Microsoft Azure Machine Learning

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What is Machine Learning (ML)

Computing Systems that become smarter with **Experience**

**Experience** = Past Data + Human Input
Why Now?
WindFlow
http://windflow.azurewebsites.net/
What is Azure Machine Learning

Data
- Blobs and Tables
- Hadoop (HDInsight)
- Relational DB (Azure SQL DB)

ML STUDIO
Integrated development environment for Machine Learning

API
Model is now a web service that is callable
Monetize the API through our marketplace

Clients
Microsoft Azure Machine Learning: Algorithm Cheat Sheet

This cheat sheet helps you choose the best Azure Machine Learning Studio algorithm for your predictive analytics solution. Your decision is driven by both the nature of your data and the question you're trying to answer.

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### ANOMALY DETECTION
- **One-class SVM**
  - >100 features
  - PCA-based anomaly detection
  - Linear approximation
- Finding unusual data points

### REGRESSION
- **Ordinal regression**
  - Data in rank ordered categories
  - Predicting event counts
- **Poisson regression**
  - Predicting a distribution
- **Fast forest quantile regression**
  - Fast training, linear trends
- **Linear regression**
  - Linear trends
- **Bayesian linear regression**
  - Accuracy, long training time
- **Neural network regression**
  - Accuracy, fast training
- **Decision forest regression**
  - Accuracy, fast training, large memory footprint
- **Boosted decision tree regression**
  - Fast training, linear boundaries

### CLUSTERING
- **K-means**
  - Discovering structure
  - Discovering unusual data points

### MULTI-CLASS CLASSIFICATION
- **Multiclass logistic regression**
  - Accuracy, long training times
- **Multiclass neural network**
  - Accuracy, small memory footprint
- **Multiclass decision forest**
  - One-v-all multiclass
- **Multiclass decision jungle**
  - (See two-class classifier notes)

### TWO-CLASS CLASSIFICATION
- **Two-class decision forest**
  - Accuracy, fast training
  - >100 features, linear boundaries
- **Two-class locally deep SVM**
  - Fast training, linear boundaries
- **Two-class averaged decision tree**
  - Fast training, linear boundaries
- **Two-class boosting decision tree**
  - Fast training, large memory footprint
- **Two-class Bayes point machine**
  - Fast training, linear boundaries
  - >100 features
- **Two-class SVM**
  - Accuracy, small memory footprint
  - Two-class locally deep SVM
Azure Data Journeys

Other Data Services Available on Azure
Cortana Analytics Suite

Visualisation
- Power BI

Orchestration
- Service bus
- Event Hub
- Data Factory

Compute
- Stream Analytics
- HD Insight
- Machine Learning
- Virtual Machines
- SQL Data Warehouse

Storage
- Table Storage
- Blob Storage
- SQL Azure
- Data Lake
- Document DB
Description
Part of Microsoft Project Oxford, Face APIs provide state-of-the-art algorithms to process face images, like face detection with gender and age prediction, recognition, alignment and other application level features.

Face detection with attributes extraction
You will get the detected faces with rectangles indicating the face positions and a series of face related attributes, include landmarks, pose, gender and age by giving an image.

Face Verification
Given two detected faces, you will get result indicates whether the two requested faces belong to the same person.
Thanks for your time

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Useful Links:

http://azure.microsoft.com/ - sign up for your trial

https://studio.azureml.net/ - log into the studio

https://gallery.azureml.net/ - check out the gallery

http://1drv.ms/1CjzW2f - download the lab guide