Azure Machine Learning

Predicting ‘who’ and ‘how’ many people will attend a conference session?

Amy Nicholson – Technical Evangelist
@AmyKateNicho
“Prediction is very difficult, especially about the future ...”

Artificial Intelligence

Cognitive Skills
Speech Recognition
Psychology
NLP
Sociology

Computer Vision
Pattern Recognition
Machine Learning
Ethics

Knowledge Representation
Bias
Reasoning

Neurocomputing
Planning and scheduling
Fixed rate

Jointly varying rate

Detected correlations in the input

\[
\frac{d}{dt} w_{ij} = a_2^{corr} v_i^{post} v_j^{pre}
\]

\[
\frac{d}{dt} w_{ij} = a_2^{corr} \left[ \sum_k w_{ik} v_k^{pre} \right] v_j^{pre}
\]

\[
\langle \frac{d}{dt} w_{ij} \rangle = a_2^{corr} \sum_k w_{ik} \langle v_k^{pre} v_j^{pre} \rangle
\]

\( v_i^{post} = \sum_k w_{ik} v_k^{pre} \)
But ...

dean technologies are for everyone
Computing Systems that become smarter with **Experience**

**Experience** = Past Data + Human Input
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

Clients
Monetize the API through our marketplace
Azure Machine Learning Studio

https://studio.azureml.net/
Jupyter Notebooks

https://gallery.cortanaintelligence.com/notebooks

@AmyKateNicho
Azure Machine Learning Web Services

https://aka.ms/amlwebservice
Key Finding
No.1 ...

Real Data is Messy
Key Finding No.2 …

Experimentation is Key
Key Finding No.3 ...

Make it Real
<table>
<thead>
<tr>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power BI</td>
</tr>
<tr>
<td>Azure Stream Analytics</td>
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<tr>
<td>Azure HDInsight</td>
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<tr>
<td>Azure Machine Learning</td>
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<tr>
<td>SQL DB, SQL DW, Document DB</td>
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<tr>
<td>Azure Data Lake</td>
</tr>
<tr>
<td>Azure Event Hub</td>
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<tr>
<td>Azure Data Factory</td>
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<tr>
<td>Azure Data Catalog</td>
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<tr>
<td>Microsoft Azure</td>
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CORTANA INTELLIGENCE PLATFORM
Data Science Virtual Machine
Microsoft

Overview

Virtual machine with tools for the data science modeling and development

The Data Science Virtual Machine runs on Windows Server 2012 and contains popular tools for data exploration, modeling and development activities. The main tools included are Microsoft R Server Developer Edition (An enterprise ready scalable R framework), Anaconda Python distribution, Julia Pro developer edition, Jupyter notebooks for R, Python and Julia, Visual Studio Community Edition with Python, R and node.js tools, Power BI desktop, SQL Server 2016 Developer edition including support In-Database analytics using Microsoft R Server. It also includes open source deep learning tools like Microsoft Cognitive Toolkit (CNTK 2.0) and msnnet; ML algorithms like xgboost, Vowpal Wabbit, The Azure SDK and libraries on the VM allows you to build your applications using various services in the cloud that are part of the Cortana Analytics Suite which includes Azure Machine Learning, Azure data factory, Stream Analytics and SQL Datalakehouse, Hadoop, Data Lake, Spark and more. You can deploy models as web services in the cloud on Azure Machine Learning OR deploy them either on the cloud or on-premises using the Microsoft R Server operationalization.

Learn more

Learn More
Data Science Process
How-To Guide to the Data Science Virtual Machine
Key Takeaways ...

• Azure Machine Learning: https://studio.azureml.net/

• Cortana Intelligence: https://aka.ms/cortanaintelligencelink

• Microsoft Data Science Degree Programme: https://aka.ms/dsdegree

• Are you working on projects in this space? Get in touch: @AmyKateNicho
“Prediction is very difficult, especially about the future ...”


“But find the right toolset and it can help make you successful...”

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