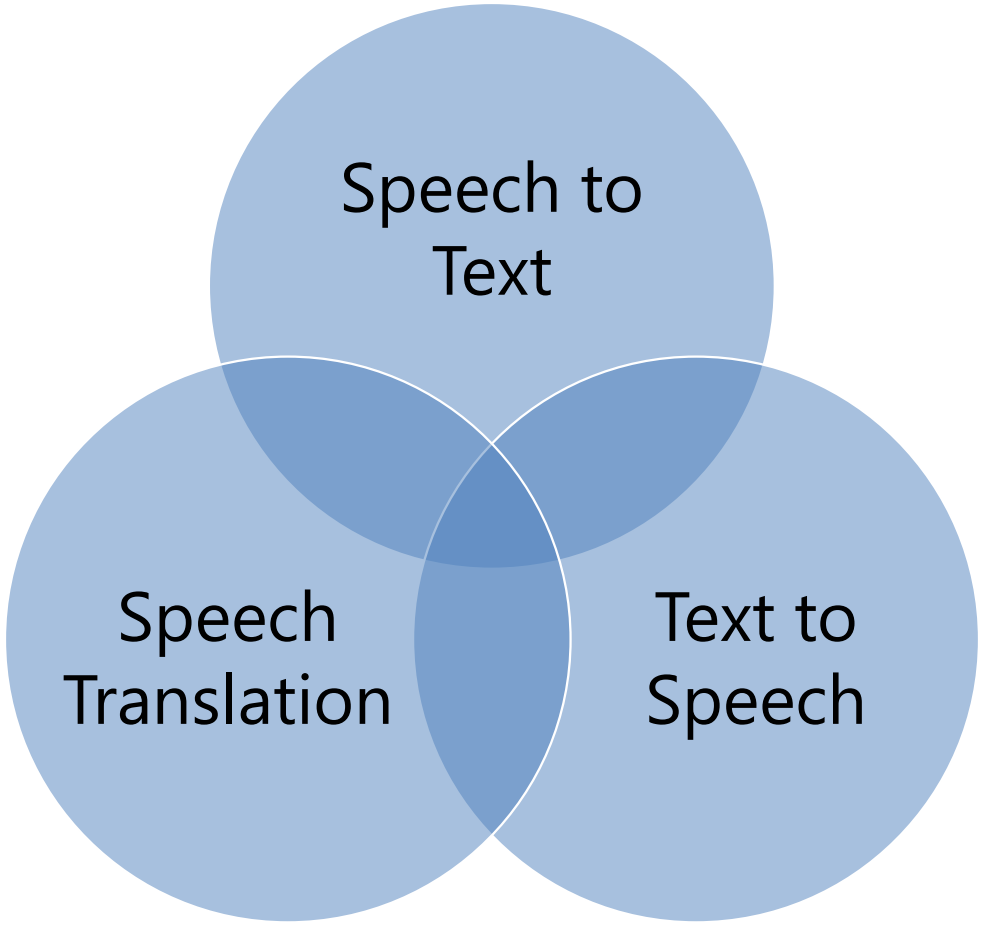
Decision

- Anomaly Detection
- Content Moderator
  - Image
  - Text
  - Video
  - Review tool
- Personalizer

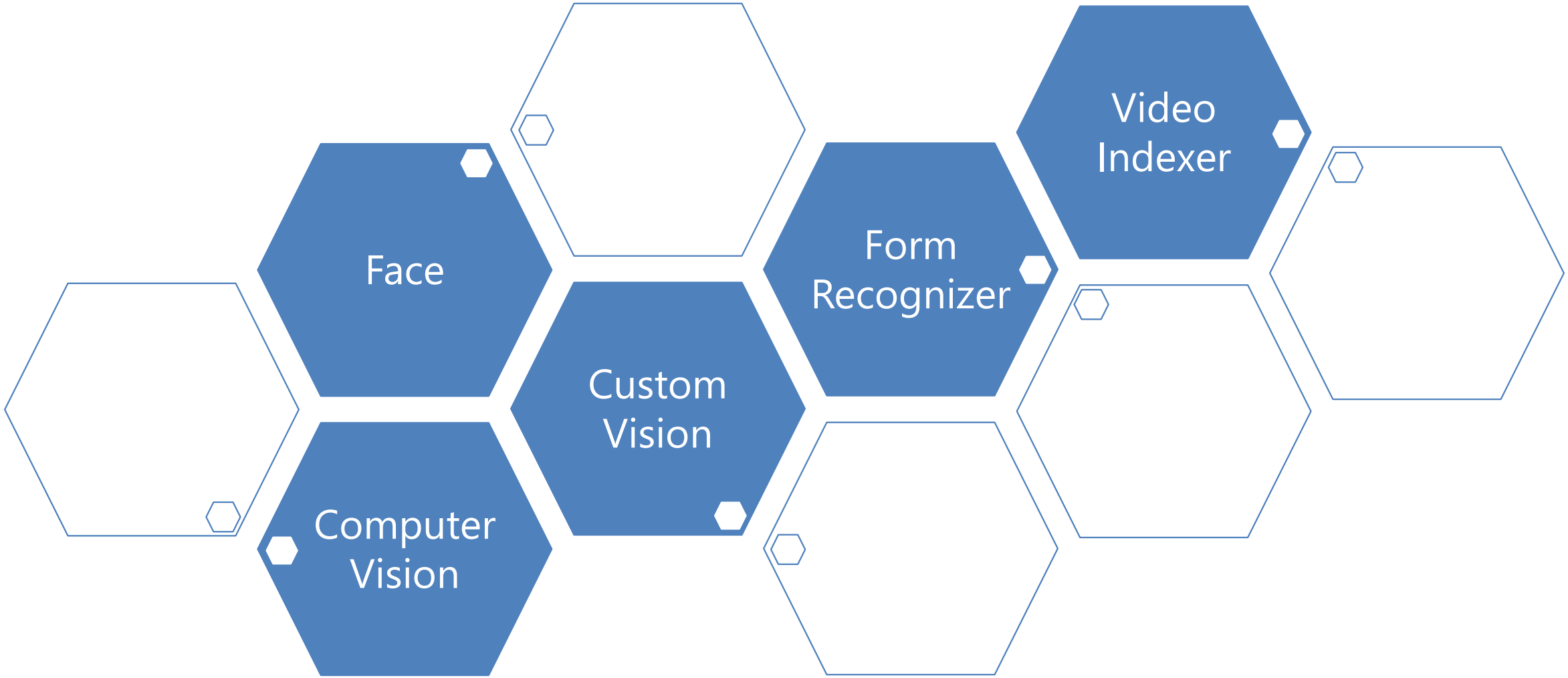
Language


Immersive Reader
Language Understanding (LUIS)
QnA Maker
Text Analytics
Translator Text

Speech

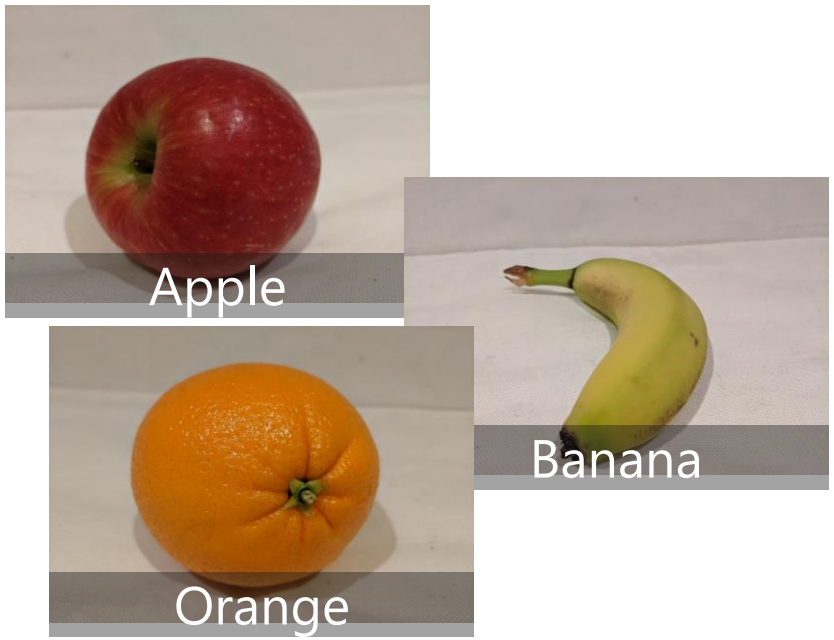


Vision

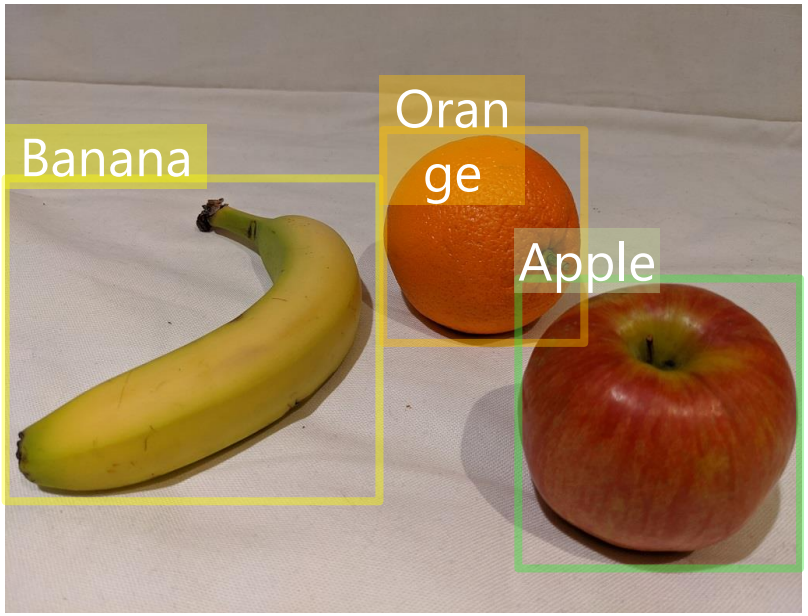

Face
Video Indexer
Form Recognizer
Custom Vision
Computer Vision

Custom Vision

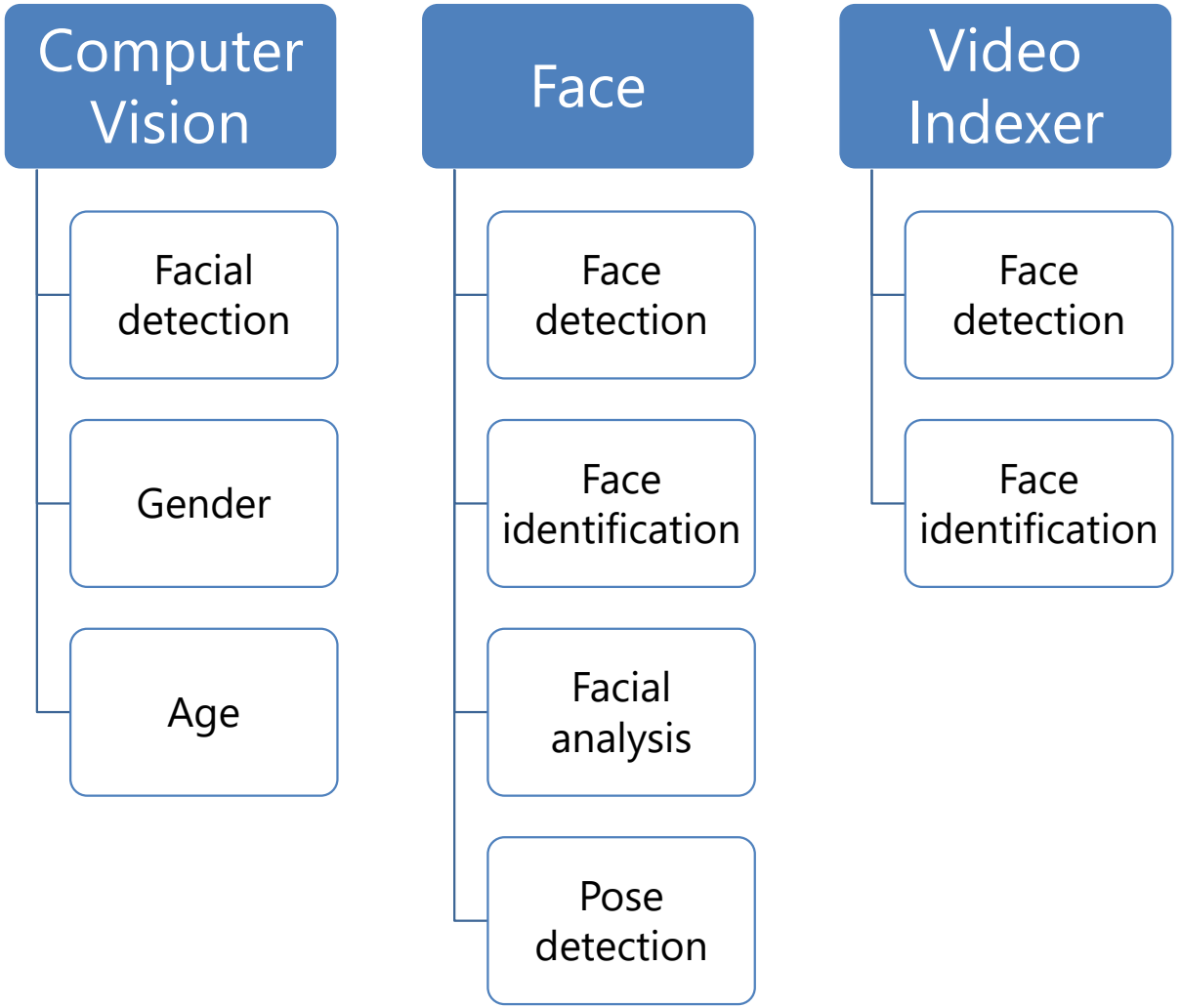
Image Classification



Object Detection



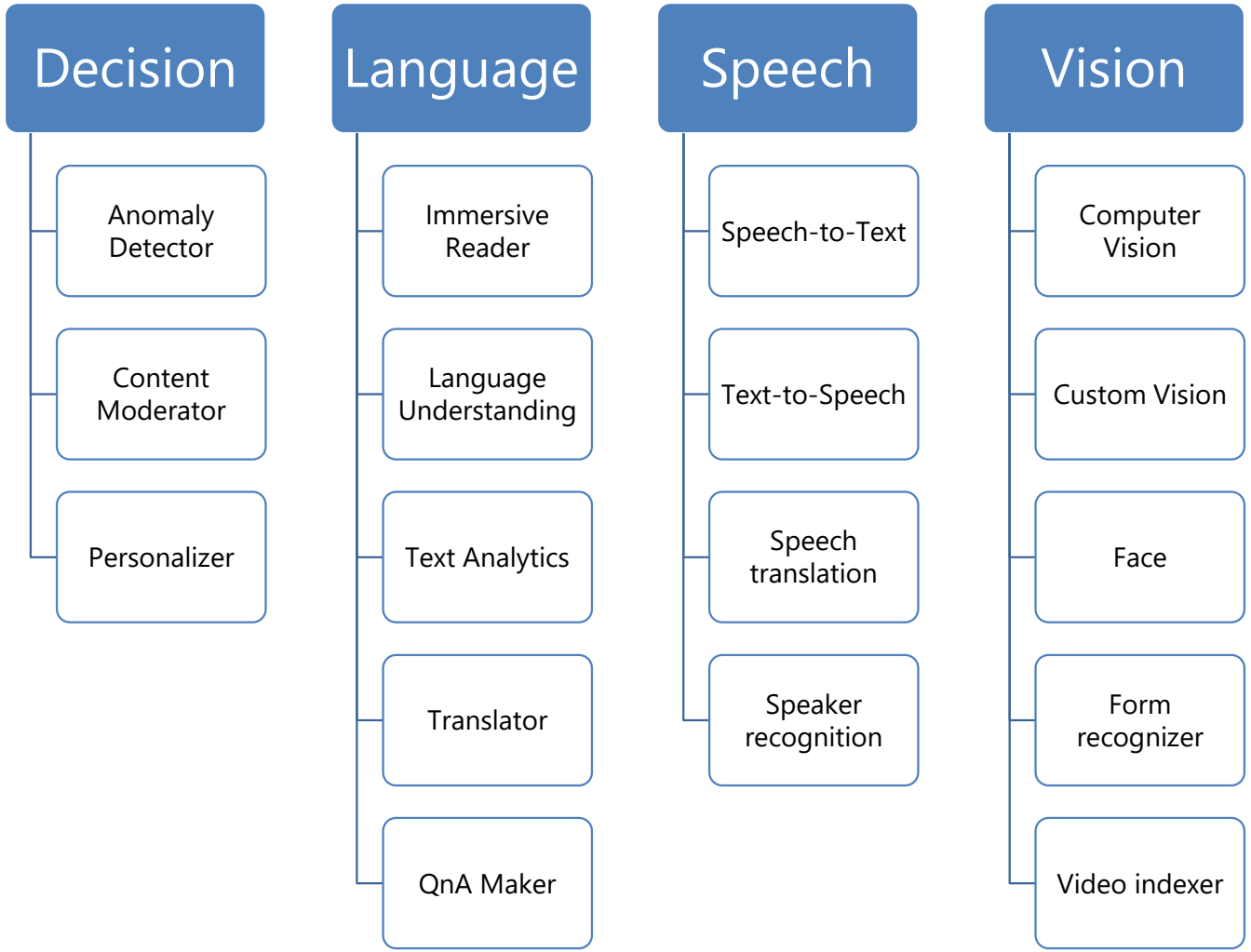
Computer Vision vs Face vs Video Indexer



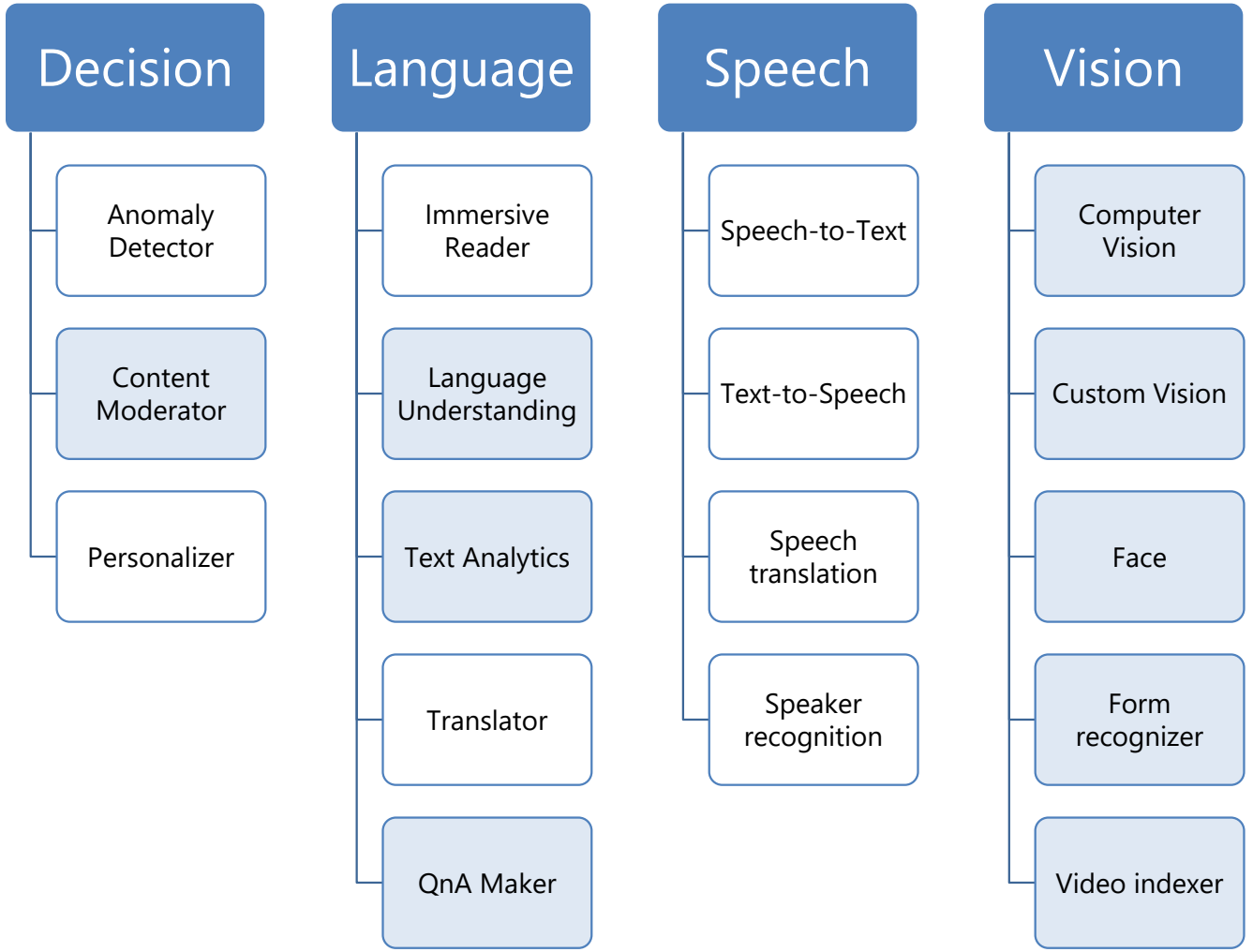
Form Recognizer

- Extract information from scanned forms in image or PDF format
  - Train a custom model using your own forms
  - Use the pre-trained receipt model
- Models perform semantic recognition of form fields – not just text extraction

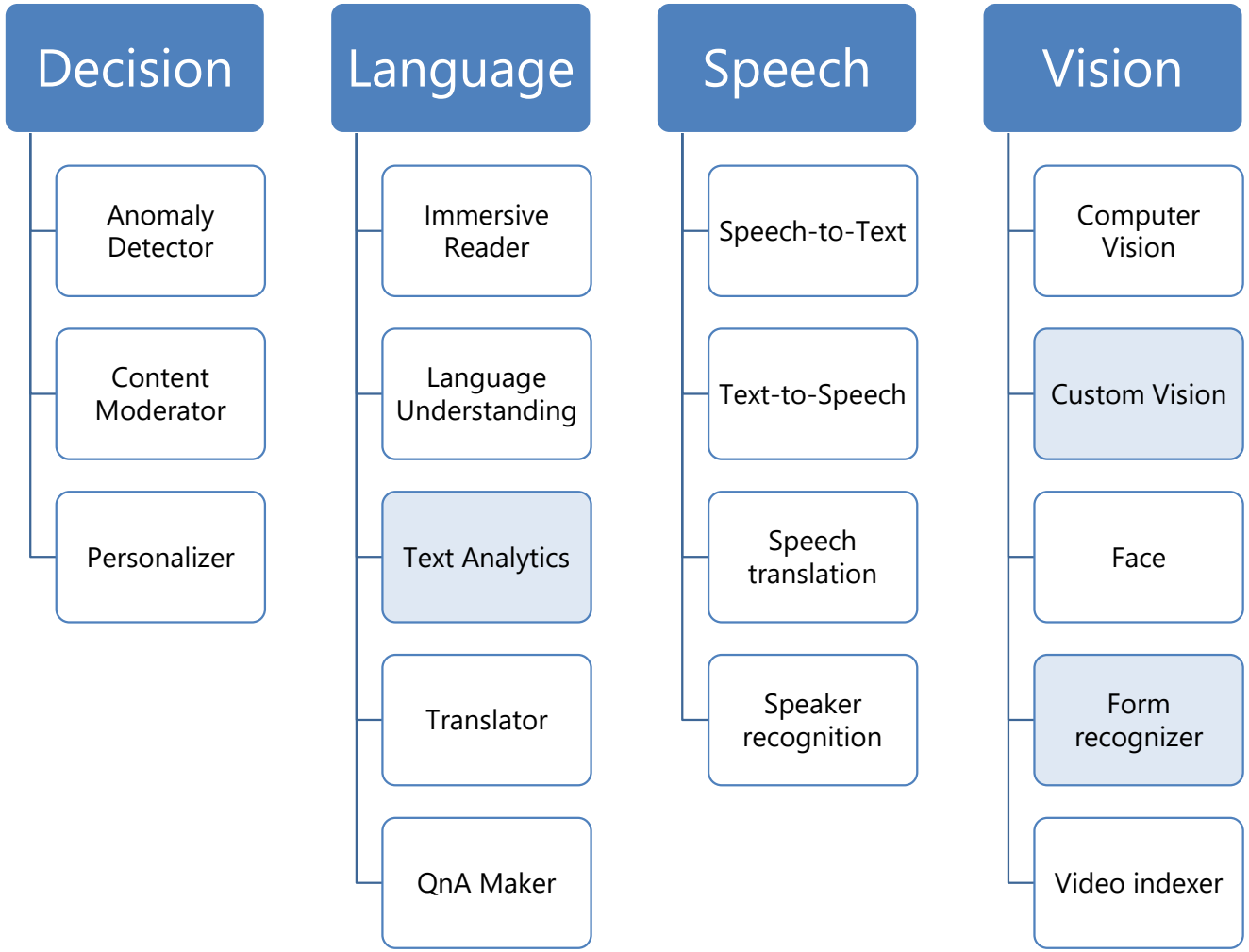
Cognitive Services



Connectors


Decision
Anomaly Detector
Content Moderator
Personalizer
Language
Immersive Reader
Language Understanding
Text Analytics
Translator
QnA Maker
Speech
Speech-to-Text
Text-to-Speech
Speech translation
Speaker recognition
Vision
Computer Vision
Custom Vision
Face
Form recognizer
Video indexer

AI Builder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Demo

Cognitive Services

Azure Machine Learning

Azure Machine Learning

Cloud service

Simplifies tasks

Reduce time to prepare data and train models

Easy to deploy trained model as a web service

Supports containers

Models

Model selection

Feature selection

Model training

Model evaluation

Model management

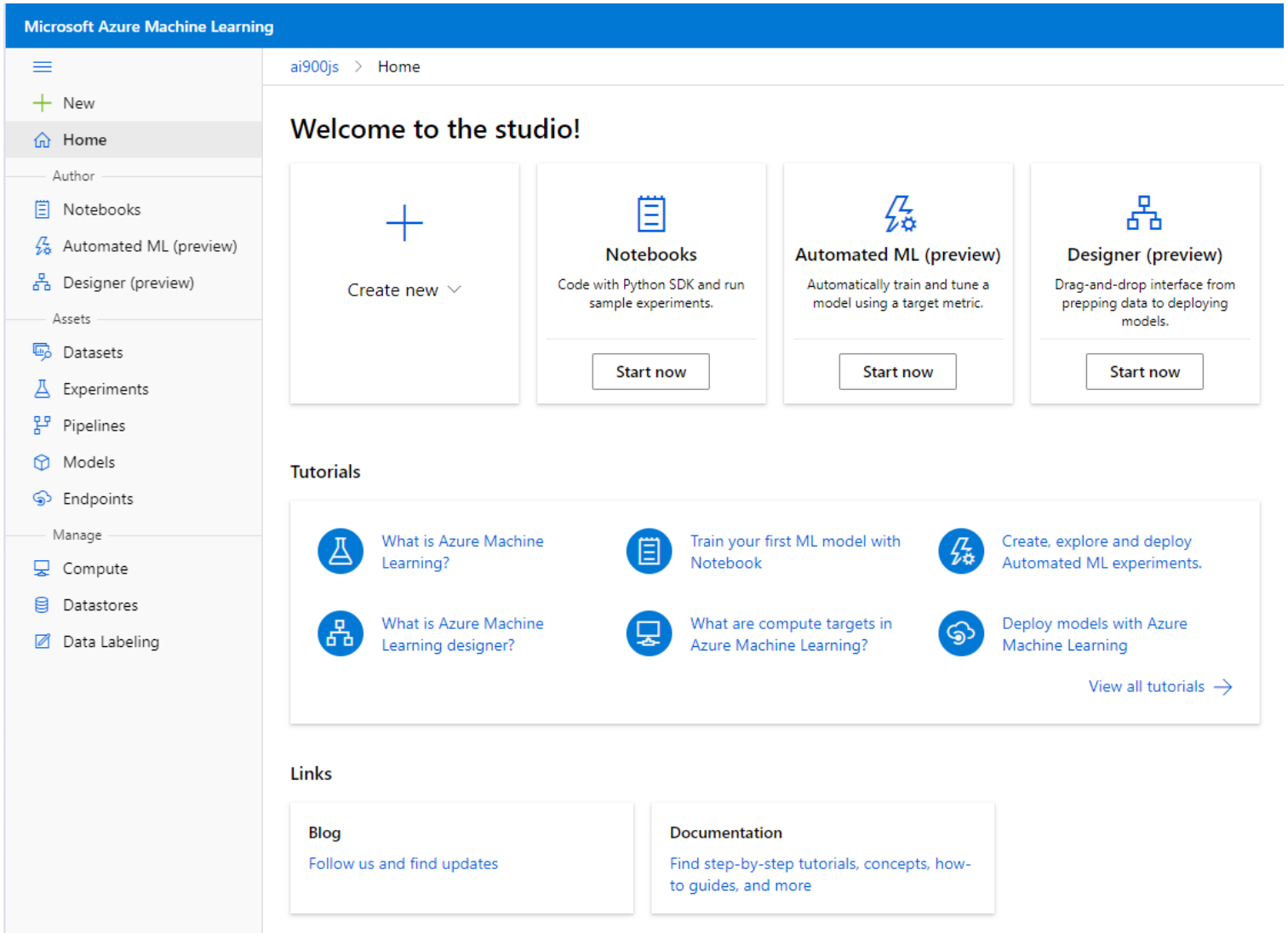
Choice of tools

SDKs

Machine Learning Designer

Automated ML

Azure Machine Learning Studio



Azure Machine Learning Process

Azure Machine Learning helps you build, train, deploy, and manage your models at cloud scale.

Register data

Reference data from storage to easily access during model training and explore using summary statistics.

Train models

Use machine learning algorithms with training data to create models.

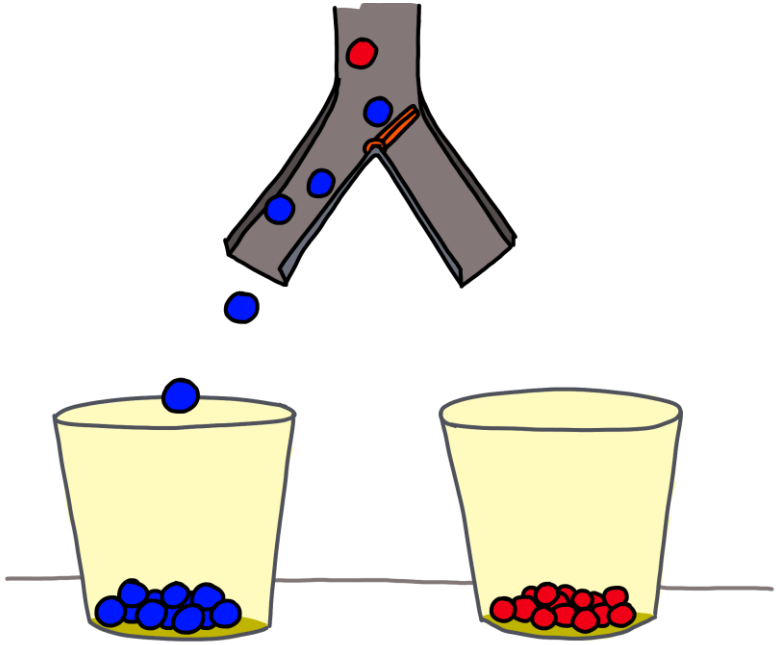
Evaluate models

Find the best model using test data.

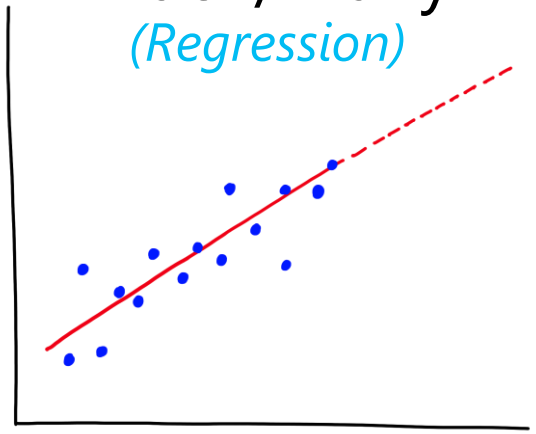
Deploy models

Deploy model as a web service in the Azure cloud, or to IoT Edge devices.

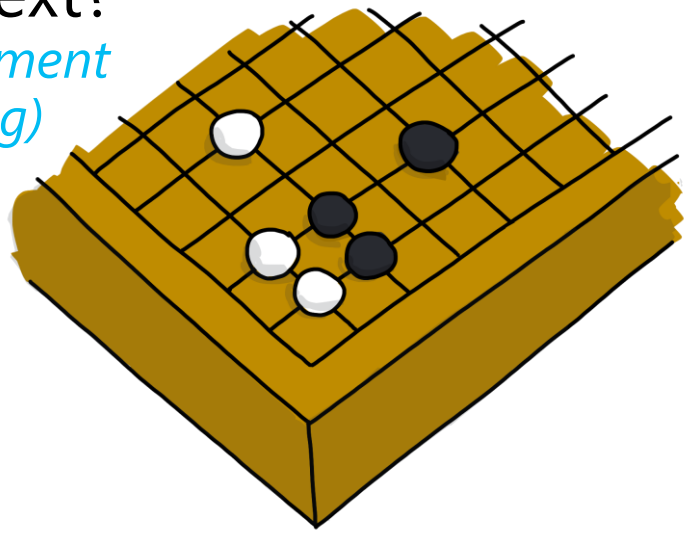
Which Category?
(Classification)



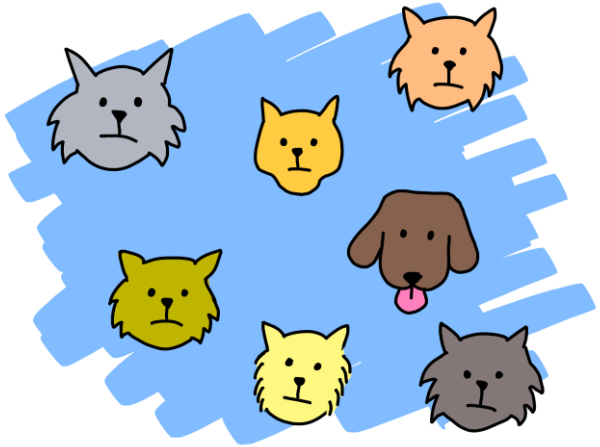
Predict how Much/Many
(Regression)



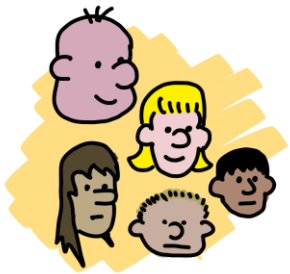
What Next?
(Reinforcement Learning)



Is it Weird?
(Anomaly)



Data Structure
(Clustering, Recommender)



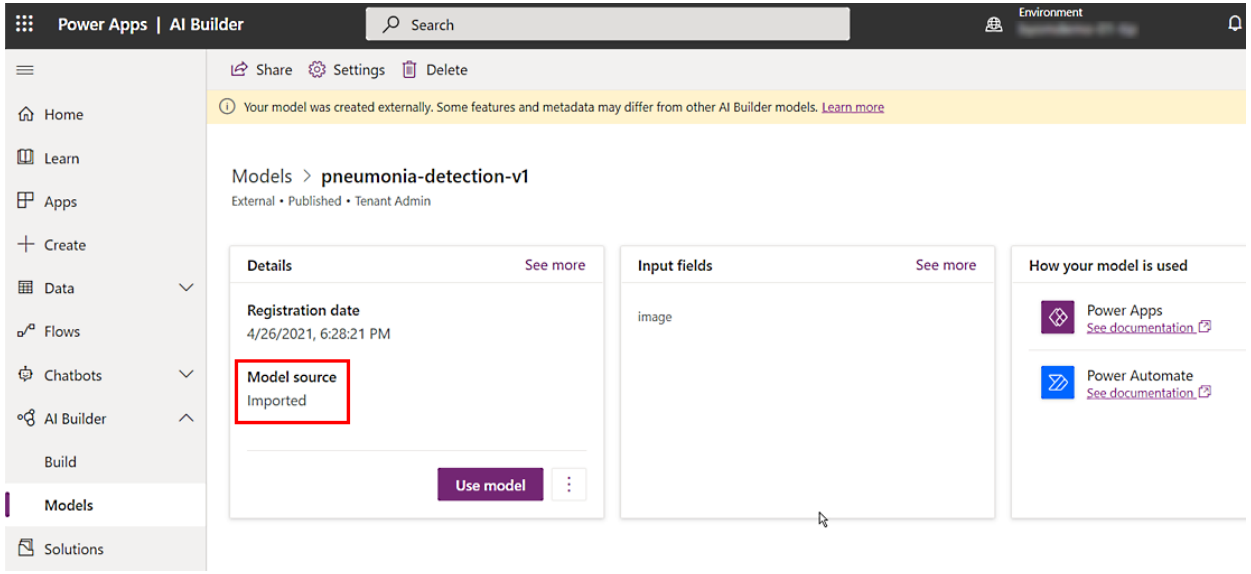
5 questions courtesy Brandon Rohrer

Automated Machine Learning

- Takes the hard work out of machine learning
- Supply the data and desired model type, and let Azure Machine Learning find the best model

Use ML with Power Platform

- HTTP connector
- Custom connector
- Bring your own Model



Demo

ML with Power Platform

https://github.com/microsoft/PowerApps-Samples/tree/master/ai-builder/BringYourOwnModelTutorial
https://docs.microsoft.com/ai-builder/byo-model

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