

# AZURE MACHINE LEARNING



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# **SESSION AGENDA**

- Azure Machine Learning Overview
- Understanding the ML Studio
- Experiment end-to-end

# Fully managed

No software to install, no hardware to manage, and one portal to view and update

### Connected

Simple drag, drop and connect interface for both data acquisition and modeling

## Best in Class Algorithms + R + *Python*

Access to sample experiments, tested algorithms, support for your custom R, and over 350 R packages

# Deploy in minutes

Tooled for quick deployment, hand-off and updates – click "Publish Web Service"

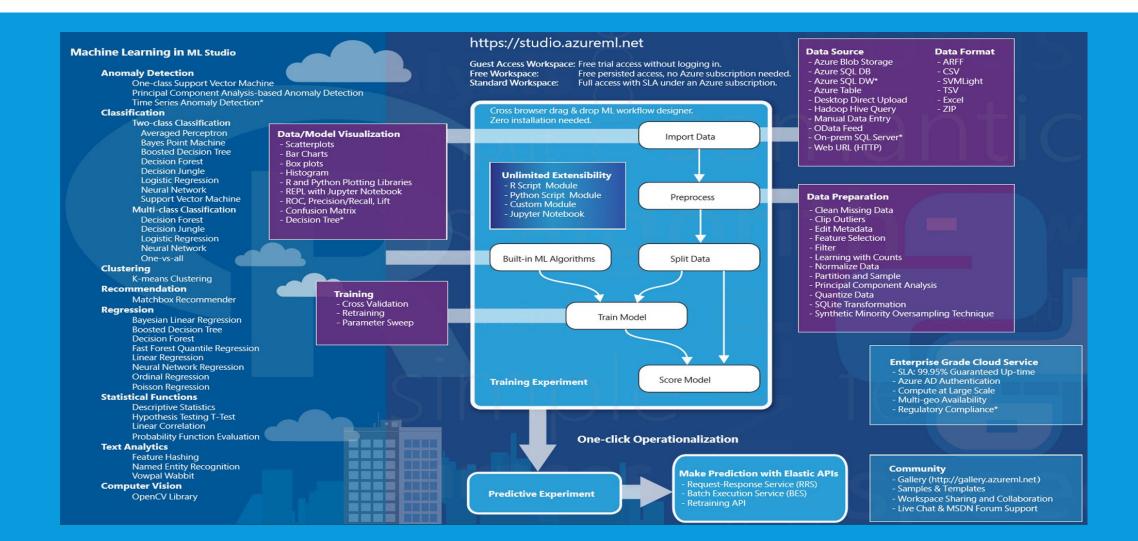
# AZURE ML OVERVIEW

#### Predictive Analytics Workflow Predictive Modeling (Azure ML) **Define Business** Model 1 Performance Understand and Performance Adjust Model Performance **Defined Data** Measure Performance **Enrich Data and** \*Highest performing predictive model Insights

#### AZURE MACHINE LEARNING WORKFLOW

 Azure machine learning is a continuous process, which may require extensive amount of time to finish a proper model and model comparisons.

### **AZURE ML TASKS**



#### This cheat sheet helps you choose the best Azure Machine Learning Studio Microsoft Azure Machine Learning: Algorithm Cheat Sheet 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. ANOMALY DETECTION **CLUSTERING** MULTI-CLASS CLASSIFICATION >100 features, One-class SVM Fast training, linear model — Multiclass logistic regression aggressive boundary - Accuracy, long training times — • Multiclass neural network PCA-based anomaly detection Discovering structure Finding unusual data points Multiclass decision forest Accuracy, fast training — Three or REGRESSION - Accuracy, small memory footprint- Multiclass decision jungle Predicting START Ordinal regression Depends on the two-class One-v-all multiclass classifier, see notes below Poisson regression Predicting event counts Predicting values Fast forest quantile regression Predicting a distribution— TWO-CLASS CLASSIFICATION Linear regression Fast training, linear model — → Two-class decision forest fast training >100 features, Two-class SVM linear model Bayesian linear regression Linear model, small data sets— Two-class boosted decision tree footprint Fast training, Two-class averaged perceptron -Neural network regression Accuracy, long training time small memory —• Two-class decision jungle footprint Fast training, Two-class logistic regression linear model Decision forest regression Accuracy, fast training— >100 features — Two-class locally deep SVM Fast training, Two-class Bayes point machine • Accuracy, fast training, large memory footprint Accuracy, long — Two-class neural network training times Boosted decision tree regression Microsoft © 2015 Microsoft Corporation. All rights reserved. Created by the Azure Machine Learning Team Email: AzurePoster@microsoft.com

#### AZURE ML ALGORITHMS

 You need to know what you're looking for with AzureML – and based on that choose proper algorithm for AzureML

### **LEARNING TYPES**

- Supervised learning is a type of machine learning algorithm that uses known datasets to create a model that can then make predictions. The known data sets are called and include input data elements along with known response values.
- Unsupervised machine learning, the success of the new predictive model depends entirely on the ability to infer and identify patterns, structures, and relationships in the incoming data set. The goal of inferring these patterns and relationships is that the objects within a group be similar to one another—and also different from other objects in other groups.

# TIME TO EXPERIMENT

Let's create an experiment, live ...

### ADDITIONAL READING

- Free eBook
  - https://blogs.msdn.microsoft.com/microsoft\_press/2015/04/15/free-ebook-microsoft-azure-essentials-azure-machine-learning/
- Free Azure trial offer at:
  - http://azure.microsoft.com/en-us/pricing/free-trial
- Free Azure Machine Learning Trial offer at:
  - https://studio.azureml.net/Home
- Azure Machine Learning:
  - http://azure.microsoft.com/en-us/services/machine-learning/
- · Azure Machine Learning Data Market:
  - http://datamarket.azure.com/browse?query=machine%2olearning
- Azure Machine Learning gallery
  - https://gallery.azureml.net
- Azure Machine Learning blog
  - http://blogs.technet.com/b/machinelearning
- Videos: PASS Data Science Virtual Chapter
  - https://www.youtube.com/channel/UCqB3xWdwjA9soFV6EOu7qfg