



GABC 2018

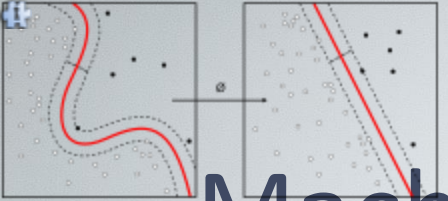
Azure Machine Learning



Machine Learning



1. What is Machine Learning
2. Azure Machine Learning
3. Standard models
4. General approach
5. Find the next victim!



Machine Learning



“Machine learning is a field of computer science that uses statistical techniques to give computer systems the ability to “learn” (i.e., progressively improve performance on a specific task) with data, without being explicitly programmed”

Examples:

- allows retailers to offer you personalized recommendations based on your previous purchases or activity
- systems such as Siri and Cortana use machine learning and deep neural networks to imitate human interaction
- extract street names and house numbers from photos taken by Street View cars and increase the accuracy of search results
- detect and combat fraud

Azure Machine Learning



Azure Machine Learning services

Machine learning at big data scale

Container based AI deployment from cloud to edge

Rapid, scale out, collaborative experimentation

AI powered data wrangling

Spark, Docker, Cognitive Toolkit, TensorFlow, Caffe, and more

Data Science Virtual Machine

Pre-configured environments for data scientists

Seamless integration with Azure services

Any VM size, horizontal scale out with Azure Batch, burst compute

Support for GPUs and popular DNN frameworks

User extensible

Azure Machine Learning

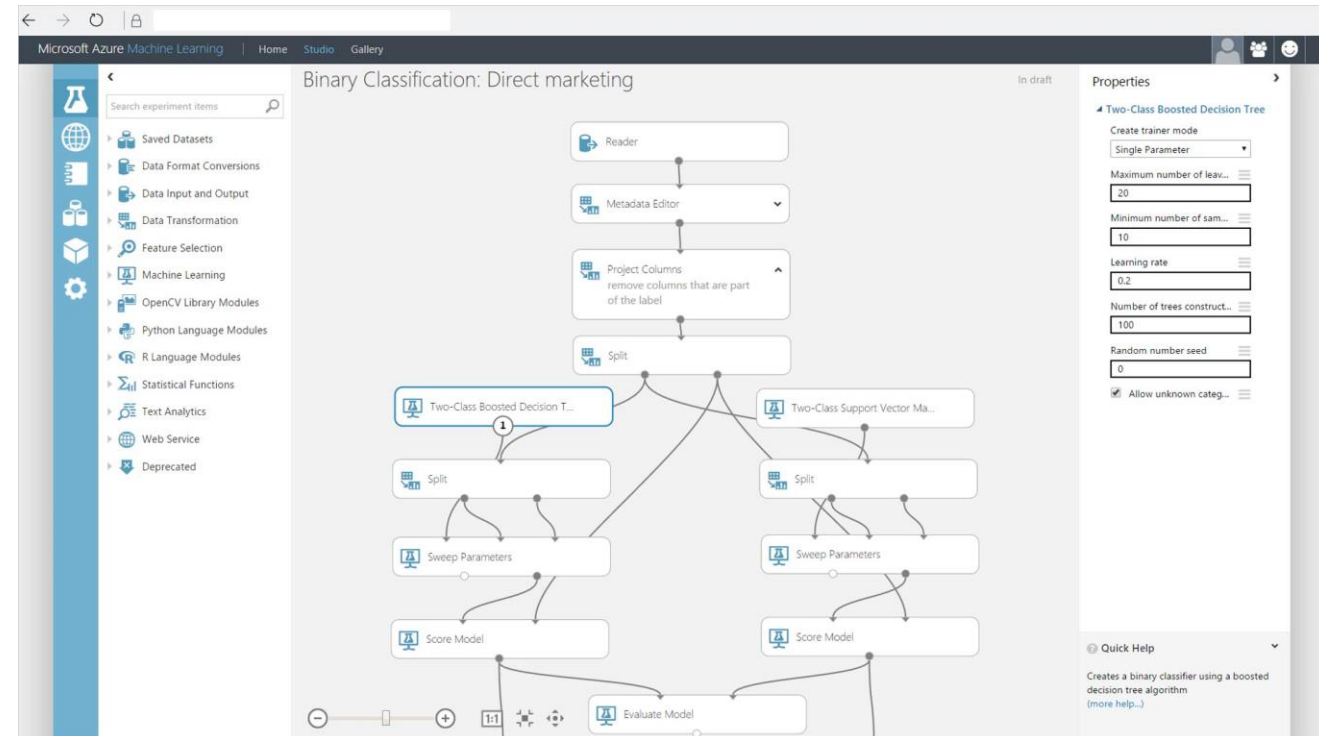


Azure Machine Learning Studio

Serverless, drag and drop development

Code free intuitive experimentation

Deploy web services in minutes



Machine Learning Models



Anomaly detection

For finding unusual data points; *e.g. user errors in planned orders*

Clustering

To discover structure; *e.g. finding similar products*

Regression

Prediction of values; *e.g. best route calculation*

Classification

Prediction of categories; *e.g. what will customer buy*

Machine Learning Process



1. Load data
2. Clean data
3. Feature engineering
 - a. Label, categorize features
 - b. Add metadata
 - c. Create new features
4. Split dataset for learning
5. Pick an algorithm (model)
6. Test hypothesis
7. Pick a different algorithm, tweak parameters
8. Repeat until good enough

Find the victim



There is a big mob 'family' in town, an 'incident' will take one of recently discovered members out.

- An anonymous tip came in; find out who is most likely to die based on couple of hints to prevent the murder.
- Given existing dataset with all mob members; rank (boss, leader, henchman), age, gender, income, siblings, neighborhood.
- Use list with previously unknown members to find the victim.

How to find the victim



1. Import dataset in Azure ML
2. Clean and filter data, categorize columns
3. Train and score using binary classification
4. Create webservice
5. Pass hints to webservice and find the most likely victim!

Follow the walkthrough:

<https://bit.ly/2J4S2AP>