



cd collabdays | lisbon

November 13<sup>th</sup>, 2021

# AI 101 - Options for using AI in the Power Platform

by Julian Sharp

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## GOLD



## COMMUNITY





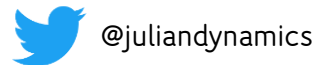
# Julian Sharp

Dynamics 365 Power Platform, and Azure  
Solutions Architect

Microsoft Certified Trainer

Business Applications MVP

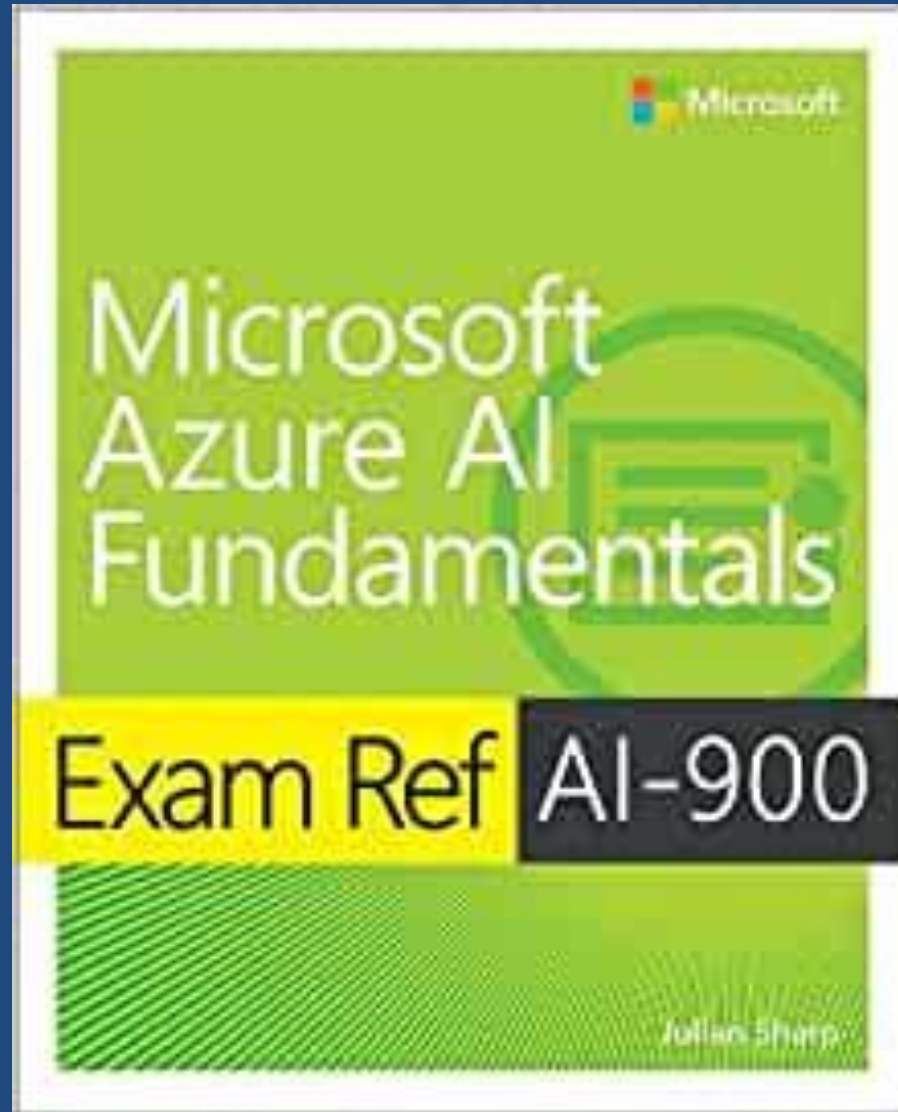
Speaker



<https://www.linkedin.com/in/juliansharp>



# 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

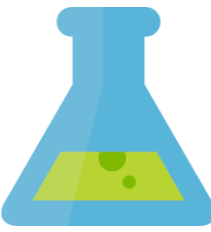
# What is AI

# What is AI?



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

# Machine Learning



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

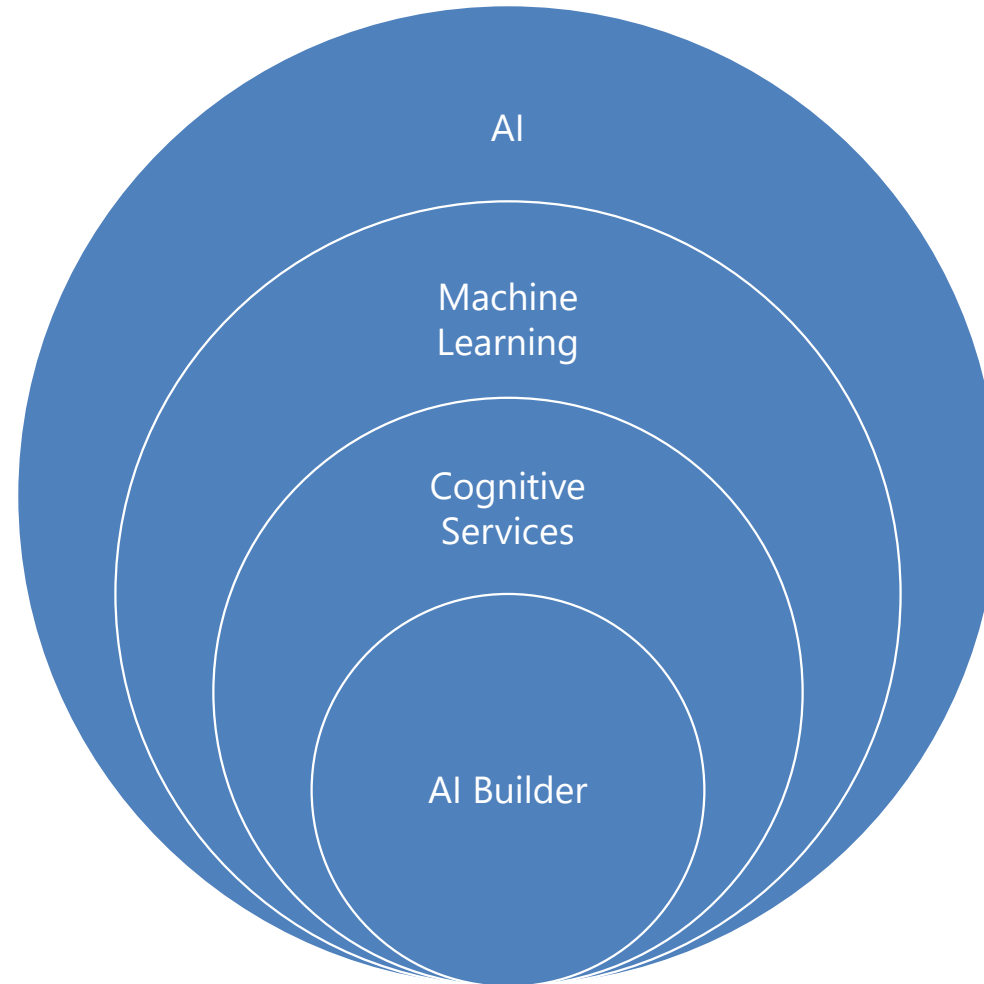




# Options for AI with Power Platform

- 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


## Enhance your business with AI

Add intelligence to your business. Create tailored AI models to automate processes and find insights. [Learn more](#)


### Refine a model for your business needs




**Form Processing (preview)**  
Read and save information from standard documents.





**Object Detection (preview)**  
Recognize and count things in images.




**Prediction**   
Predict whether something will happen.


### Get straight to productivity




**Business Card Reader**   
Automatically process business card information




**Key Phrase Extraction (preview)**  
Extract the key talking points from text



**Language Detection (preview)**  
Identify the language being used in text



**Sentiment Analysis (preview)**  
Analyze positive/negative sentiment in text



**Text Recognizer (preview)**  
Automatically process text from images



# AI Builder Pre-Built Models



Business card  
reader



Text  
recognition



Category  
classification



Key phrase  
extraction



Language  
detection



Sentiment  
analysis



Receipt  
processing



Text  
translation

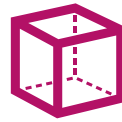
# AI Builder Model Types



Prediction



Form  
processing



Object  
detection

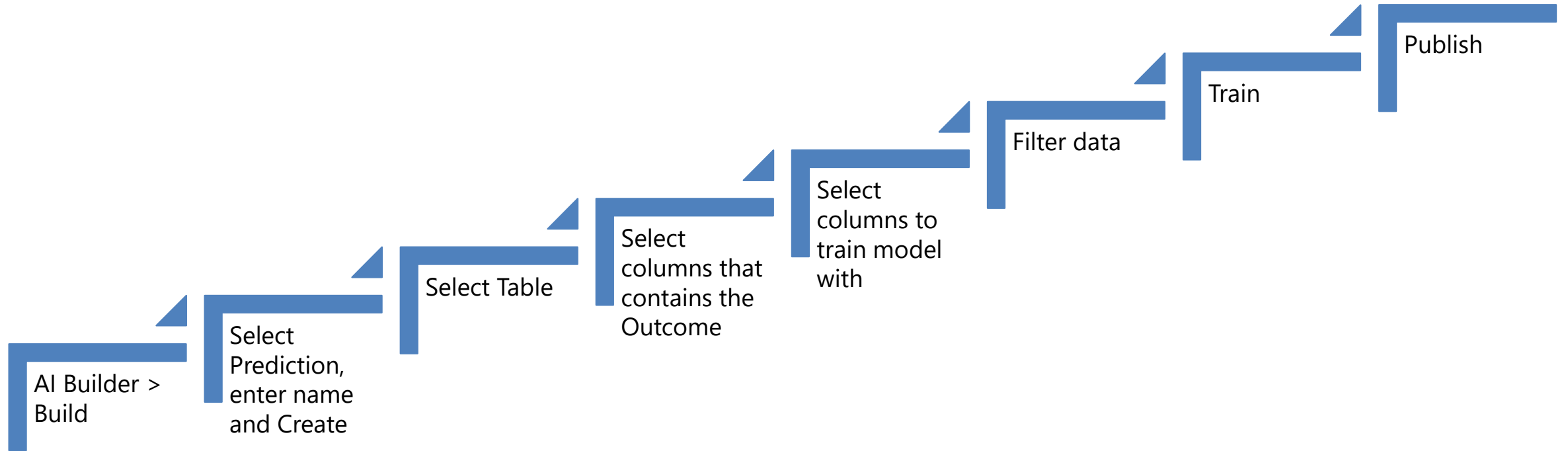


Category  
classification



Entity  
extraction

# AI Builder Process



# Consumption of AI Builder

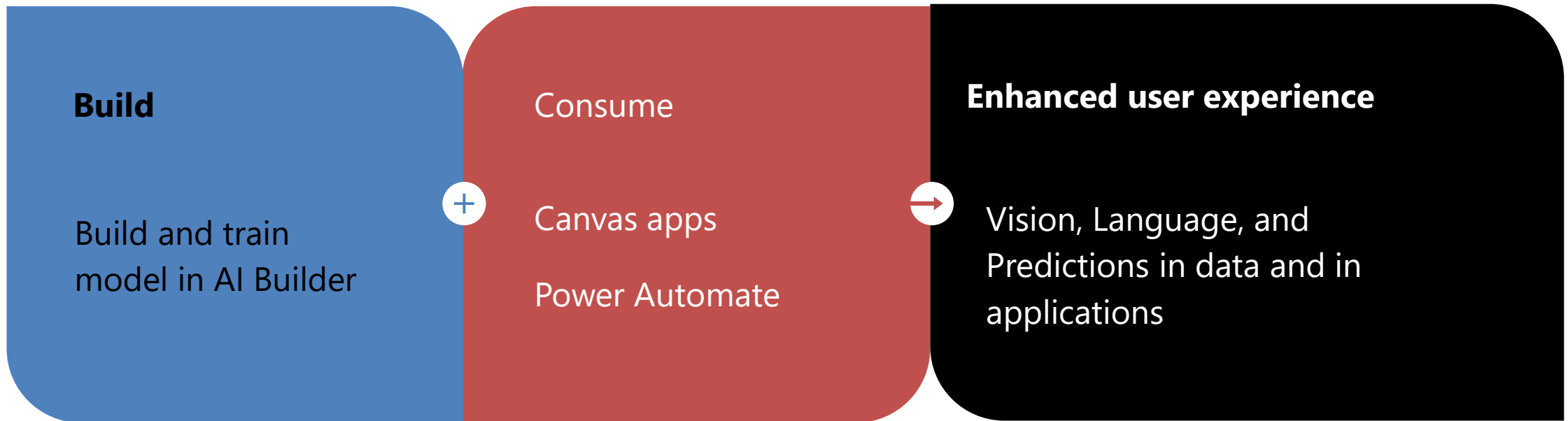


Power Apps can use AI Builder



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>

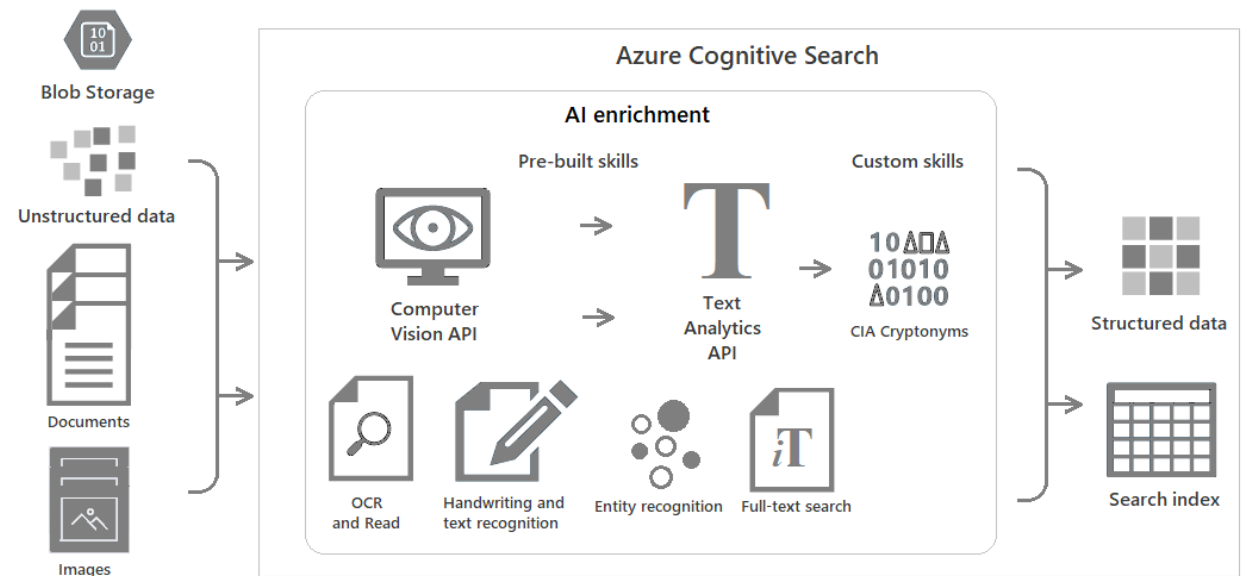
# Azure Cognitive Services

# 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

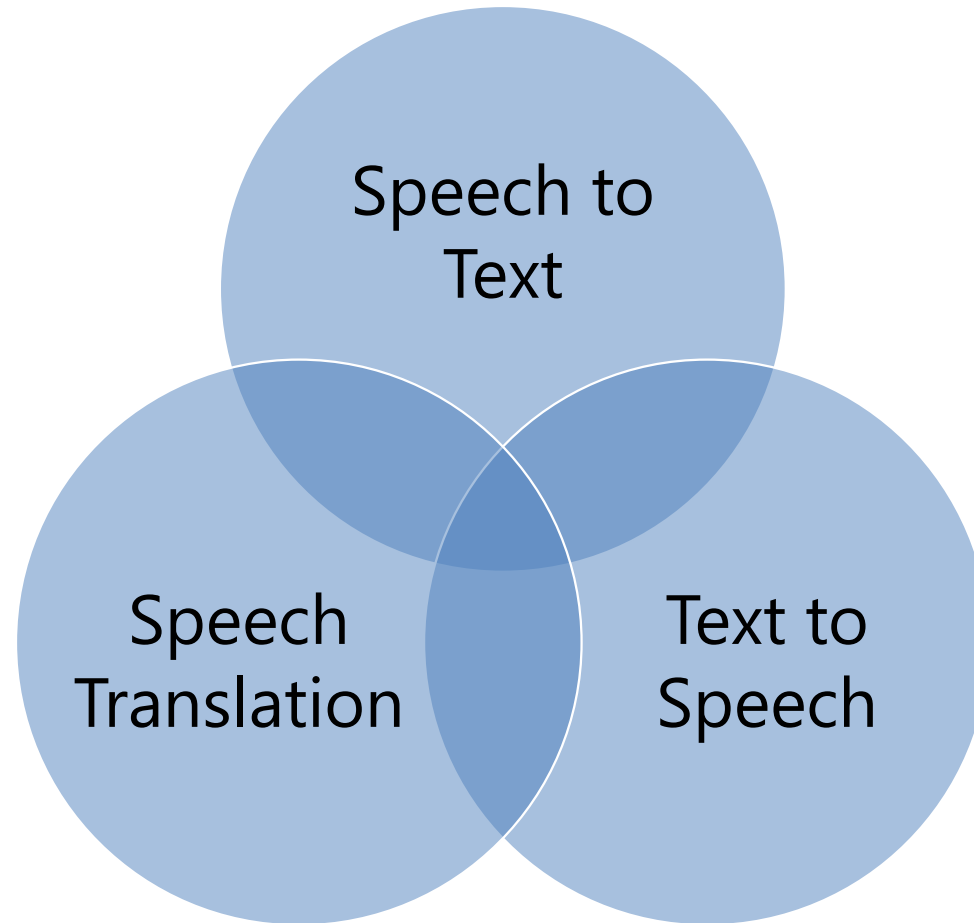
Language  
Understanding  
(LUIS)

QnA Maker

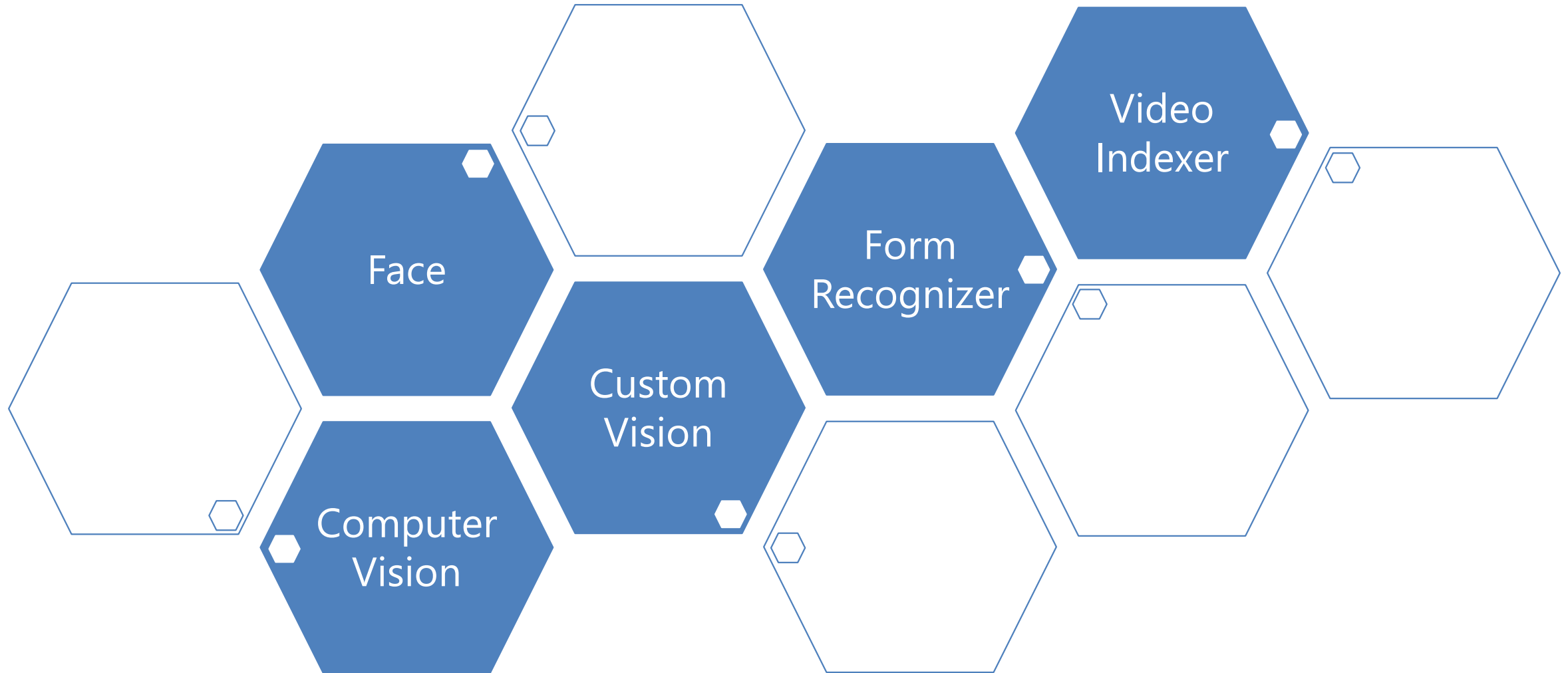
Text Analytics

Translator Text

# Speech

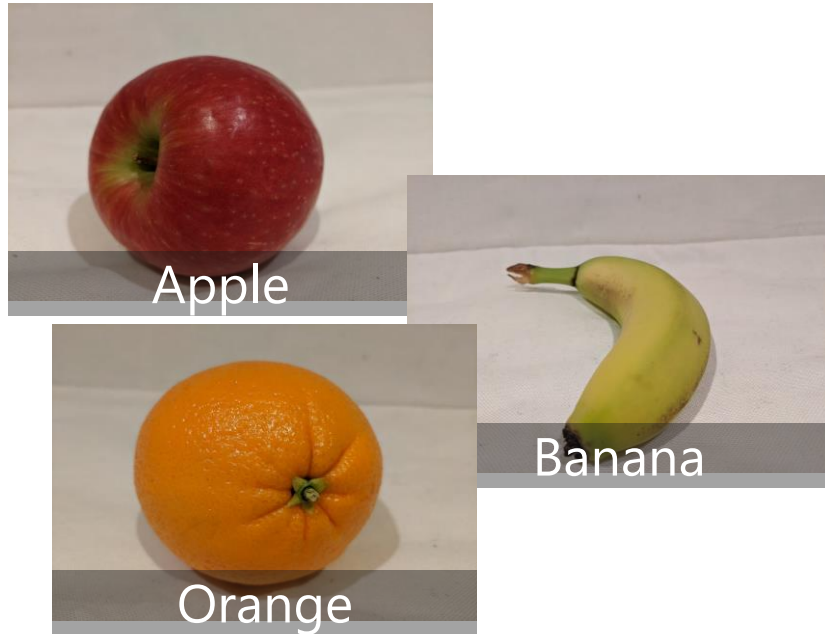


# Vision

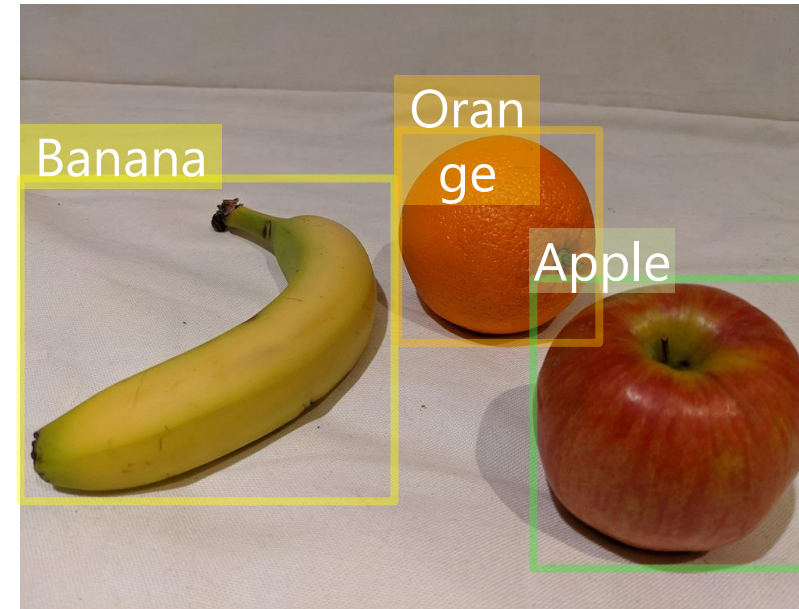


# Custom Vision

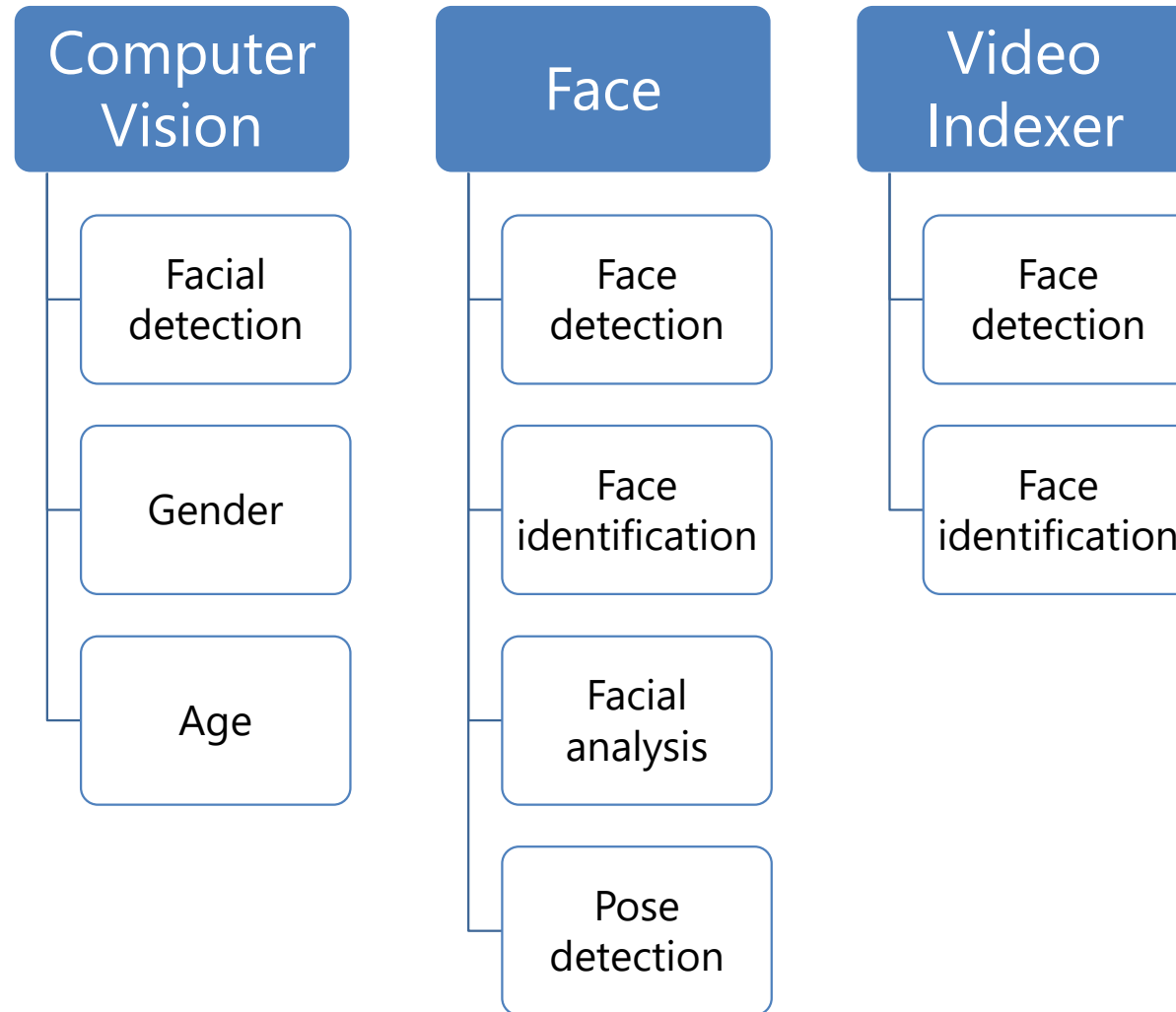
## Image Classification



## Object Detection



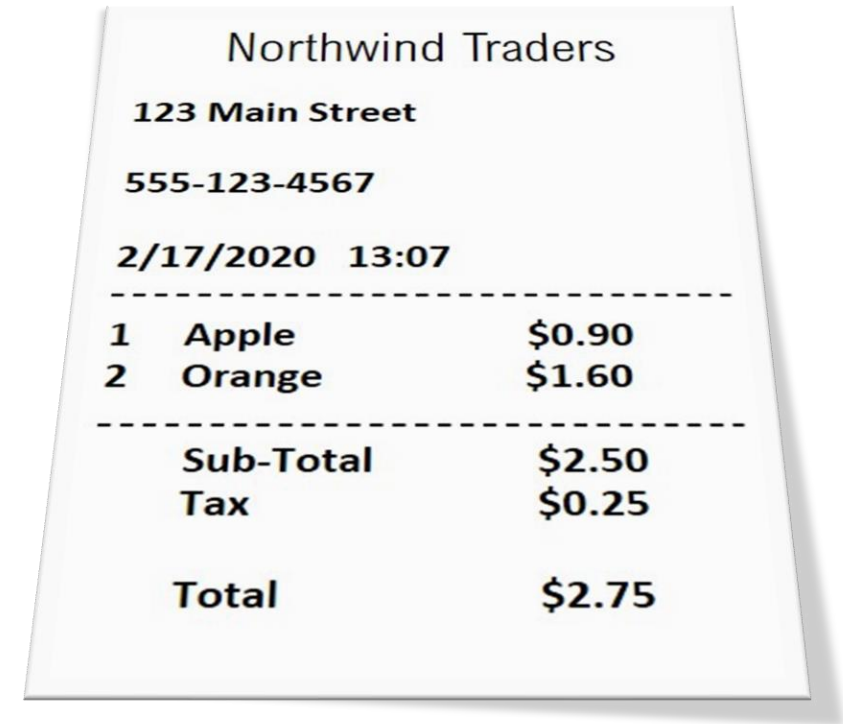
# Computer Vision vs Face vs Video Indexer



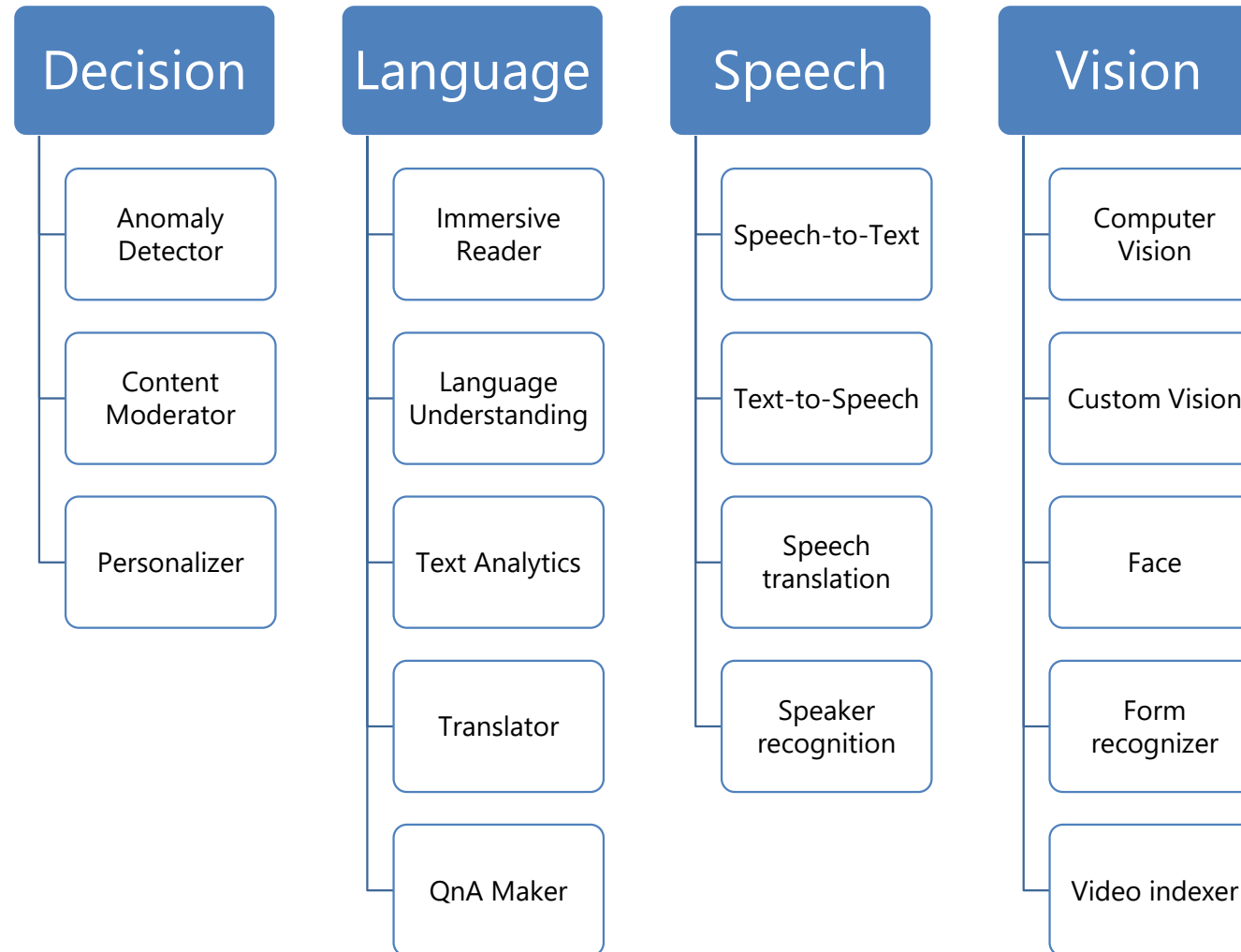


# Form Recognizer

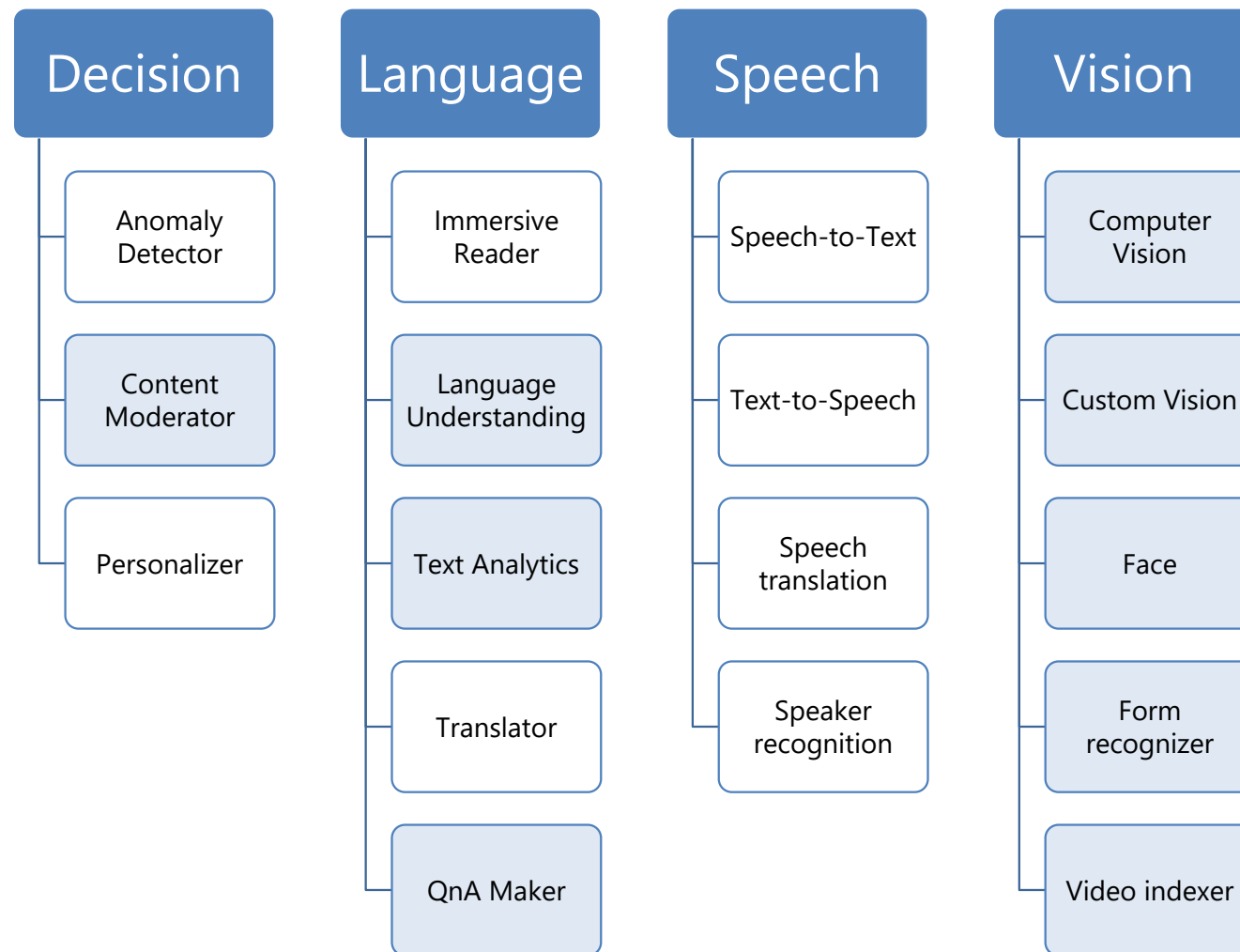
- Extract information from scanned forms in image or PDF format
  - Train a custom model using your own forms
  - Use the pre-trained receipt model
- Models perform semantic recognition of form fields – not just text extraction



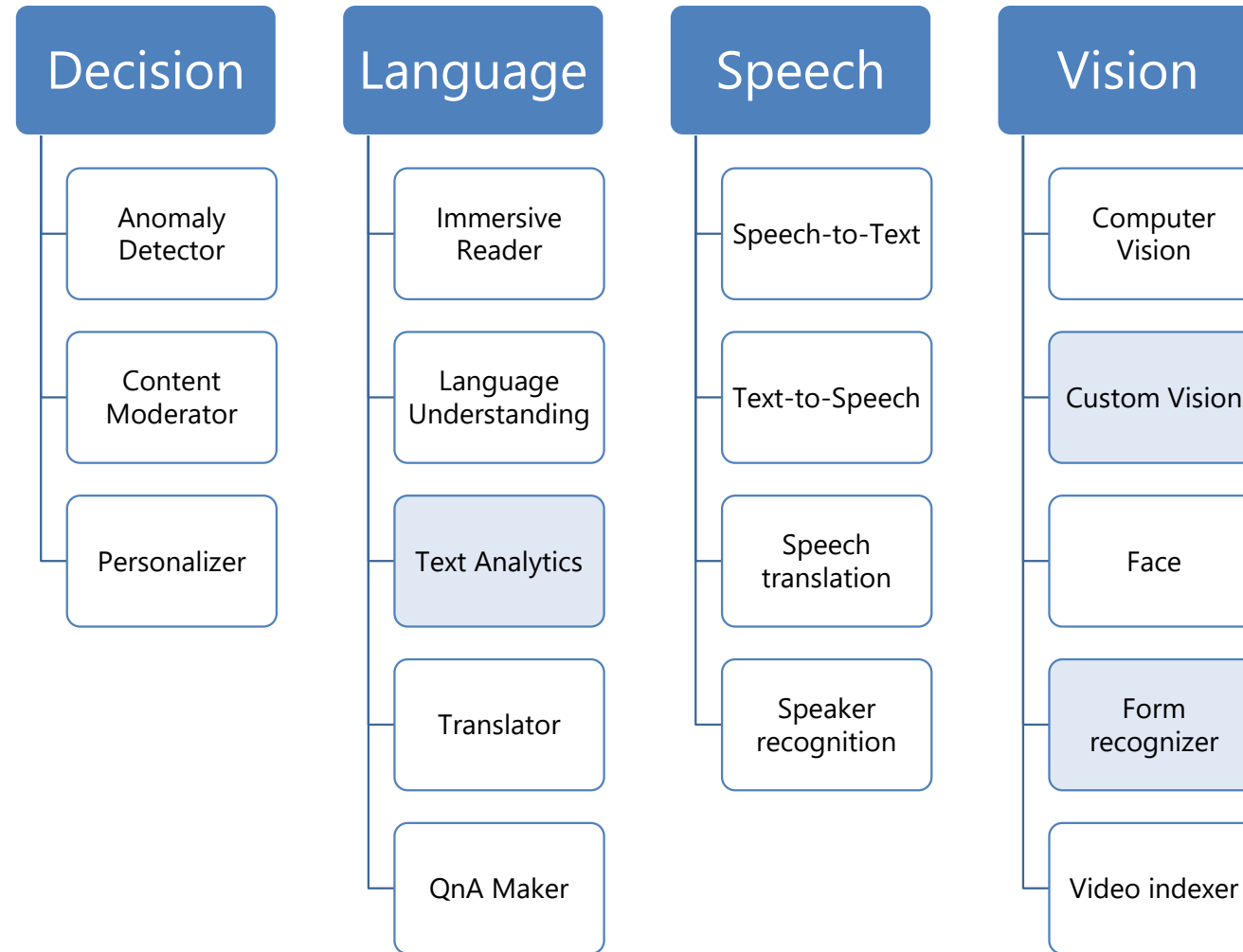
# Cognitive Services



# Connectors



# AI Builder



# 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

The screenshot displays the Microsoft Azure Machine Learning Studio interface. At the top, a blue header bar contains the text "Microsoft Azure Machine Learning". Below this, a left-hand navigation pane is visible, featuring a hamburger menu icon, a "New" button, and a "Home" button. The "Home" button is currently selected. Below the "Home" button, the navigation pane is divided into three sections: "Author" (containing "Notebooks", "Automated ML (preview)", and "Designer (preview)"), "Assets" (containing "Datasets", "Experiments", "Pipelines", "Models", and "Endpoints"), and "Manage" (containing "Compute", "Datastores", and "Data Labeling"). The main content area on the right has a breadcrumb trail "ai900js > Home". Below the breadcrumb, a "Welcome to the studio!" message is displayed. This is followed by four large, light-blue rectangular tiles. The first tile, labeled "Create new", contains a plus icon and a dropdown arrow. The second tile, labeled "Notebooks", features a notepad icon, the text "Code with Python SDK and run sample experiments.", and a "Start now" button. The third tile, labeled "Automated ML (preview)", features a lightning bolt icon, the text "Automatically train and tune a model using a target metric.", and a "Start now" button. The fourth tile, labeled "Designer (preview)", features a flowchart icon, the text "Drag-and-drop interface from prepping data to deploying models.", and a "Start now" button. Below these tiles, a "Tutorials" section is shown, containing six circular icons with corresponding text: "What is Azure Machine Learning?", "Train your first ML model with Notebook", "Create, explore and deploy Automated ML experiments.", "What is Azure Machine Learning designer?", "What are compute targets in Azure Machine Learning?", and "Deploy models with Azure Machine Learning". A "View all tutorials" link with a right-pointing arrow is located at the bottom right of the tutorials section. At the bottom of the main content area, a "Links" section contains two boxes: "Blog" with the text "Follow us and find updates" and "Documentation" with the text "Find step-by-step tutorials, concepts, how-to guides, and more".


Microsoft Azure Machine Learning

ai900js > Home


## Welcome to the studio!




Create new ▾



**Notebooks**  
Code with Python SDK and run sample experiments.  
[Start now](#)




**Automated ML (preview)**  
Automatically train and tune a model using a target metric.  
[Start now](#)




**Designer (preview)**  
Drag-and-drop interface from prepping data to deploying models.  
[Start now](#)


## Tutorials




What is Azure Machine Learning?




Train your first ML model with Notebook




Create, explore and deploy Automated ML experiments.



What is Azure Machine Learning designer?



What are compute targets in Azure Machine Learning?



Deploy models with Azure Machine Learning

[View all tutorials →](#)

## Links

**Blog**  
[Follow us and find updates](#)

**Documentation**  
[Find step-by-step tutorials, concepts, how-to guides, and more](#)

# 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

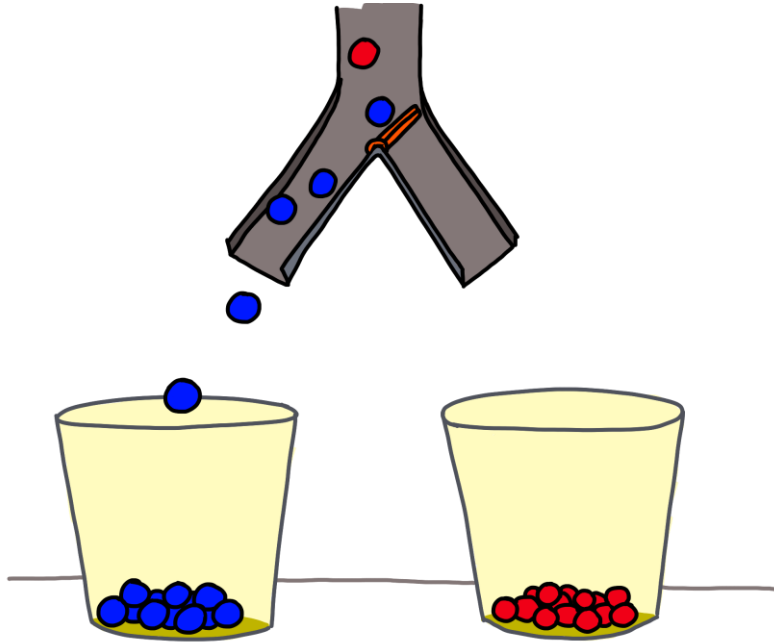
Find the best model using test data.



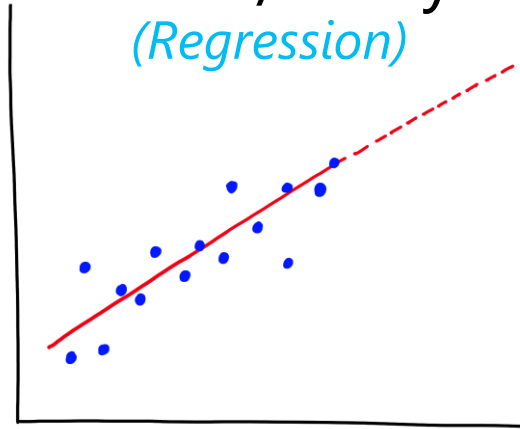
## Deploy models

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

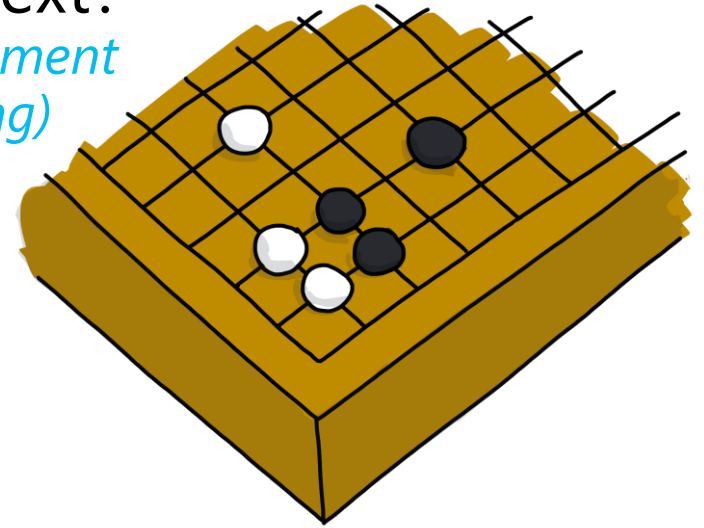
Which  
Category?  
(Classification)



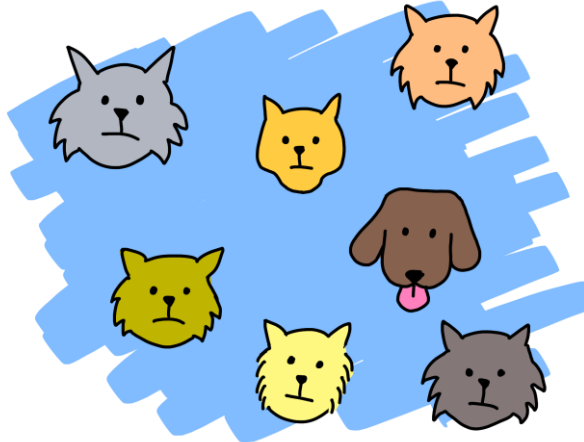
Predict how  
Much/Many  
(Regression)



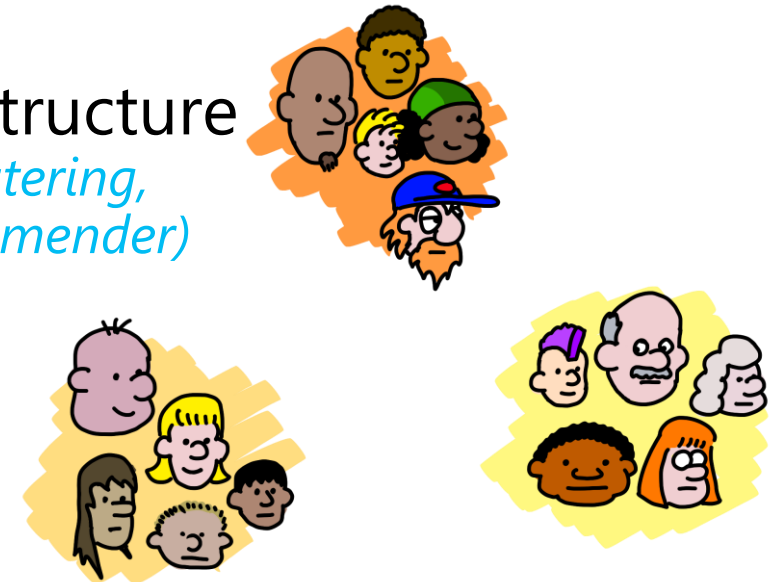
What Next?  
(Reinforcement  
Learning)



Is it Weird?  
(Anomaly)



Data Structure  
(Clustering,  
Recommender)



5 questions courtesy Brandon Rohrer

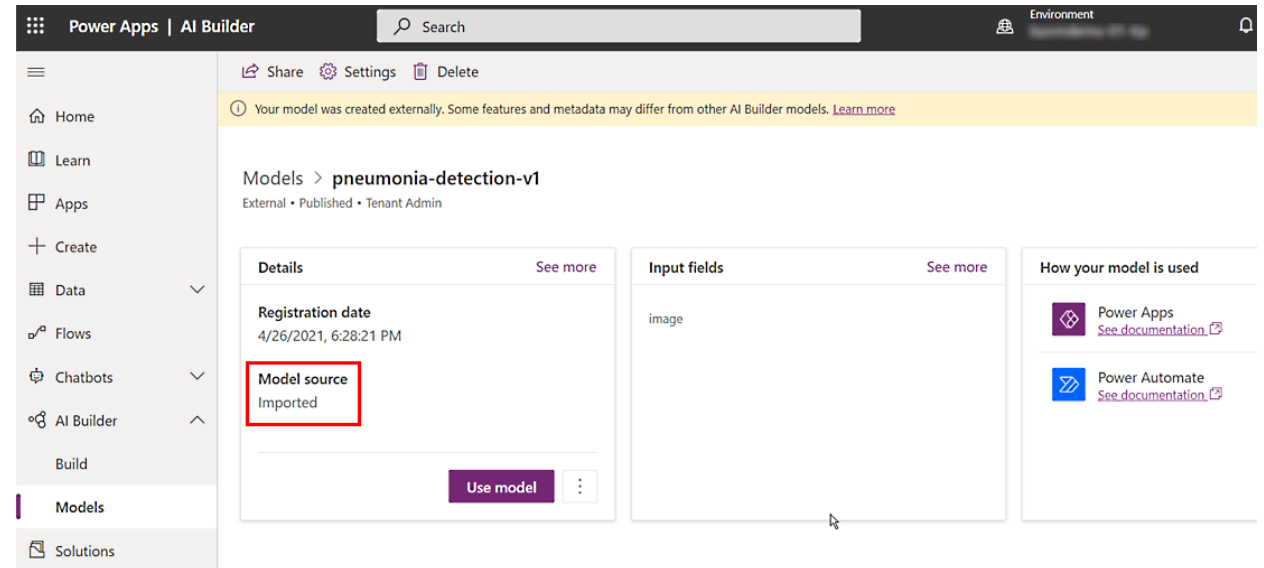
# Automated Machine Learning

- 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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