



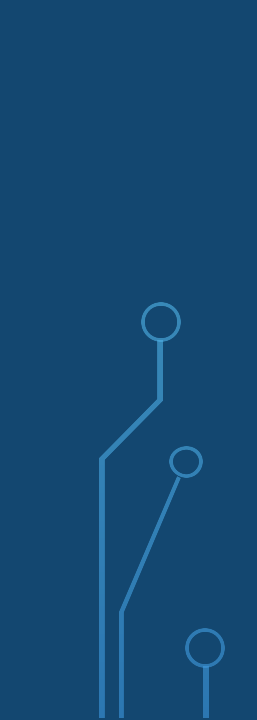
A decorative graphic on the left side of the slide, consisting of a network of light blue lines and small circles, resembling a circuit board or a neural network diagram.

# AI DEMO BATTERY RECOGNIZER

PRESENTED BY WING CHAN



# AGENDA

- AI vs Machine Learning vs Deep Learning
  - Azure Cognitive Services
  - Demo – Battery Recognizer
  - Lessons Learn
  - Q&A
- 
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AI = THINKING MACHINE?



AI = DATA



# AI VS MACHINE LEARNING VS DEEP LEARNING

## Artificial Intelligence

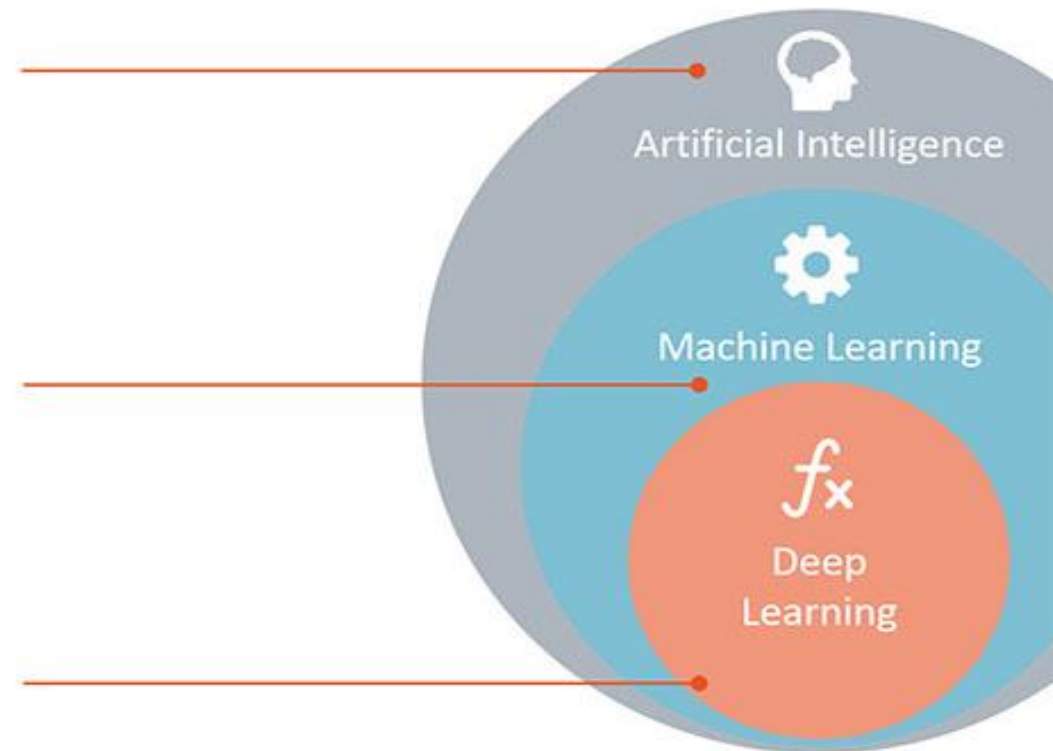
Any technique which enables computers to mimic human behavior.

## Machine Learning

Subset of AI techniques which use statistical methods to enable machines to improve with experiences.

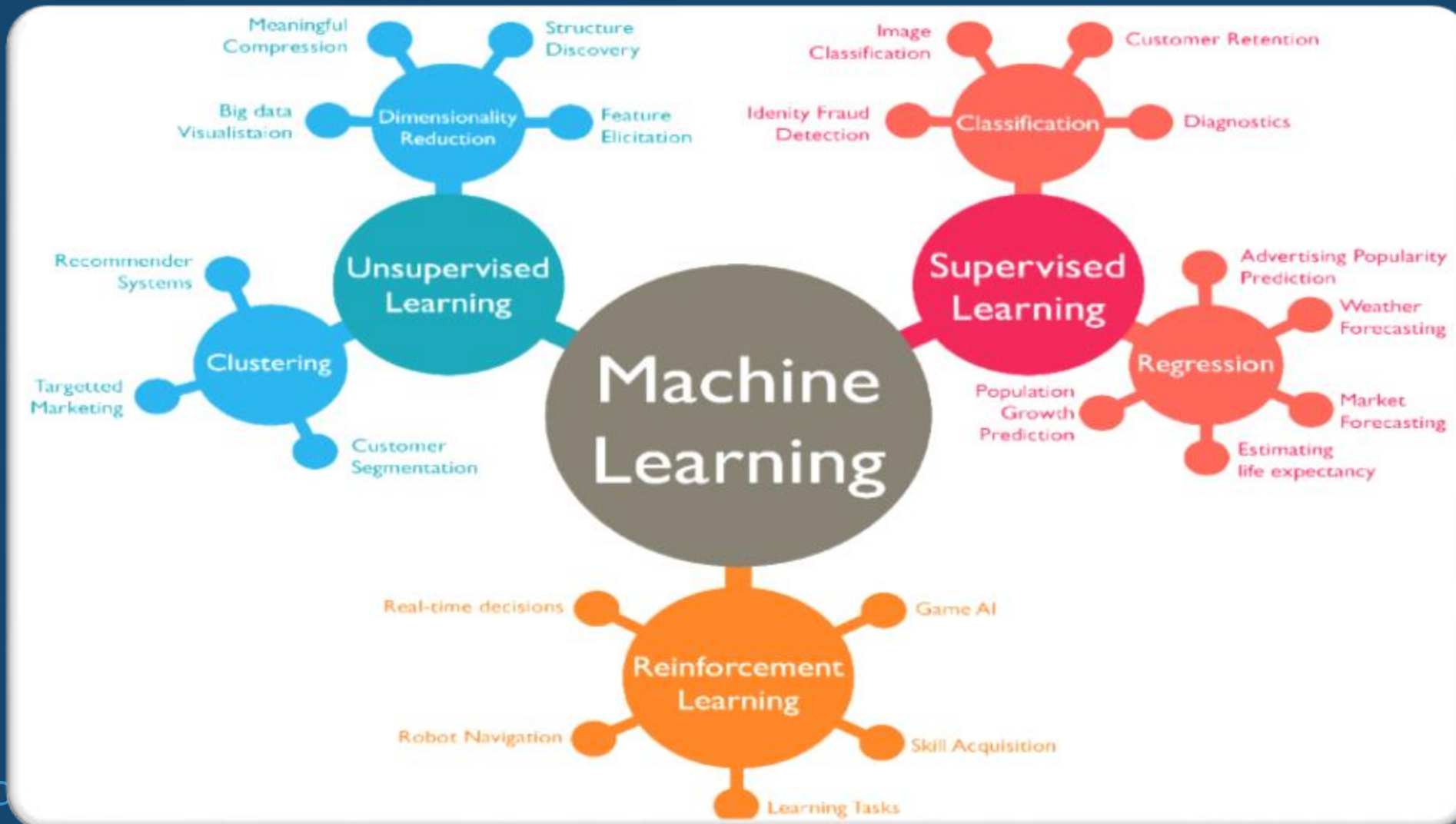
## Deep Learning

Subset of ML which make the computation of multi-layer neural networks feasible.



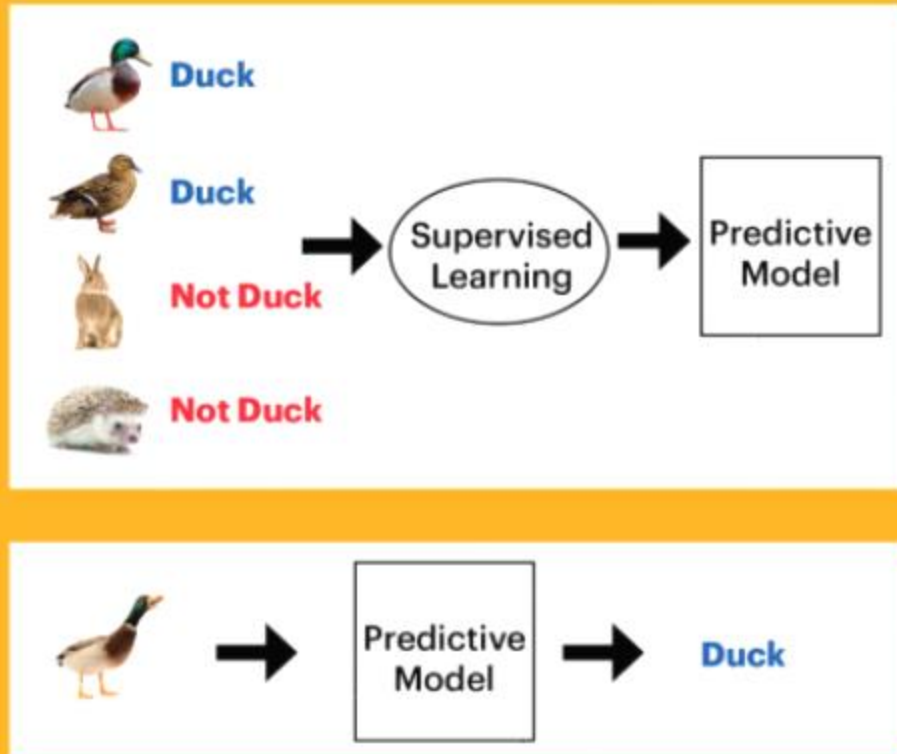


# MACHINE LEARNING

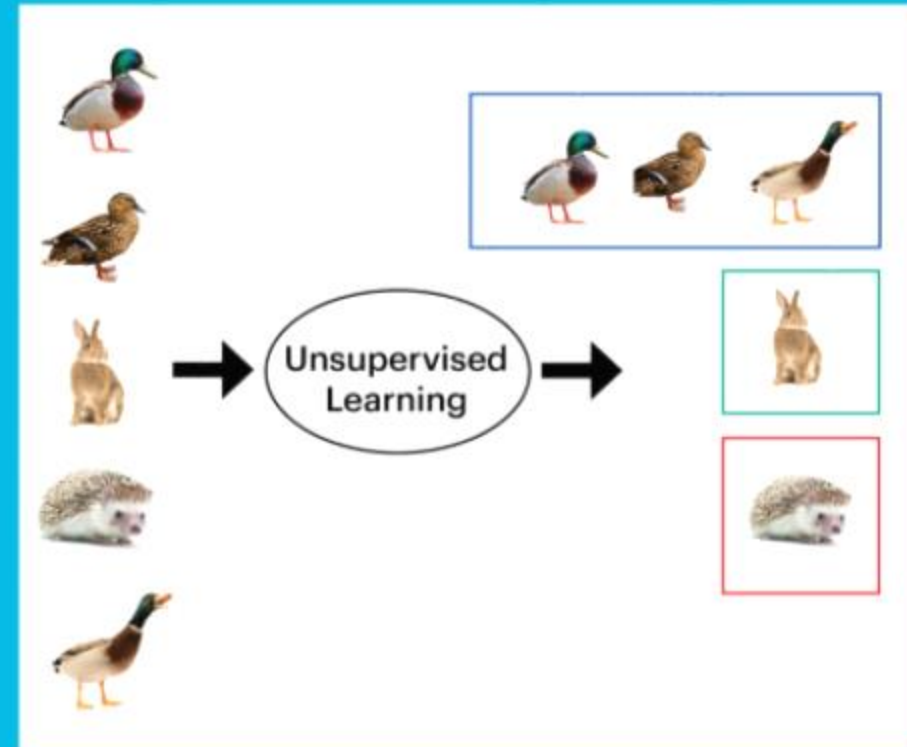


# SUPERVISED VS UNSUPERVISED

## Supervised Learning (Classification Algorithm)



## Unsupervised Learning (Clustering Algorithm)



# REINFORCEMENT LEARNING





# MACHINE LEARNING VS DEEP LEARNING

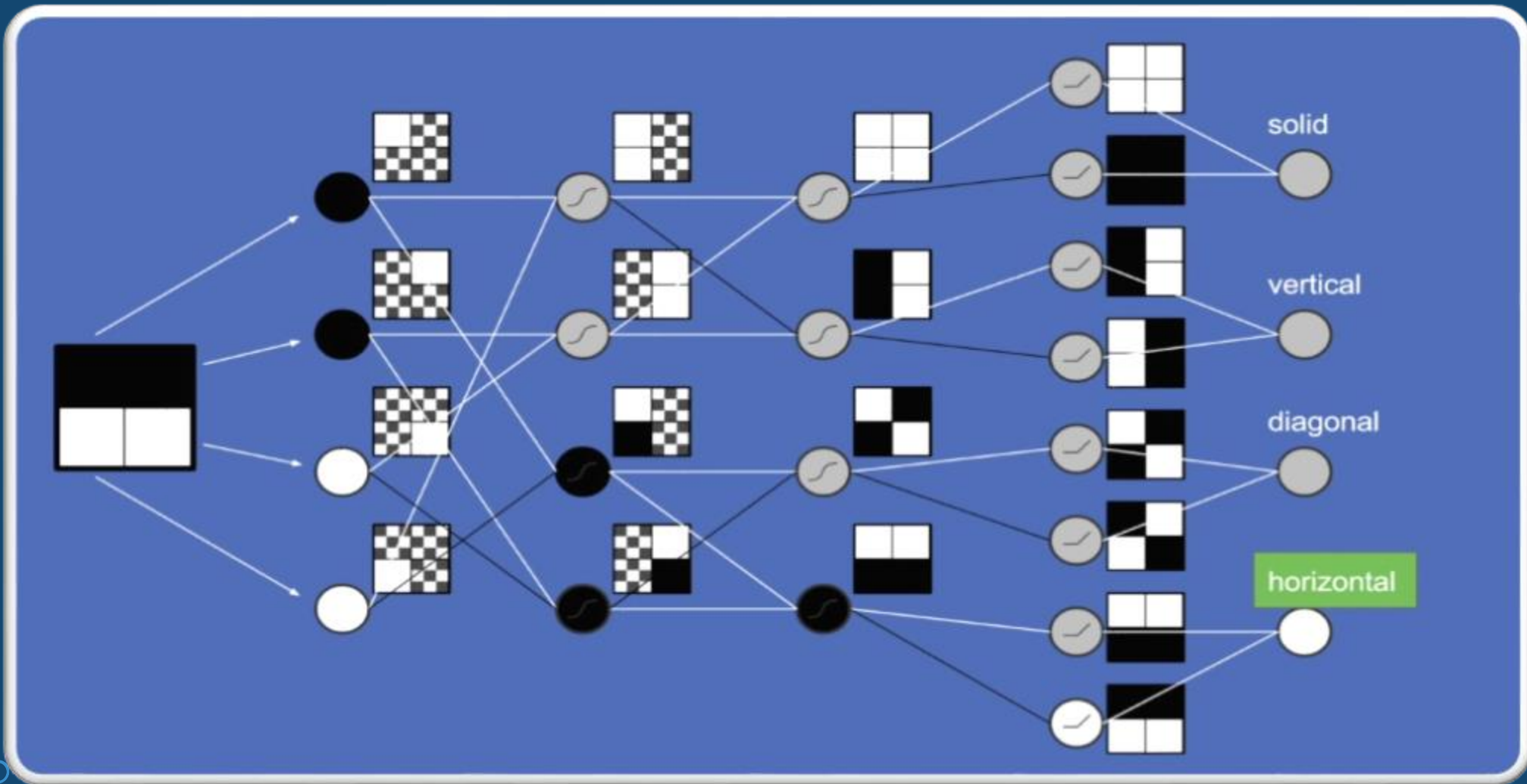
## Machine Learning



## Deep Learning



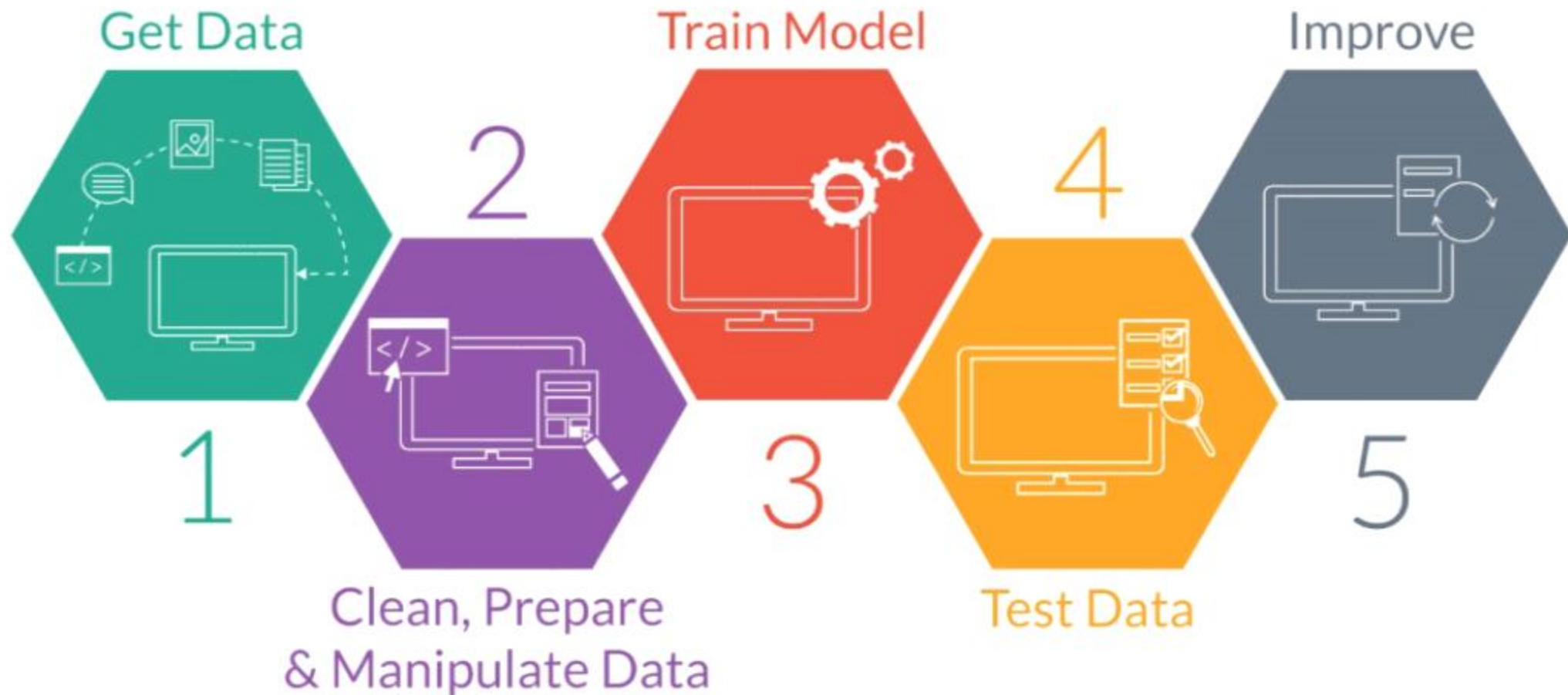
# ARTIFICIAL NEURAL NETWORK IN DEEP LEARNING



# COMPARISON AND WHICH ONE TO PICK?

	Machine Learning	Deep Learning
Amount of Data	Small	Big
Features	Define your own	Learns automatically
Time	Short	Long
Accuracy	Good	Best
Debugging	Easy	Very Tough
Expensive	Less	More
Decision Path	Yes	No

# MACHINE LEARNING WORKFLOW





# AZURE COGNITIVE SERVICES

Give your apps a human side



## Vision

Computer Vision  
Content Moderator  
Emotion  
Face  
Video  
Video Indexer  
Custom Vision Service



## Speech

Bing Speech  
Speaker Recognition  
Custom Speech Service



## Language

Bing Spell Check  
Language Understanding  
Linguistic Analysis  
Translator Text & Speech  
Web Language Model  
Text Analytics



## Knowledge

Academic Knowledge  
Entity Linking  
  
Knowledge Exploration  
Recommendations  
QnA Maker  
Custom Decision Service



## Search

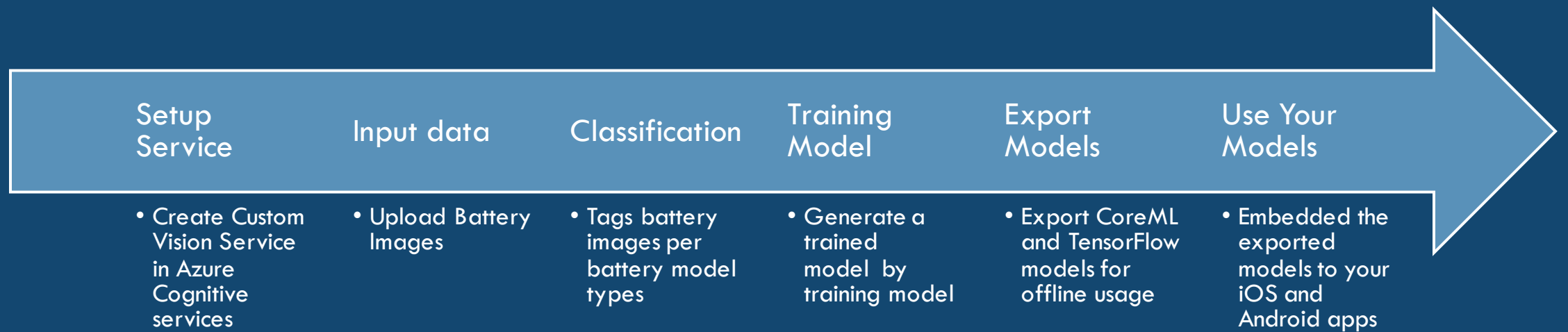
Bing Autosuggest  
Bing Image Search  
Bing News Search  
Bing Video Search  
Bing Web Search  
Bing Custom Search



## Labs

Project Prague (gesture)  
Cuzco (events)  
Johannesburg (routing)  
Nanjing (Isochrones)  
Abu Dhabi (distance matrix)  
Wollongong (location)  
Enduring Freedom (just kidding 😊)

# DEMO – BATTERY RECOGNIZER



# LESSONS LEARN

- Leverage AI platforms like Azure Cognitive Services to create your own ML models easily
- Support offline ML model's implementation for better UX and privacy but may decrease the accuracy.
- "Data, Data, DATA" - the key for creating high accurate ML models
- Evaluate your ML models results continuously to improve performance



# QUESTIONS?

Demo App Source code

<https://goo.gl/AcY2Qd>