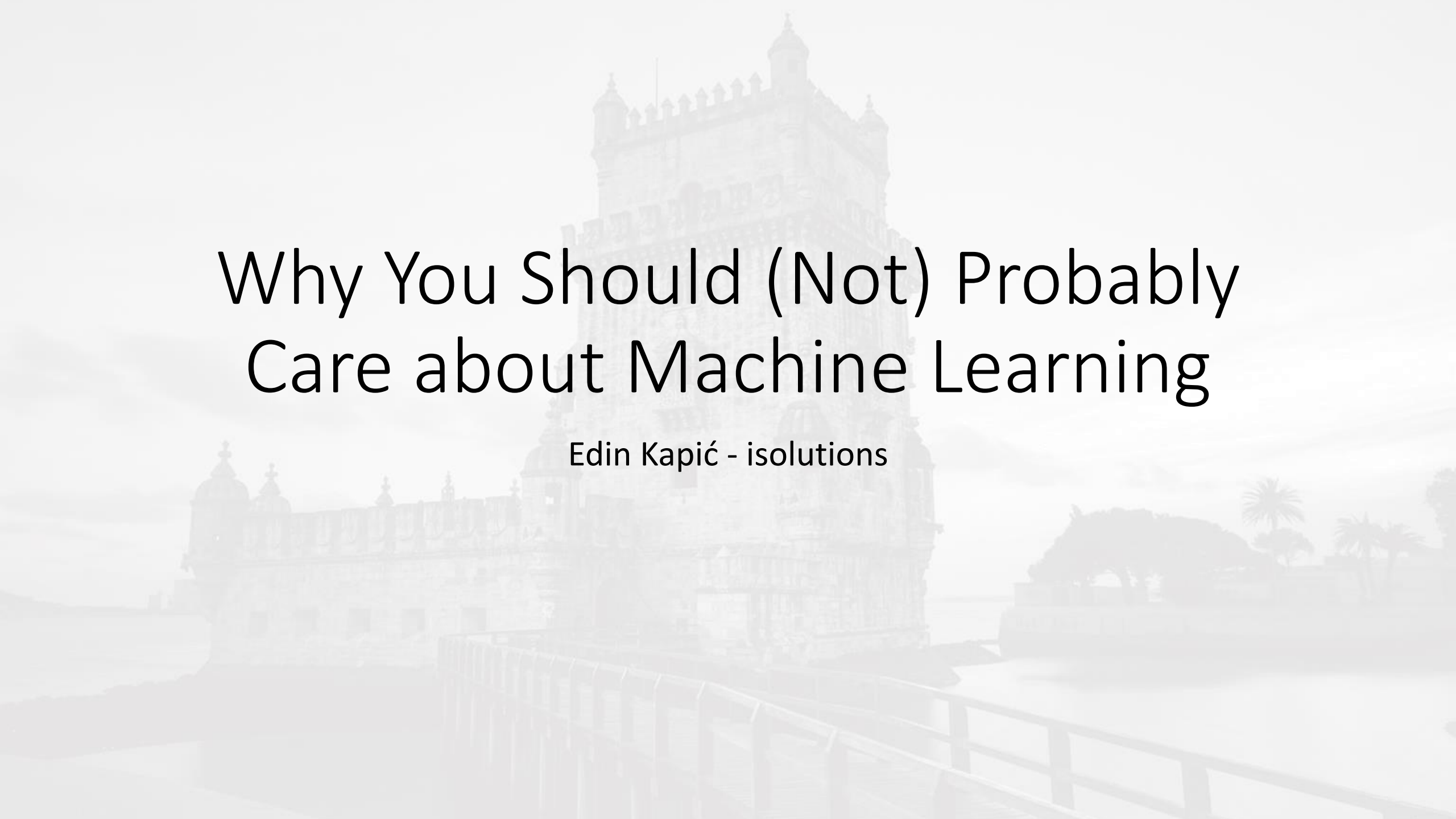




TUGA IT

SUMMER EDITION

LISBON, JULY 19-21, 2018



Why You Should (Not) Probably Care about Machine Learning

Edin Kapić - isolutions

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Edin Kapić

- SharePoint Master of Craft @ **isolutions Barcelona**
- Co-founder and president of **SUG.CAT**
- MVP for Office Apps and Services
- Organizer for **SPS Barcelona** (October 27th)



@ekapic

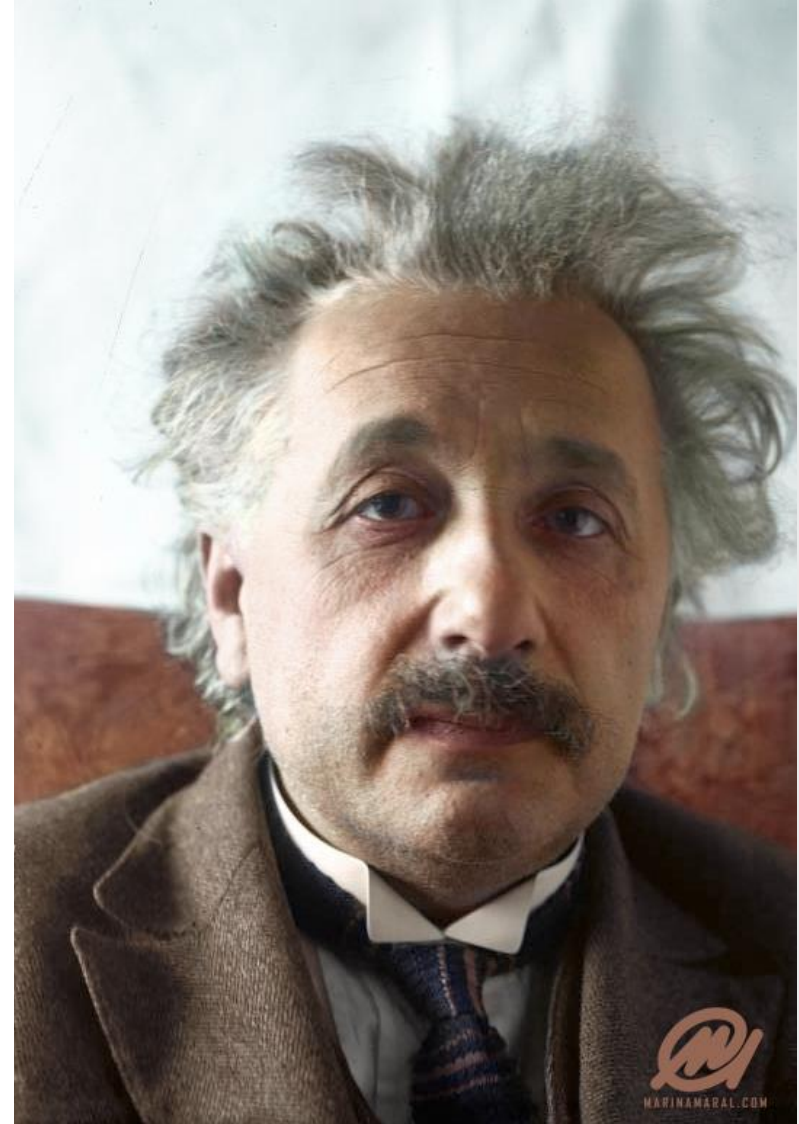


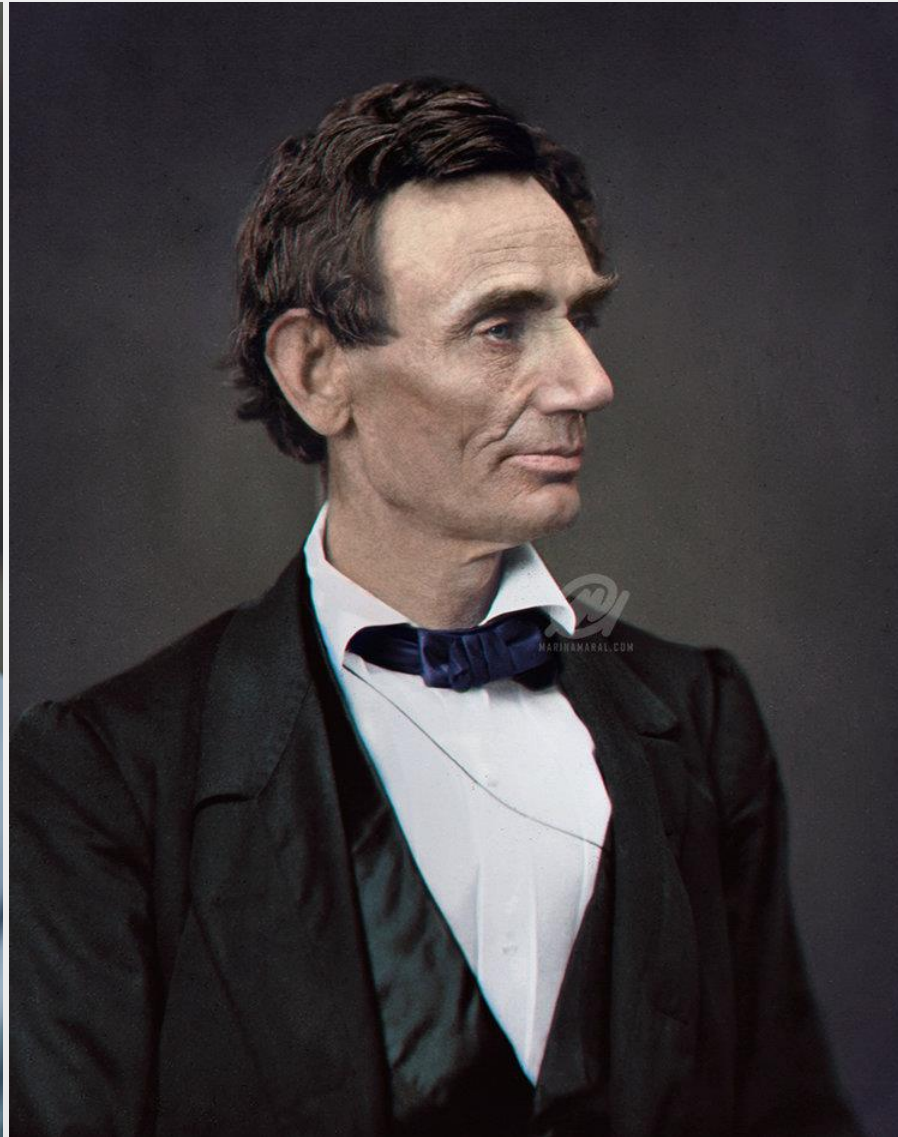
SharePoint Saturday
Barcelona



Marina Amaral



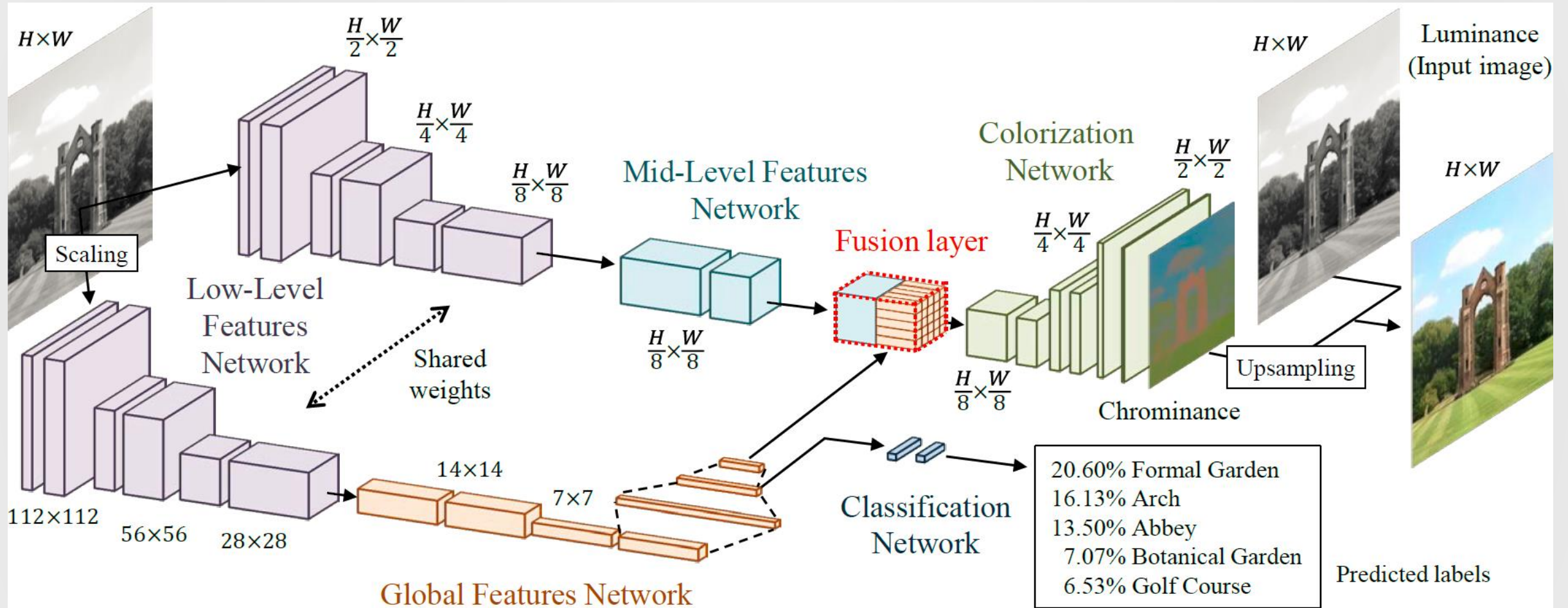




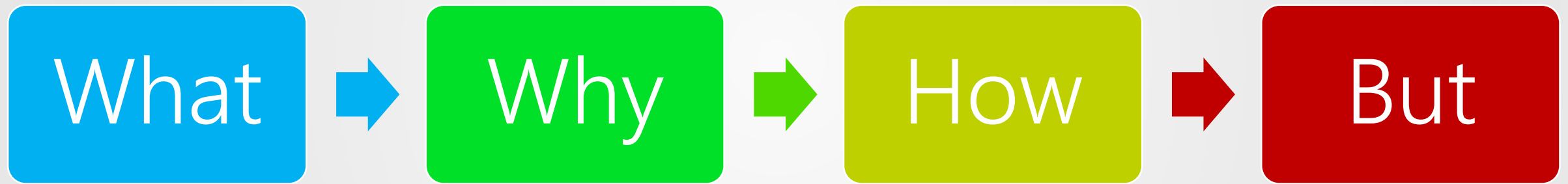


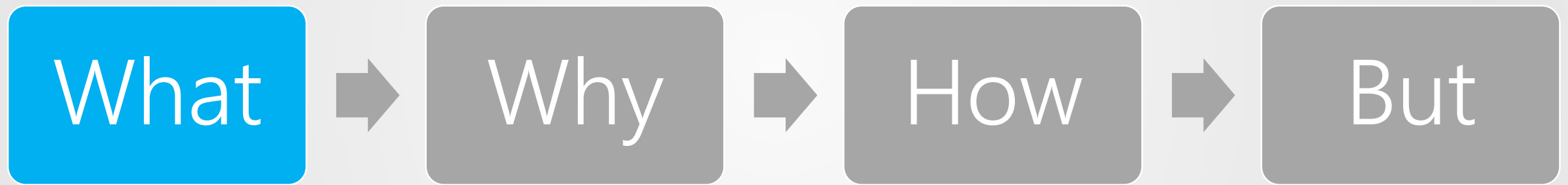


Under the hood



The Roadmap



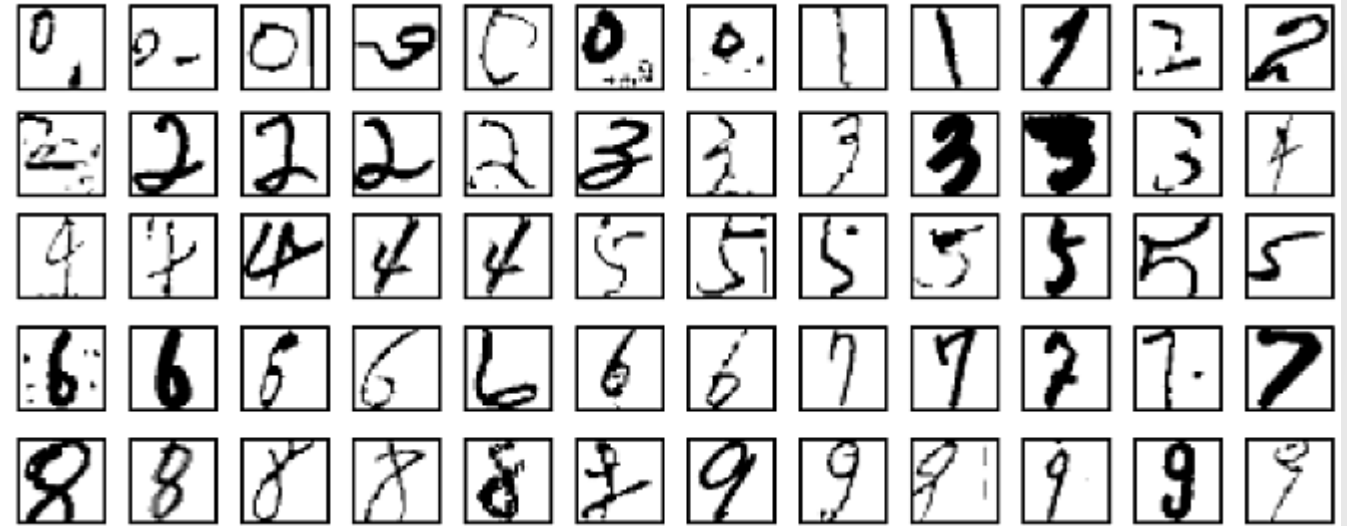
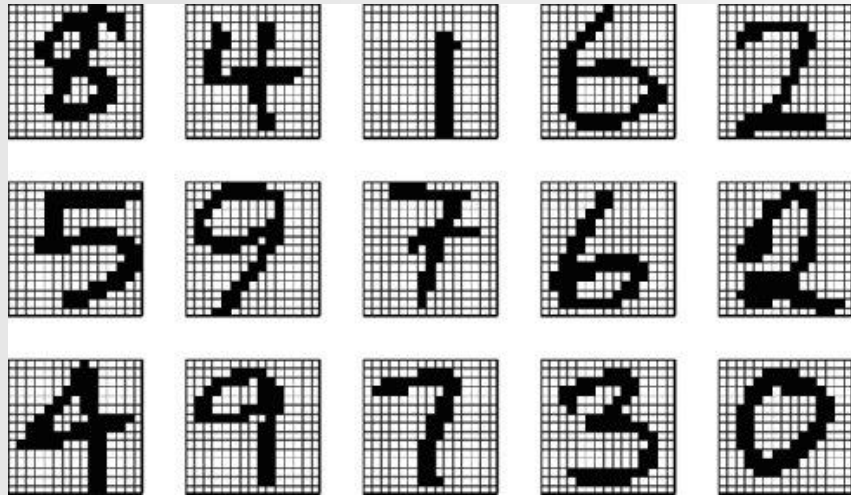




Machine Learning

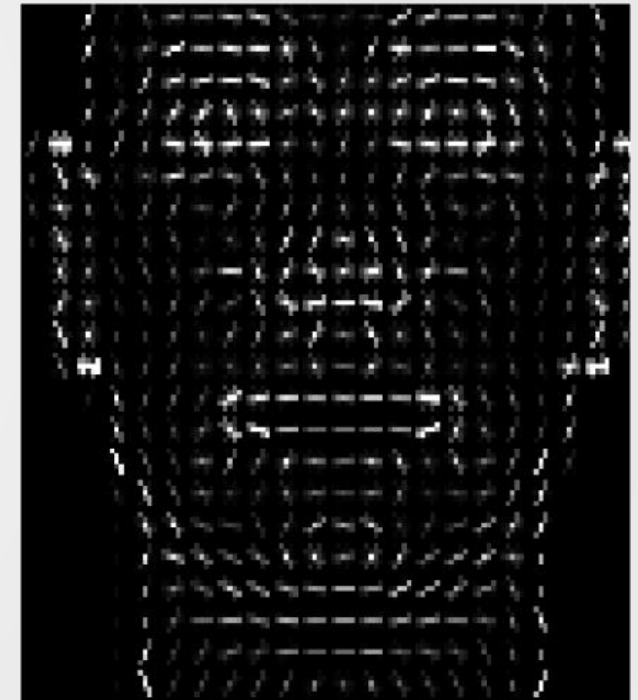
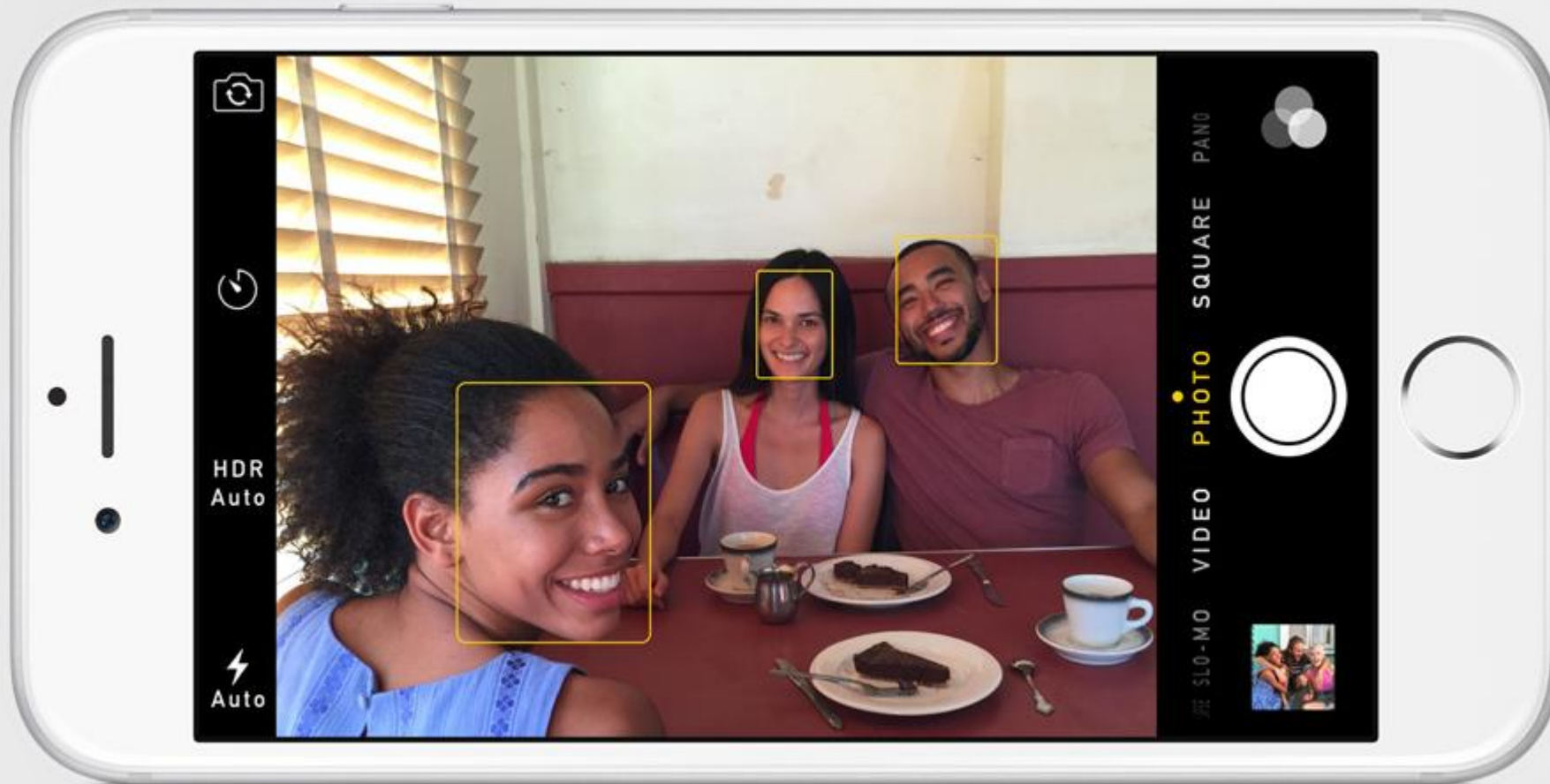
Machine Learning

- Automatically looking for patterns in the data



Machine Learning

- Automatically looking for patterns in the data



Machine Learning

- Automatically looking for patterns in the data

amazon.com

Recommended for You

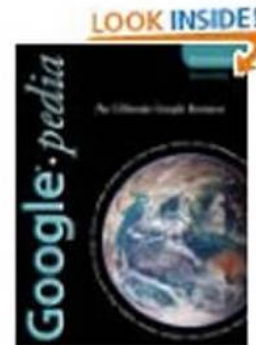
Amazon.com has new recommendations for you based on [items](#) you purchased or told us you own.



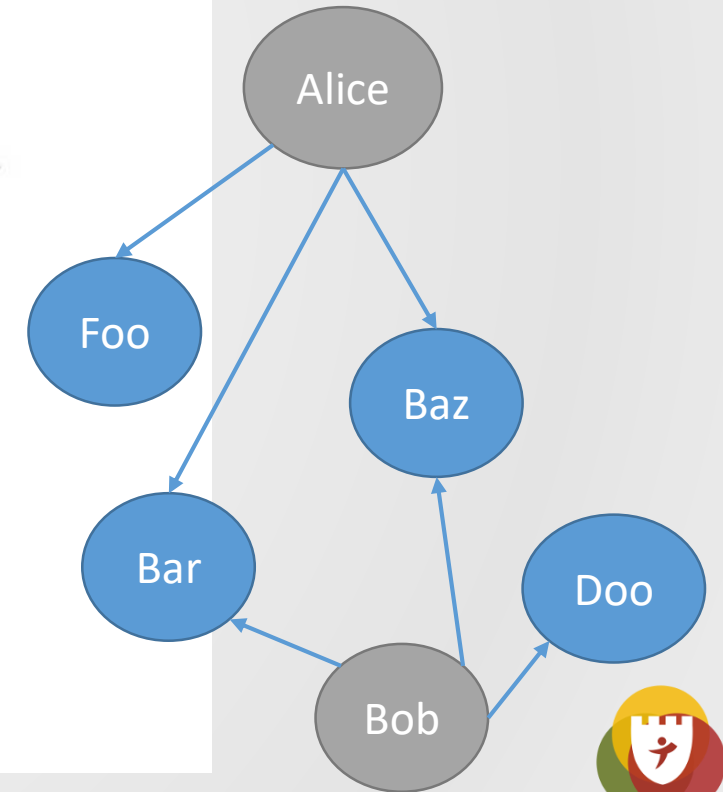
[Google Apps Deciphered: Compute in the Cloud to Streamline Your Desktop](#)



[Google Apps Administrator Guide: A Private-Label Web Workspace](#)



[Googlepedia: The Ultimate Google Resource \(3rd Edition\)](#)



Types of Machine Learning

SUPERVISED



Regression

(how many sales am I making?)



Classification

(what is in this picture?)



Anomaly detection

(is this account activity normal?)

UNSUPERVISED



Clustering

(what groups of customers I have?)

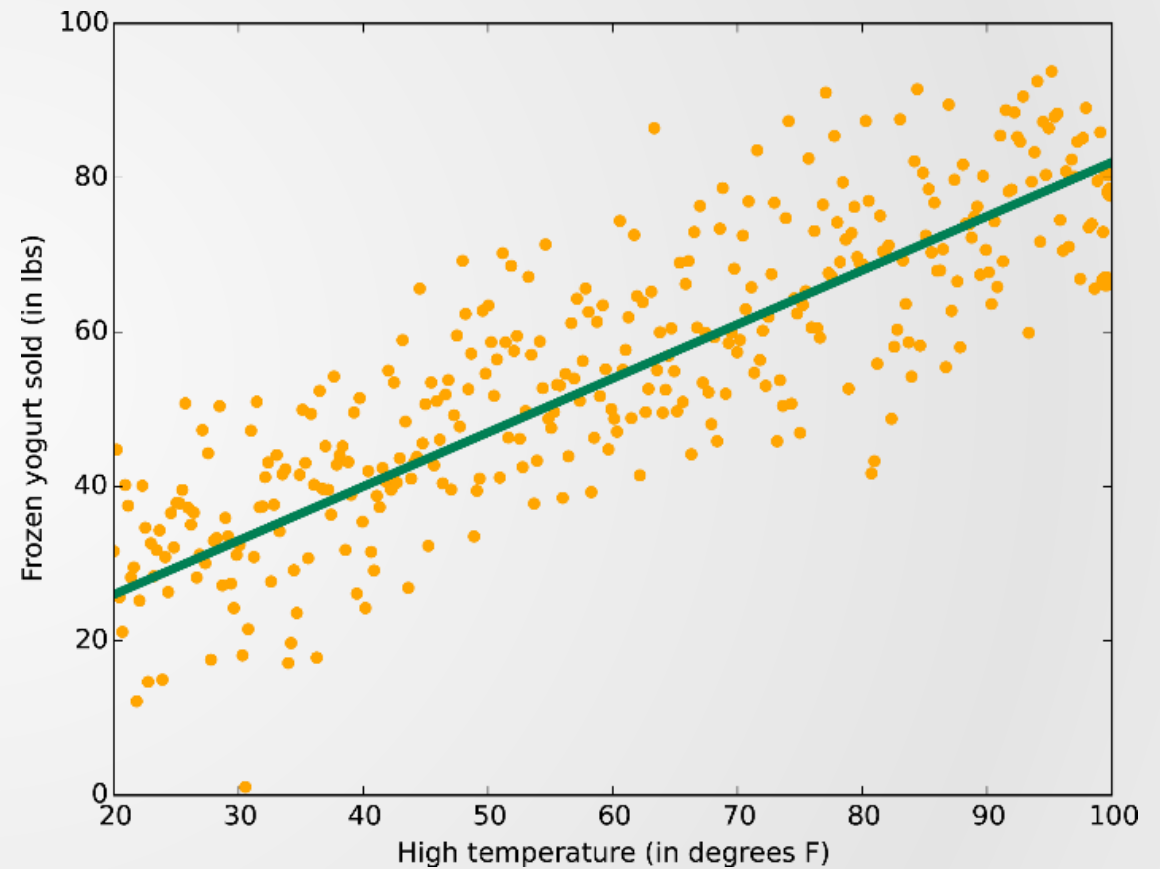


Recommendation

(what song should I listen to?)

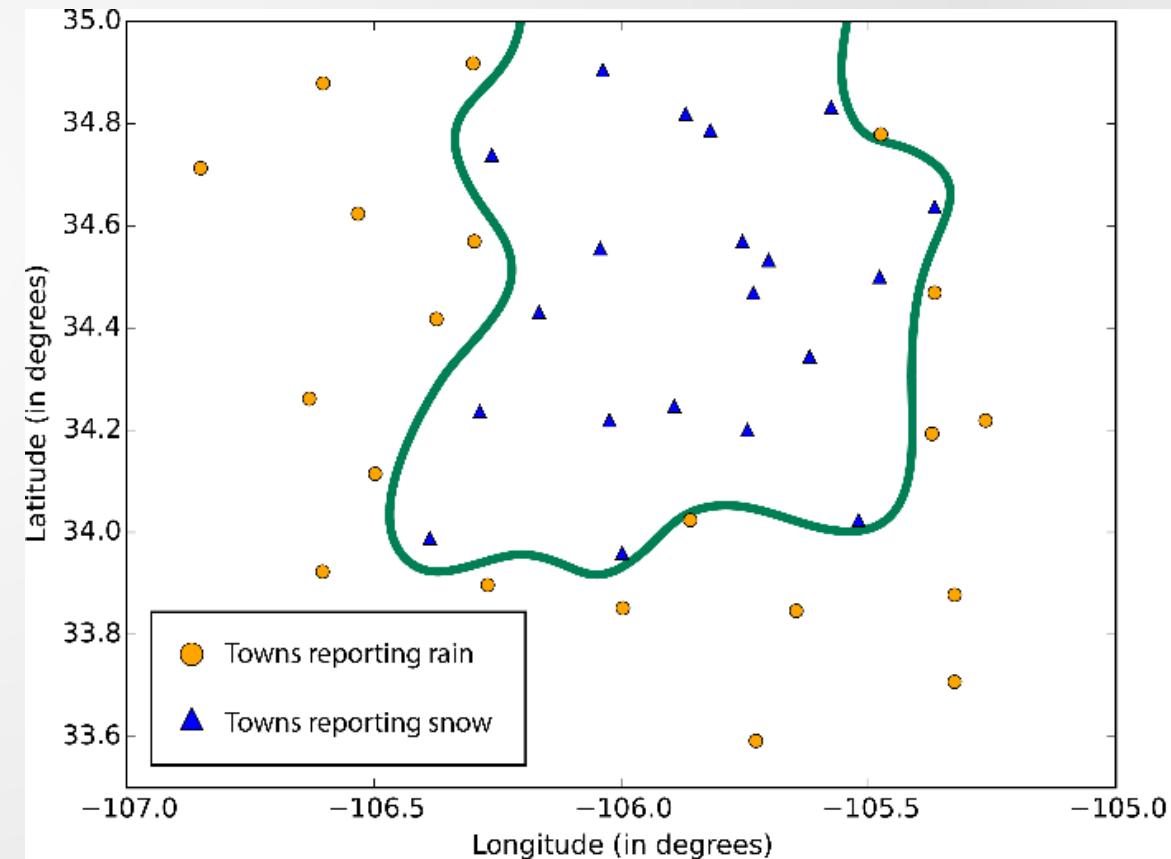
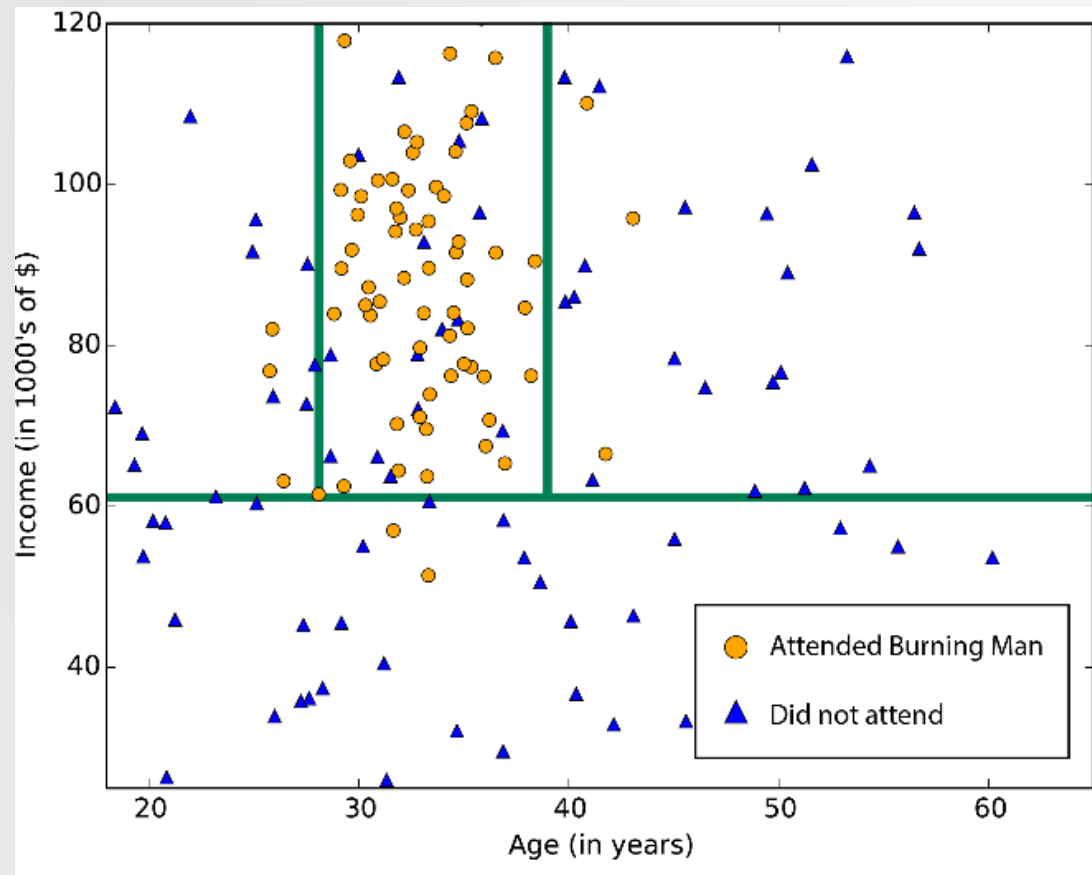
Regression

- Tries to fit observed values into a function curve
- Predicts a **value** (price, size, number of customers...)



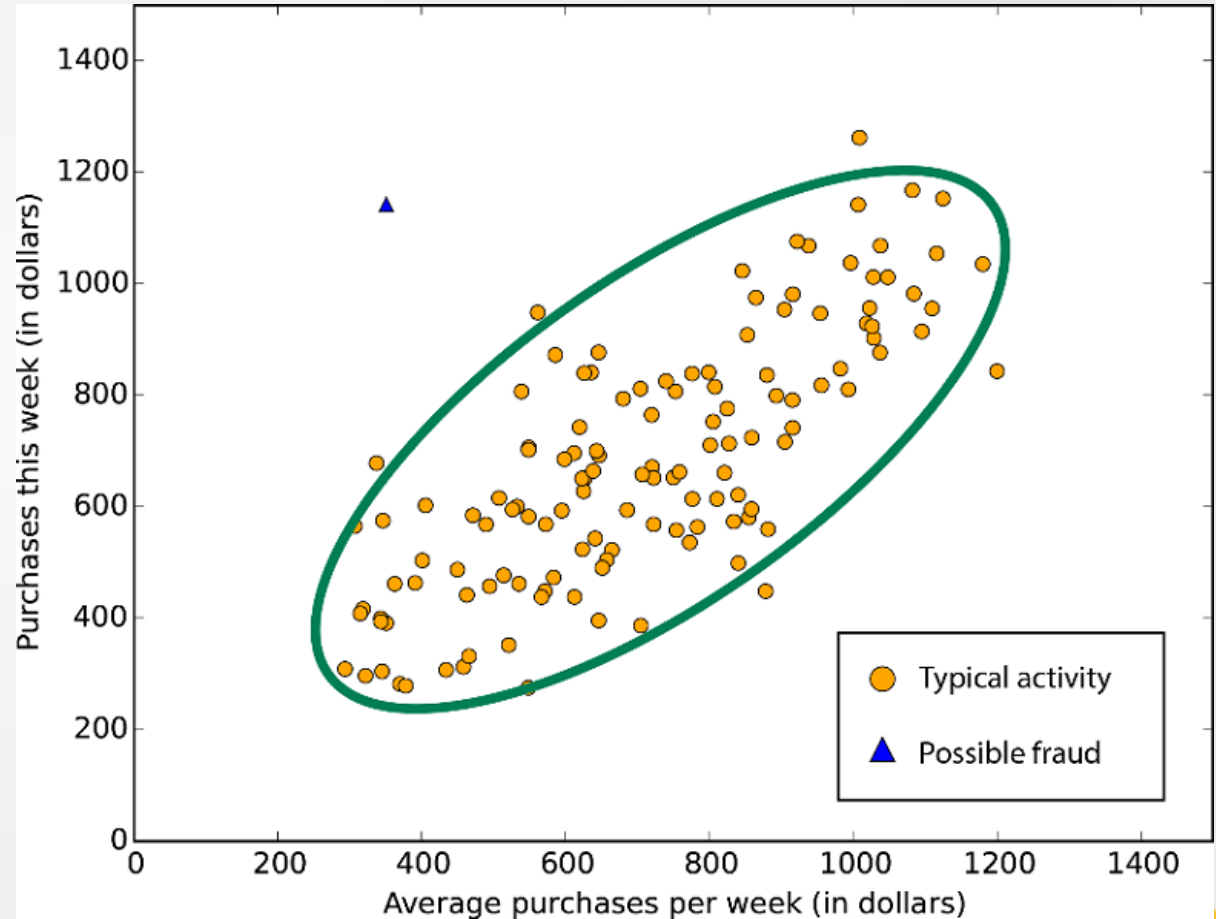
Classification

- Splits the decision space into discrete **categories** and predicts them



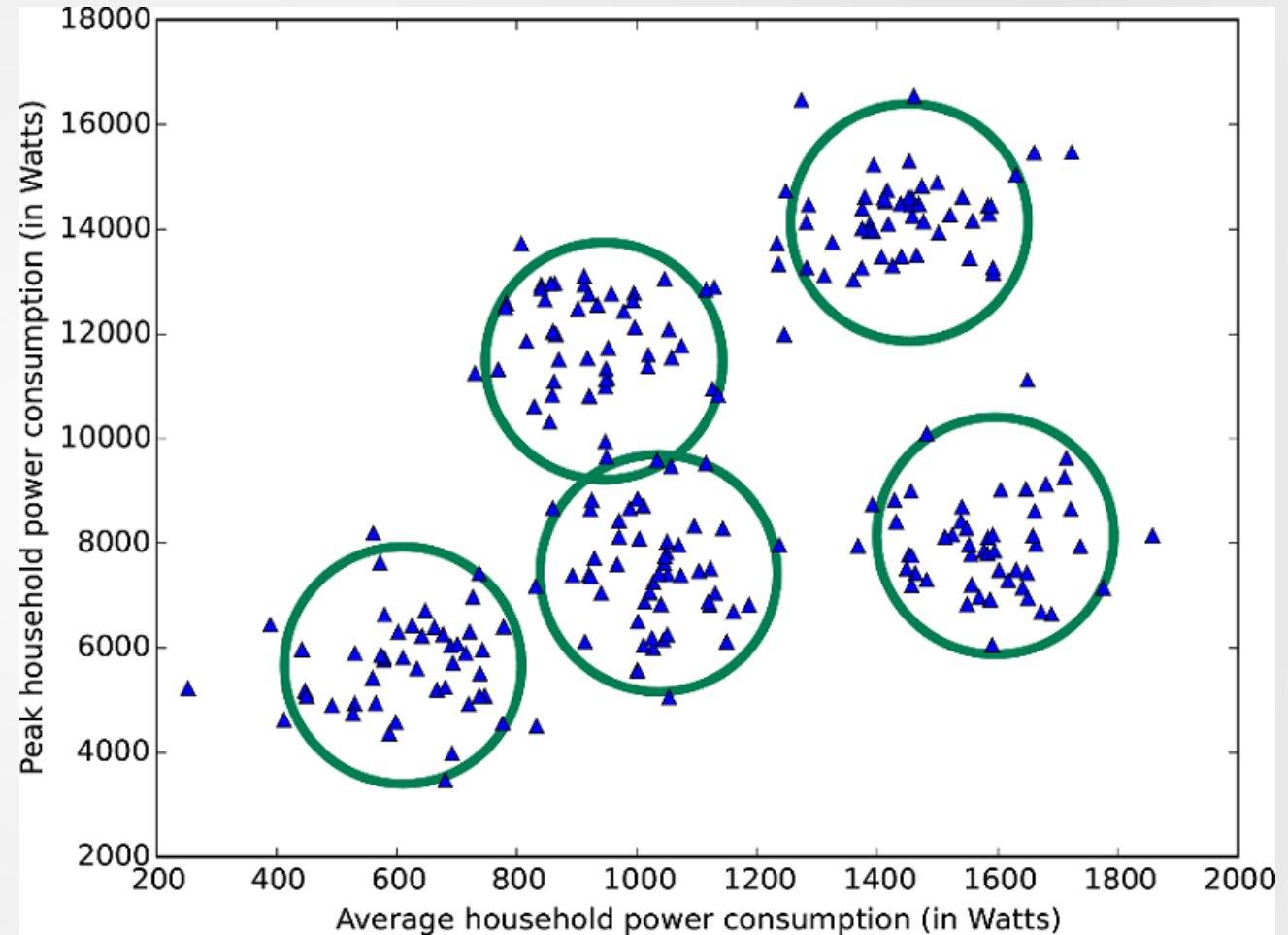
Anomaly Detection

- Special kind of classification that highlights **outlier** values regarding training data



Clustering

- Group observed data into “chunks”



Recommendation

- Associate input and output values to predict by **similarity**
- Mix of classification and reinforcement graphs

(m)eat, (v)egetable, meat/vegetable oriented restaurant

Restaurants R1 – R6

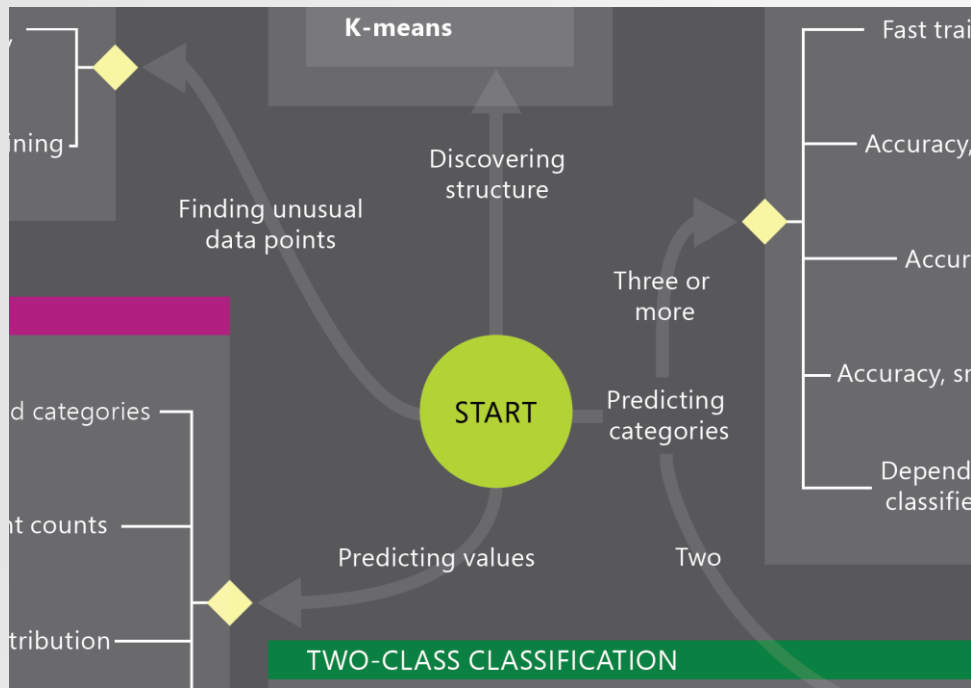
Customers C1 – C8

(m)eat, (v)egetable, meat/vegetable oriented customer

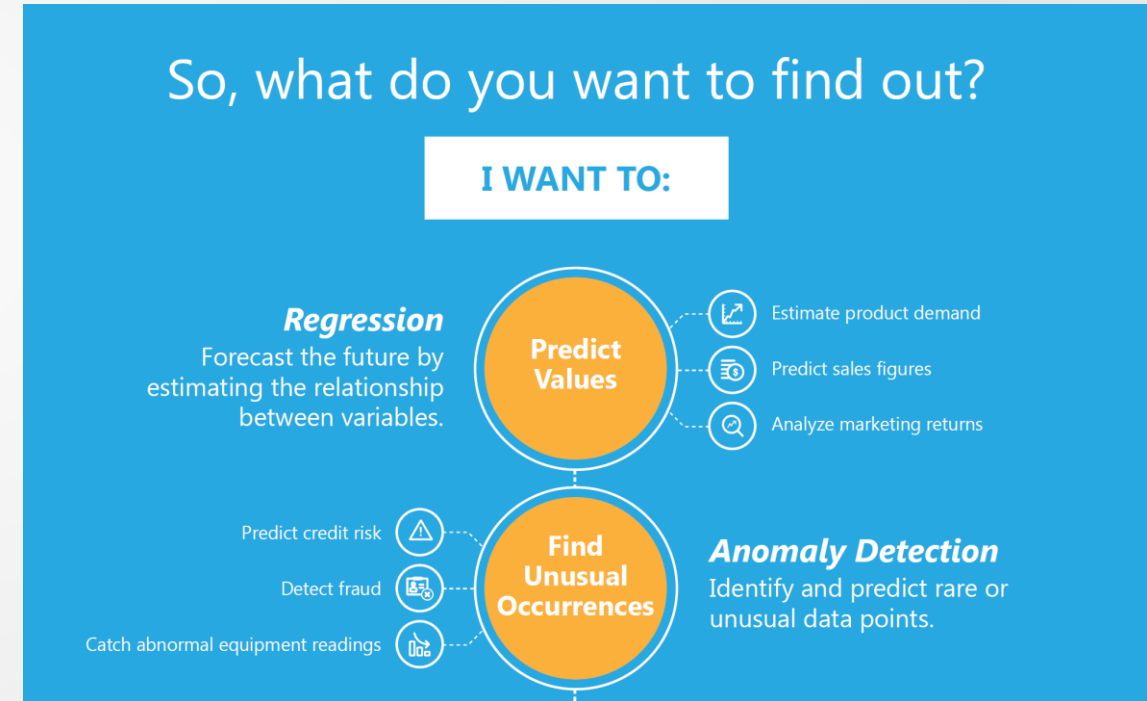
		m	v	m/v	m	v	m/v
		R1	R2	R3	R4	R5	R6
v	C1		★★★★	★		★★★★	★★
m	C2	★★★★		★		★	★
m/v	C3				★★★★	★★★★	★★★★
v	C4	★			★	★★★★	
m	C5		★	★★	★★★★		
v	C6		★★★★	★★★★		★★★★	
m/v	C7		★★★★	★★★★	★		
m	C8	★★	★			★	★★

Confused by now?

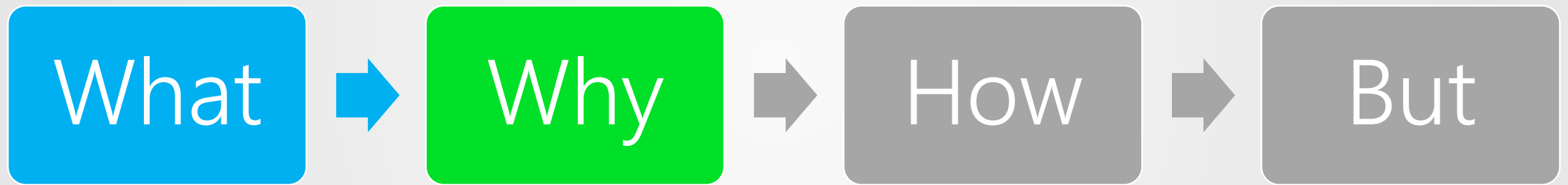
- Azure ML Algorithm **Cheat Sheet**
- Azure ML Basics **Infographic with Examples**



bcned.in/AzureMLCheatsheet




bcned.in/AzureMLInfographic



Predict
some
future
behavior






Quickly do
time-
consuming
classification



L

Aid human
experts

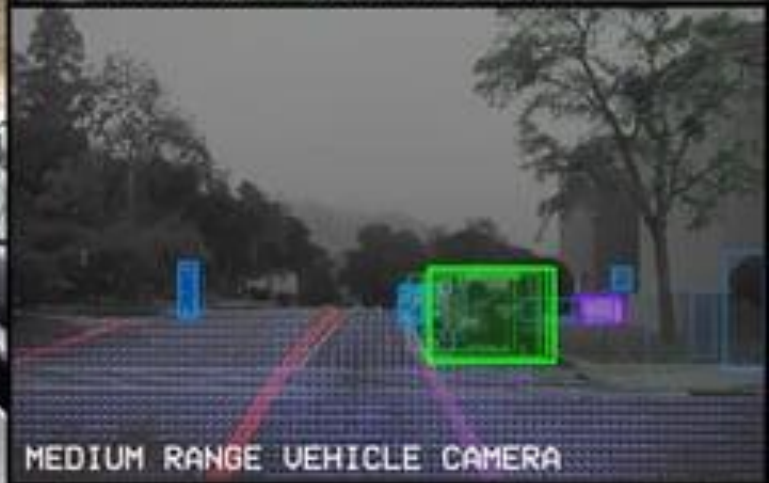
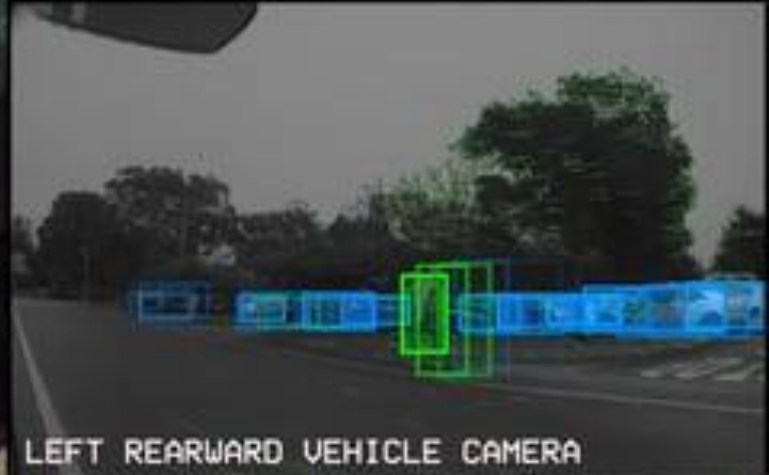
4cm




React to
changes in
real time

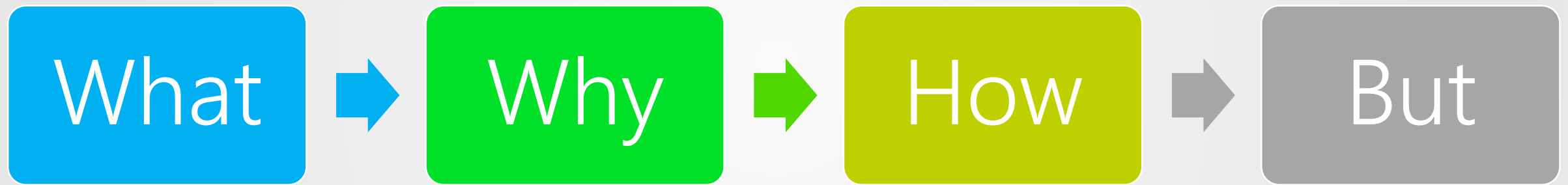


Perform
non-
scriptable
operations





ML in Collaboration







Microsoft Cognitive Services


Amazon Rekognition

Self-service Machine Learning Models

- Pre-trained models
- API as a service

VisionSpeechLanguageKnowledgeSearch

Learn how Vision makes it possible for apps and services to accurately identify and analyze content within images and videos. Try any service free—and quickly build computer vision-enabled apps and services with the following capabilities.



Computer Vision

[Try for free](#) | [Learn more](#)


Image classification

Scene and activity recognition in images | [Demo](#)

Celebrity and landmark recognition in images | [Demo](#)

Optical character recognition (OCR) in images | [Demo](#)

Handwriting recognition | [Demo](#)



Face


[Try for free](#) | [Learn more](#)

Face detection in images | [Demo](#)

Person Identification in images

Emotion recognition in images | [Demo](#)

Similar face recognition and grouping in images | [Demo](#)



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Self-service Machine Learning Models

Vision Services

Amazon Rekognition Image

Deep learning-based image analysis

[Learn more »](#)

Amazon Rekognition Video

Deep learning-based video analysis

[Learn more »](#)

Conversational chatbots

Amazon Lex

Build chatbots to engage customers

[Learn more »](#)

Language Services

Amazon Comprehend

Discover insights and relationships in text

[Learn more »](#)

Amazon Translate

Fluent translation of text

[Learn more »](#)

Amazon Transcribe

Automatic speech recognition

[Learn more »](#)

Amazon Polly

Natural sounding text to speech

[Learn more »](#)

SHAREPOINT PICTURE LIBRARY KEYWORD EXTRACTION

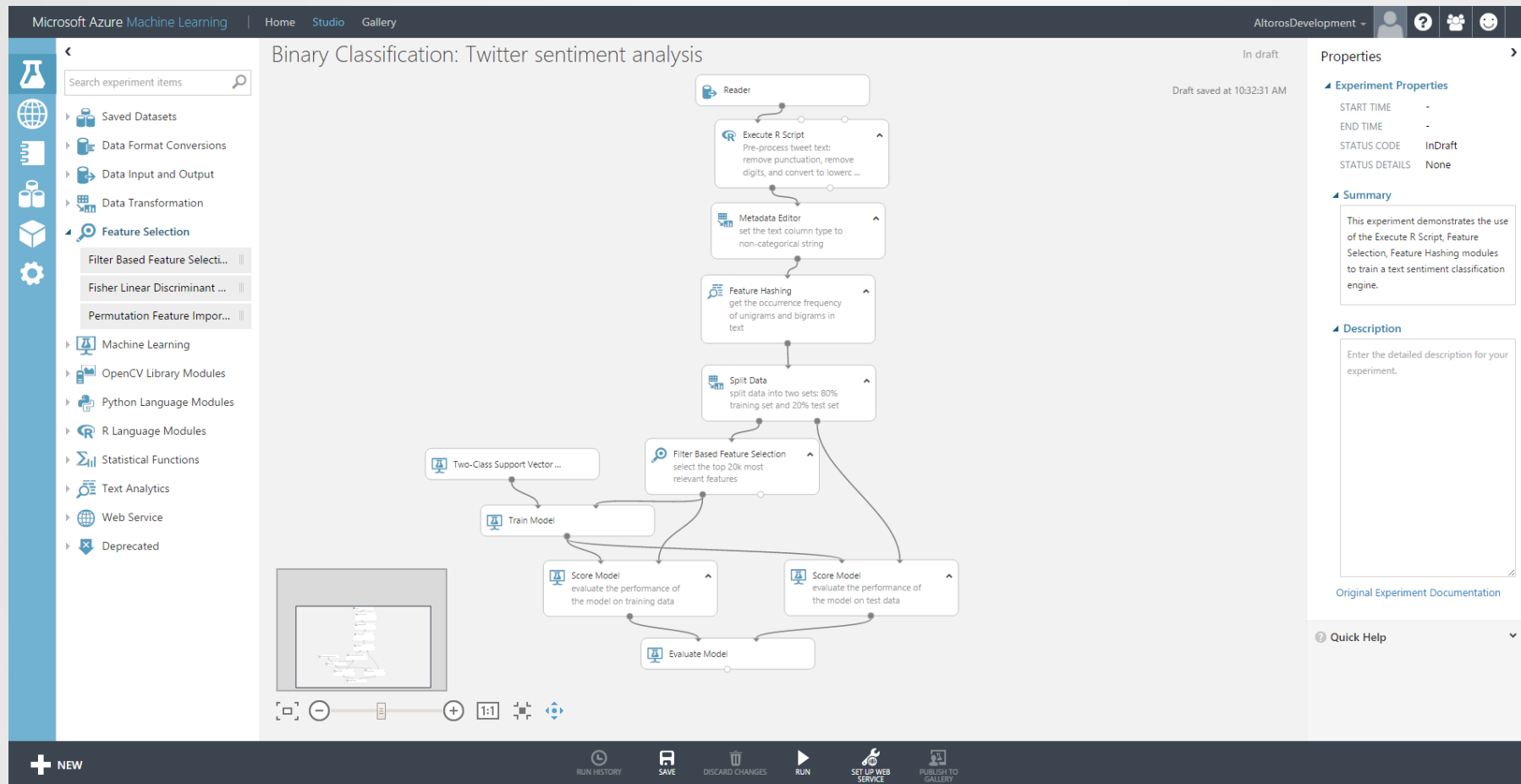


Microsoft ML Studio

Amazon SageMaker

Azure ML Studio / Azure ML Experimentation Service

- Platform for ML models and experiments



Amazon SageMaker

The screenshot displays the Amazon SageMaker console dashboard. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information (Julien SIMON, N. Virginia, Support). The left sidebar shows the 'Amazon SageMaker' section with links to Dashboard, Notebook instances, Jobs, Resources, Models, Endpoint configuration, and Endpoints.

The main content area is titled 'Overview' and features a workflow diagram with four steps: Notebook instance, Jobs, Models, and Endpoint. Each step includes an icon, a description, and a button to view or create the resource.

Overview Workflow:

- Notebook instance:** Explore AWS data in your notebooks, and use algorithms to create models via training jobs. [Create notebook instance](#)
- Jobs:** Track training jobs at your desk or remotely. Leverage high-performance AWS algorithms. [View jobs](#)
- Models:** Create models for hosting from job outputs, or import externally trained models into Amazon SageMaker. [View models](#)
- Endpoint:** Deploy endpoints for developers to use in production. A/B Test model variants via an endpoint. [View endpoints](#)

Recent activity (Recent activity within the Last 7 days):

Notebook instances	Jobs	Models	Endpoints
✓ 1 In Service	⚠ 3 Failed	✓ 5 Created	✓ 4 In Service
✓ 1 Created	✓ 5 Completed		✓ 4 Created
	✓ 8 Created		

EDIN'S CLOTHING MATCHER



አንድ አንድ አንድ አንድ አንድ
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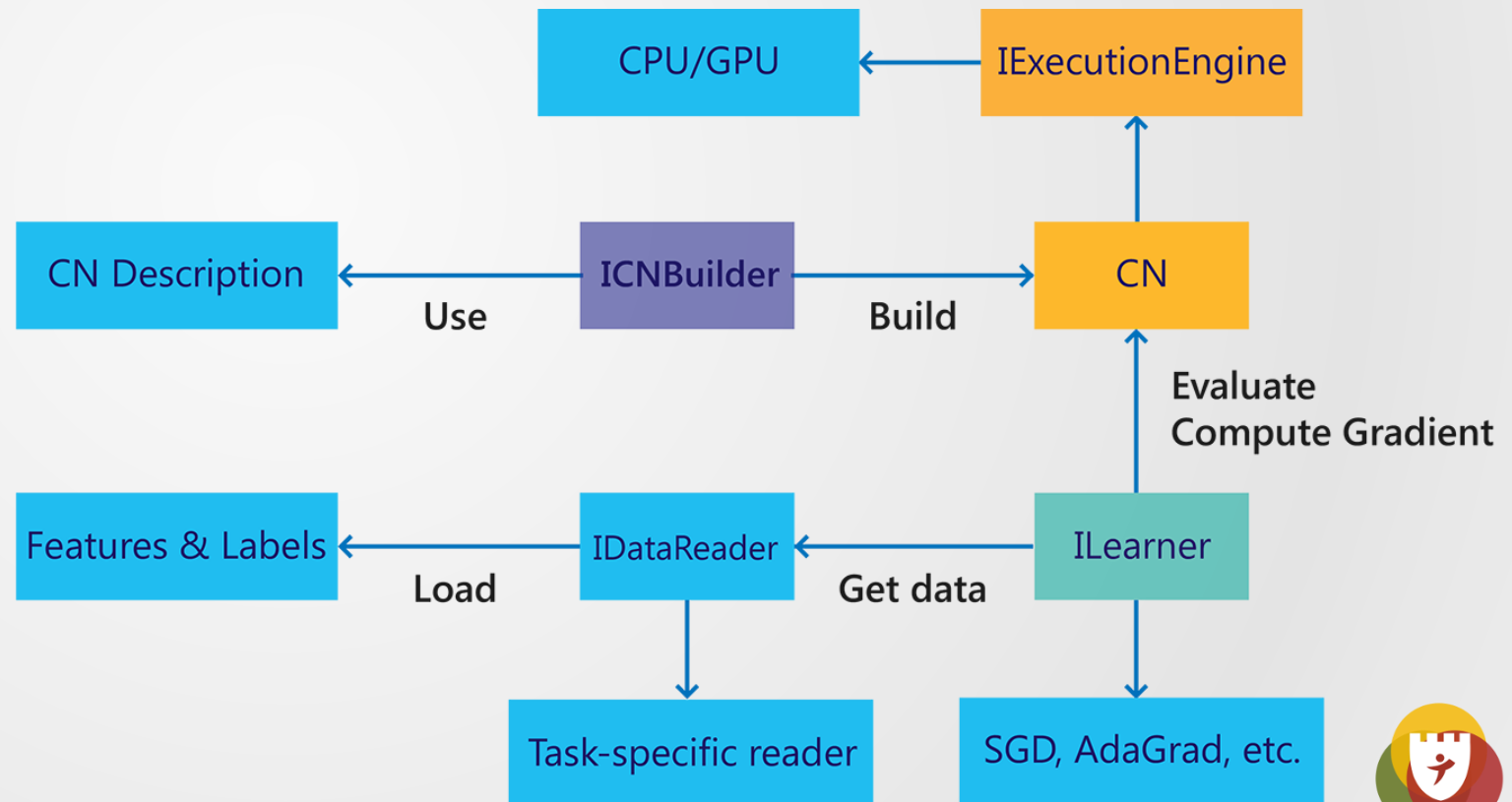
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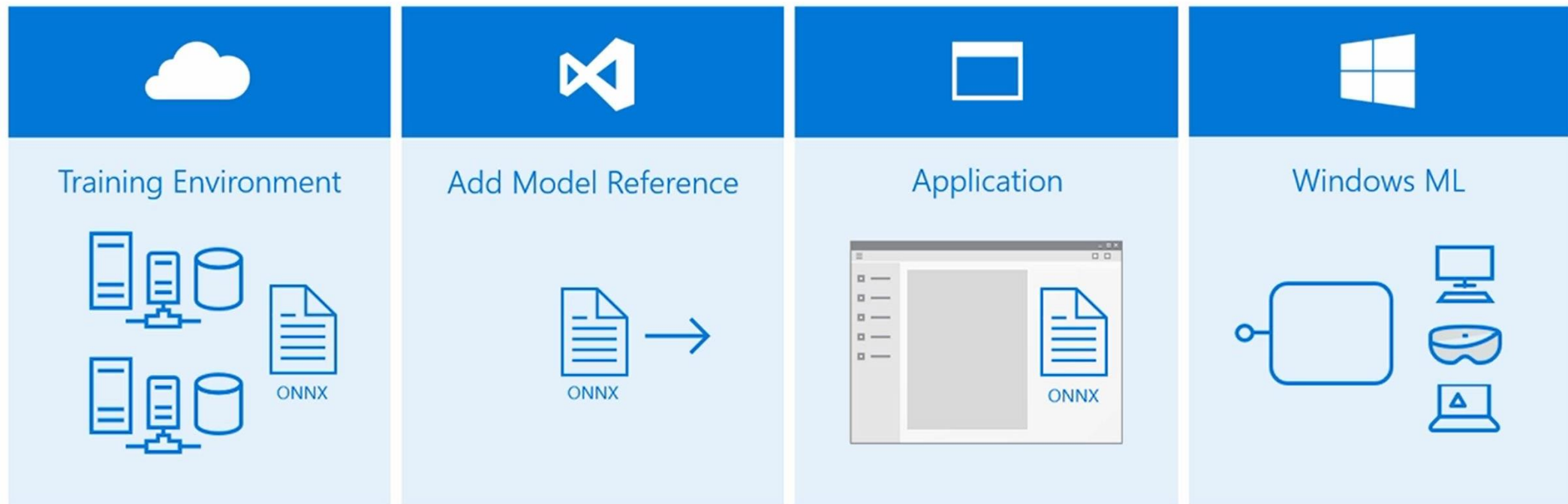
CNTK
WinML
TensorFlow

CNTK: Cognitive Toolkit

- Open-source deep learning toolkit by Microsoft



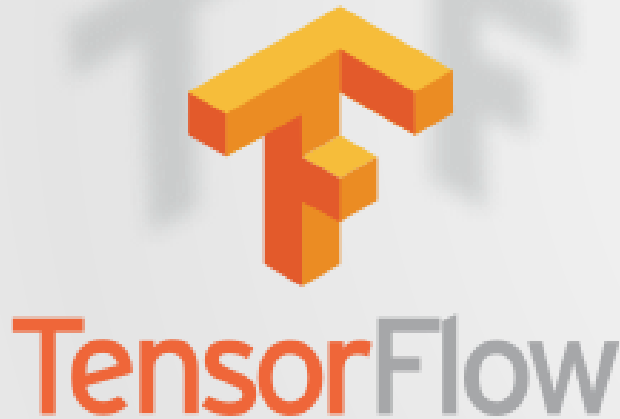
Windows ML



1. Load – Loads ONNX model using Windows ML API
2. Bind – Wires up inputs and outputs to model
3. Eval – Evaluates the model and produces results

TensorFlow

- Open-source machine learning framework



High-Level
TensorFlow APIs

Estimators

Mid-Level
TensorFlow APIs

Layers

Datasets

Metrics

Low-level
TensorFlow APIs

Python

C++

Java

Go

TensorFlow
Kernel

TensorFlow Distributed Execution Engine

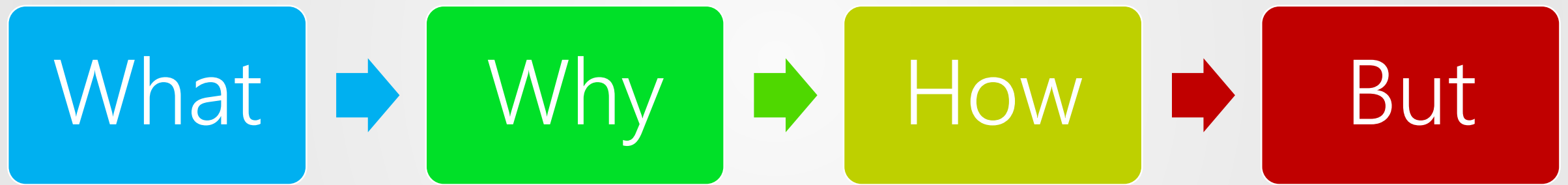
ONNX: Model Interchange Format

- Open Neural Network Exchange Format
- Developed by Microsoft, Facebook and Amazon
- Gallery of models at <https://github.com/onnx/models>



ONNX

TENSORFLOW.JS DEMO



Correlation != Causation



Limitations of Machine Learning



ML Limitations

Predominant objects detected are:

"groom, bridegroom", with confidence of 0.3846261

"cardigan", with confidence of 0.02673883

"neck brace", with confidence of 0.02176941

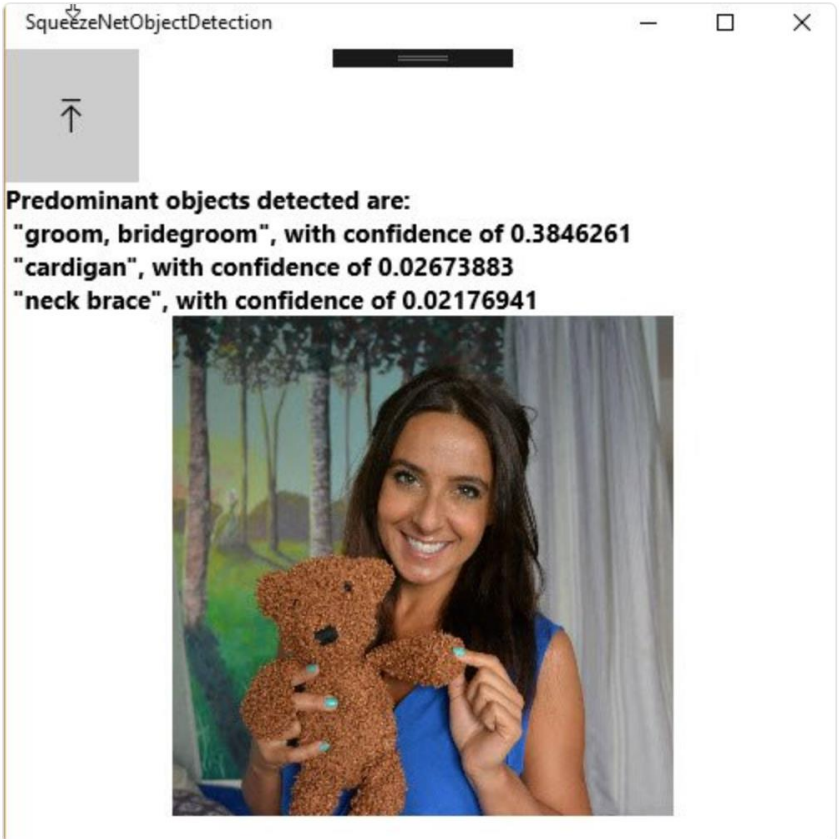


Iris Classon

@IrisClasson

Following

Can't stop laughing :D



4:56 PM - 29 May 2018

Ethical Concerns

David is 11 years old.
He weighs 60 pounds.
He is 4 feet, 6 inches tall.
He has brown hair.

His love is real.
But he is not.



A STEVEN SPIELBERG FILM
ARTIFICIAL INTELLIGENCE



Privacy Concerns

Hype and Expectations



What

- Pattern recognition
- Supervised
- Unsupervised

Why

- Prediction
- Realtime
- Time-consuming

Machine Learning

How

- Services
- Platforms
- Libraries

But

- Ethics
- Privacy
- Limitations



PLEASE FILL IN THE
EVALUATION FORM.

YOUR OPINION IS
IMPORTANT!

AT THE ENTRANCE AFTER THE LAST SESSION OF THE DAY



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