



Microsoft Azure Overview

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Tech Solutions Professional, Microsoft Azure

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廣瀬 一海（デプロイ王子）

日本マイクロソフト株式会社
Azure テクノロジースペシャリスト

愛称「デプロイ王子」 / 元 Microsoft MVP (Azure) でした。

現在は、Microsoft Azureに関する技術支援を行っています。

普段は、お客様とAzureの使い方について設計や検証を一緒に行う活動の傍ら、コミュニティやセミナーの登壇、Webメディアへの記事執筆活動なども行っています。





注目ニュース

▶AWS卒業の小島英揮さんがJAWS-UGの舞台裏を語り尽くす



▶ありがとう砂金さん！品川が震えた卒業イベントで刻の涙を見る

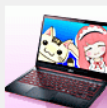


▶ASCII特設サイト

PanaSpot on ASCII.jp
レッツノートの最新情報を掲載



富士通 WEB MART
富士通のお買い得情報満載



DELL Mart on ASCII.jp
デルのお買い得最新情報を掲載



[PR]カスタマイズレッツノート15年間の挑戦を池澤あやかさんが直撃

“惑星規模”でスケール!? デプロイ王子が解説

謎の分散データベース「Azure Cosmos DB」一問一答

2017年05月23日 07時00分更新

文 ● 羽野三千世 / TECH.ASCII.jp 写真 ● 曽根田元

B! 13

シェア 208

ツイート

一覧

G+ 2

お気に入り

本文印刷

米マイクロソフトが「Build 2017」で発表した新しいクラウドNoSQLデータベース「Azure Cosmos DB」。Microsoft Azureの世界40リージョン（計画6力所を含む）にデータを分散保存し、分散された各リージョンのデータが一貫性を保って利用できるように設計されている。

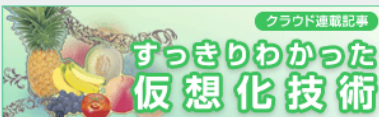
もともとは、マイクロソフトが自社のアプリケーションをグローバルに提供するために、社内向けに2010年頃から開発してきたものだ。世界中のリージョンから同時に書き込まれたデータに、最寄りのリージョンからアクセスできるため、応答性の高いアプリケーションを構築することができる。

Build 2017で紹介されたCosmos DBの次の特徴について、日本マイクロソフトクラウドプラットフォーム技術部 テクノロジーズペシャリストの廣瀬一海氏（デプロイ王子）に一問一答形式で教えてもらった。

- 惑星規模でスケール
- マルチモデル、マルチAPI
- Turn-key global distribution
- 5つの一貫性モデル
- 大規模アプリケーションの開発を支援



日本マイクロソフトクラウドプラットフォーム技術部 テクノロジーズペシャリストの廣瀬一海氏（デプロイ王子）



アクセスランキング

- 1 高専初「サイバーレンジ」も、都立産技高専…
- 2 オープンデータの鯖江市が取り組むIchigoJa…
- 3 超小型サーバー「HPE TM200」をどう使う…
- 4 「Chainer」をMicrosoft Azureに最適化、Wi…
- 5 NVIDIAも初出展、1年前と様変わりした「de…
- 6 Dropbox Japan新社長、法人向けビジネス拡…
- 7 ハイレゾ音源を含む300TBをAWS Snowball…
- 8 ドコモ、リアルタイムで5G電波を見える化す…
- 9 「Open Source Summit」でMSが語った2つ…
- 10 そのアプリ、無償ツールでWindows 10のス…

集計期間：2017年 05月26日～06月01日

ピックアップ

相手に迷惑がからない
Acrobat DCでサイズが大きい
ファイルを送信する方法

初期設定で入っている項目を削除／追
加
kintoneで作成したアプリを業務
に合わせてカスタマイズする

関係者が続々Droboユーザーになる連
載
ASCII.jp関係者に流行っているみ
たいなので、カメラマンもDrobo

Azureの状況

120,000

新規Azureサブスクリプション数/月間



100 兆

Azure Storage 格納数



3台に1台

仮想マシンがLinux



Connectivity

南極大陸以外のすべての大陸にExpress Routeのパートナーがいます!



>85%

フォーチュン500の顧客がMicrosoftのCloudを利用



40

Azure リージョン
AWSの2倍のリージョン数



地球約56周

225万キロメートルの
光ファイバーで DC 間を接続

-  Datacenter
-  CDN Locations
-  Edge Node
-  Internet Exchange
-  Terrestrial Network
-  Subsea Network



Security and Management

-  Portal
-  Active Directory
-  Multi-factor Authentication
-  Automation
-  Key vault
-  Store/Marketplace
-  VM Image Gallery and VM Depot

Compute

-  Cloud services
-  Service fabric
-  Batch
-  Remote app

Web and mobile

-  Web Apps
-  API Apps
-  API Management
-  Mobile Apps
-  Logic Apps
-  Notification Hubs

Developer services

-  Visual Studio
-  Azure SDK
-  Team Project
-  Application Insights

Hybrid Operations

-  Azure AD Connect Health
-  AD Privileged Identity Management
-  Backup
-  Operational Insights
-  Import/Export
-  Site Recovery
-  StorSimple

Integration

-  Storage queues
-  Biztalk Services
-  Hybrid Connections
-  Service Bus

Analytics and IoT

-  HDInsight
-  Machine Learning
-  Data Factory
-  Event Hubs
-  Stream Analytics
-  Mobile Engagement

Data

-  SQL Database
-  SQL Data Warehouse
-  Redis Cache
-  Search
-  DocumentDB
-  Tables

Media and CDN

-  Media Services
-  Content Delivery Network (CDN)

Infrastructure Services

Compute

-  Virtual Machine
-  Containers

Storage

-  BLOB Storage
-  Azure Files
-  Premium Storage

Networking

-  Virtual Network
-  Load Balancer
-  DNS
-  Express Route
-  Traffic Manager
-  VPN Gateway
-  Application Gateway

Datacenter Infrastructure (24 regions, 19 online)



Machine Learning

Deep Learning

進化する機械学習とAI



Azureにおける機械学習の種類

Application

Azure Media Analytics

Azure Cognitive Service

Azure Machine Learning

Azure Data Lake = 大規模分散処理

Azure Storage = クラウドストレージ

API

ML
Engine

Compute

Storage

Python
/ R

Spark +
ML Lib

Azure
VM

Hadoop
Deep Learning
SQL Server
R Server

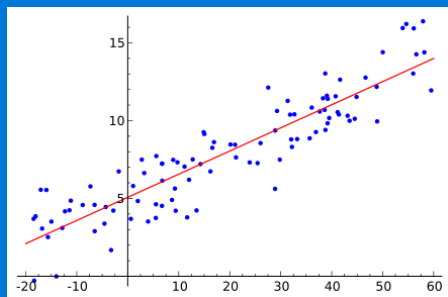
Azure Machine Learning

Azure Machine Learningによるアルゴリズムタイプ

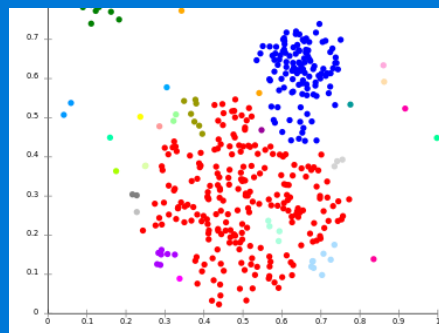
分類



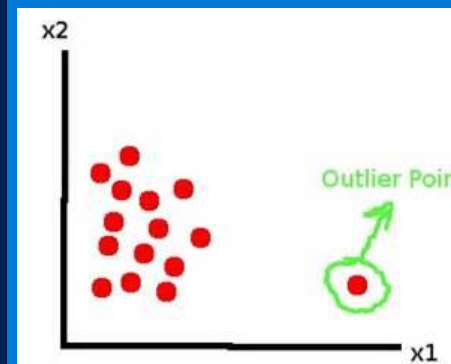
回帰



クラスタリング



異常値検出



リコメンド



Machine Learning の適用領域

数学的・統計学的手法を使い、データの関連性の解析や予測を行うニューラルネットワーク、クラスタリング等のテクニック」



操作画面

The screenshot displays the Microsoft Azure Machine Learning Studio interface. The top navigation bar includes the URL <https://asiasoutheast.studio.azureml.net/Home/View> and tabs for "Machine Learning - Microsoft ..." and "Experiments - Microsoft Az...". The main header shows "Microsoft Azure Machine Learning" with links to "Home", "Studio", and "Gallery", along with a user profile and a "mydemo20160108" dropdown.

The left sidebar contains a search bar "Search experiment items" and a list of categories with expandable arrows:

- Saved Datasets
- Data Format Conversions
- Data Input and Output
- Data Transformation
- Feature Selection
- Machine Learning
- OpenCV Library Modules
- Python Language Modules
- R Language Modules
- Statistical Functions
- Text Analytics
- Web Service
- Deprecated

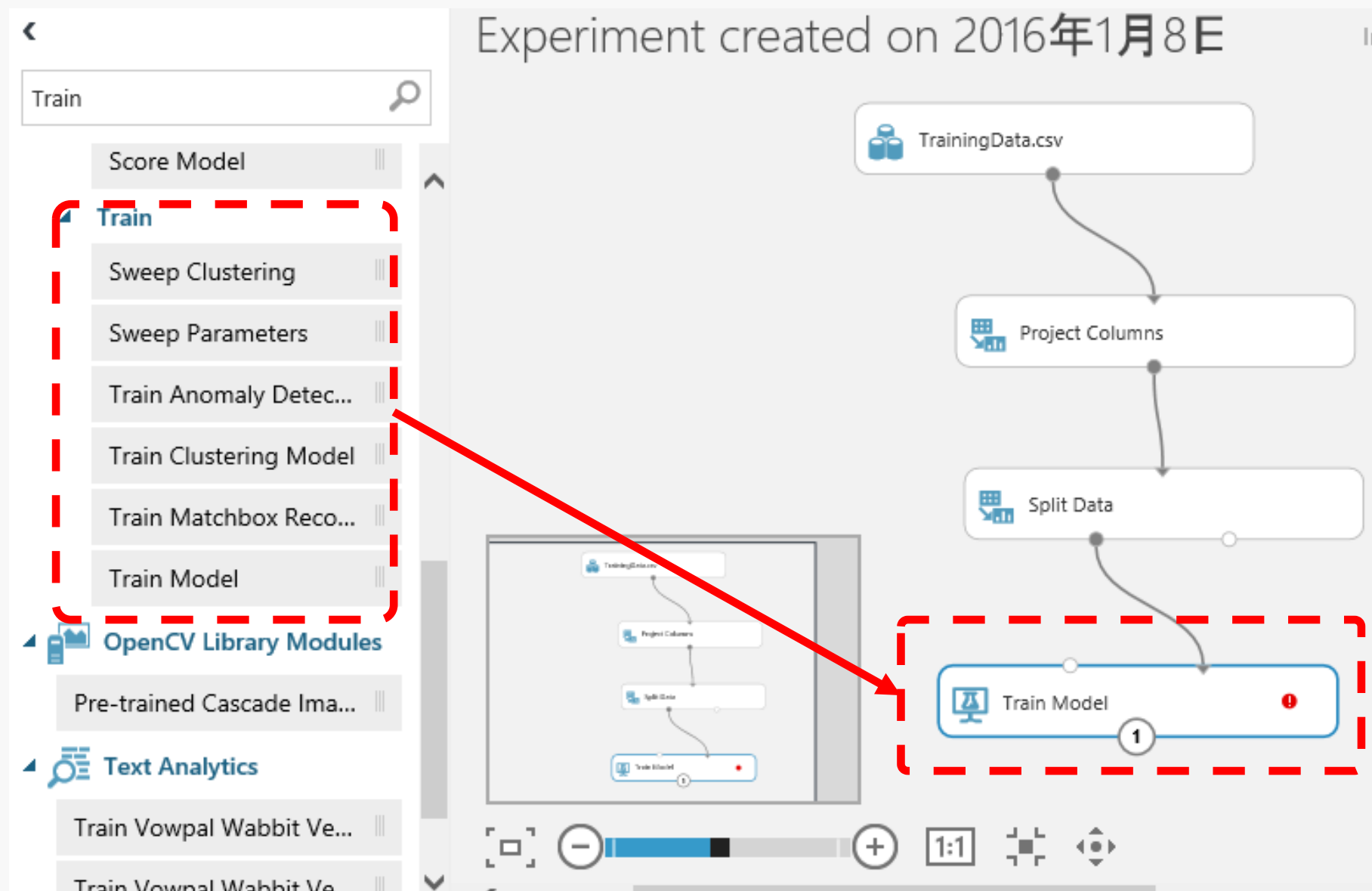
The central workspace is titled "Experiment created on 2016年1月8日" and "In draft". It contains a workflow diagram with three dashed boxes connected by arrows. The first box is labeled "Drag Items Here" with an arrow pointing to it. The second box contains a database icon. The third box contains a document icon. A large gray rectangle is positioned below the first box. At the bottom of the workspace, there is a toolbar with icons for zooming ([-, +]), a 1:1 view icon, and a full-screen icon.

The right sidebar is titled "Properties" and includes sections for:

- Experiment Properties**: STATUS CODE (InDraft)
- Summary**: Enter a few sentences describing your experiment (up to 140 characters).
- Description**: Enter the detailed description for your experiment.
- Quick Help**: A section with a question mark icon.

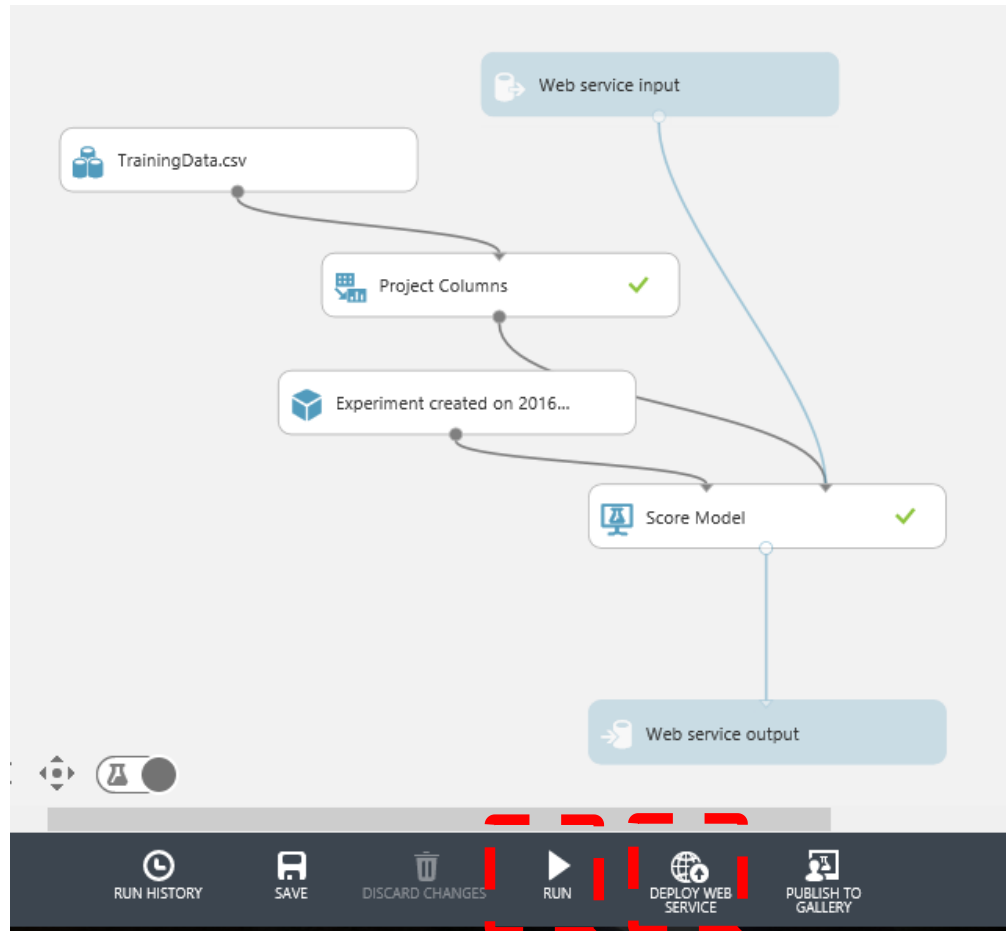
The bottom navigation bar features a "NEW" button and several icons for "RUN HISTORY", "SAVE", "DISCARD CHANGES", "RUN", "SET UP WEB SERVICE", and "PUBLISH TO GALLERY".

操作画面



Web サービスの公開

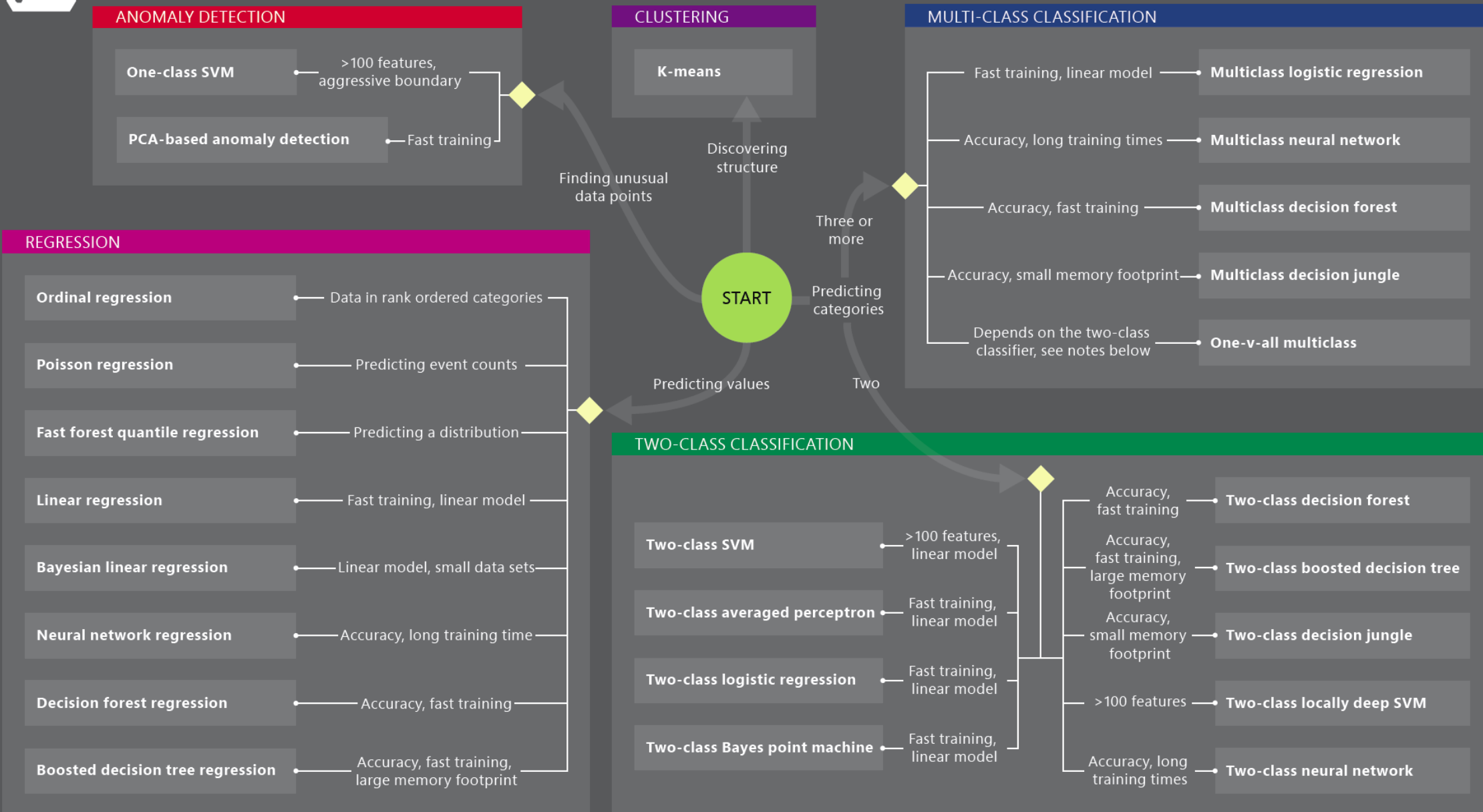
画面下部から [RUN] を選択し、実行完了後に [DEPLOY WEB SERVICE] を選択し、Web サービスを公開します。





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.



Deep Learning and Cognitive

動的オブジェクト認識

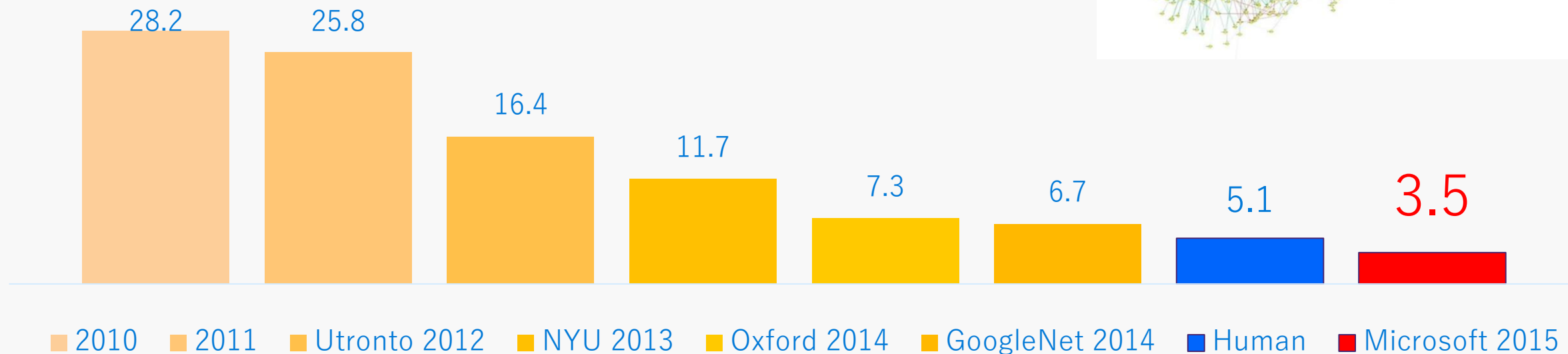


深層学習が変える画像認識

ImageNet

最大規模のイメージデータセット

- 120万の学習用イメージ、10のテスト用イメージ
- 1000 クラス



画像認識の革新

152 layers

RESNET



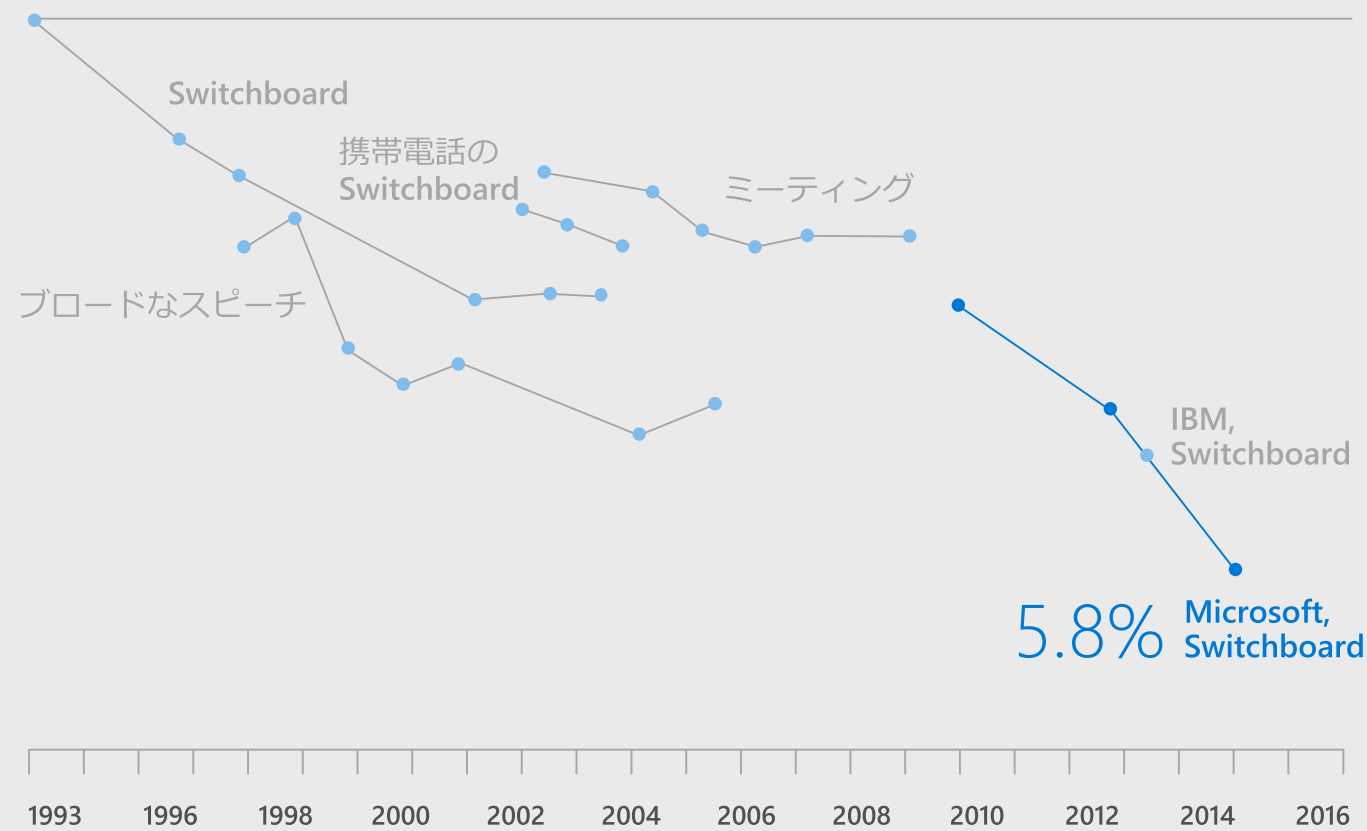
音声認識の革新

人間の誤認識率 - 5.8%

Switchboard

明瞭化

音声認識の誤認識率, いくつかのベンチマーク, %



Sources: Microsoft: research papers

AIを
全ての開発者に



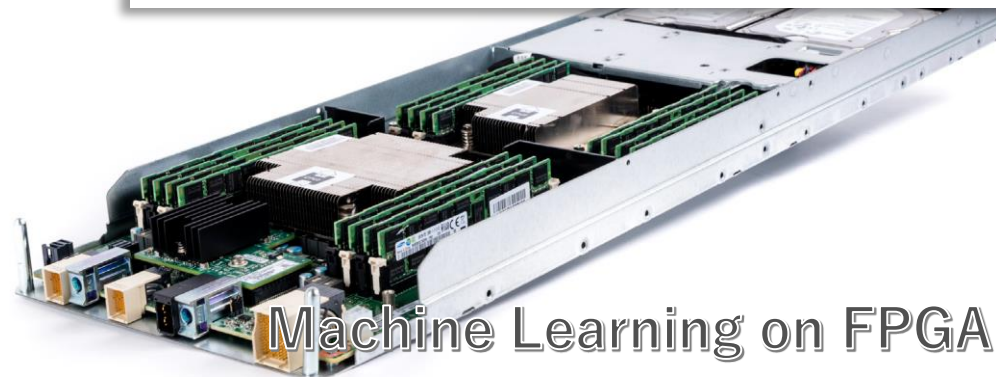
業界に貢献し、リードする Microsoft



Runtime decoding
Confirm the new password

機械翻訳

Chain



Machine Learning on FPGA

Cognitive Services

Cognitive Services



Cognitive Services

Cognitive Services APIs

Tap into the power of machine learning with easy-to-use REST APIs.

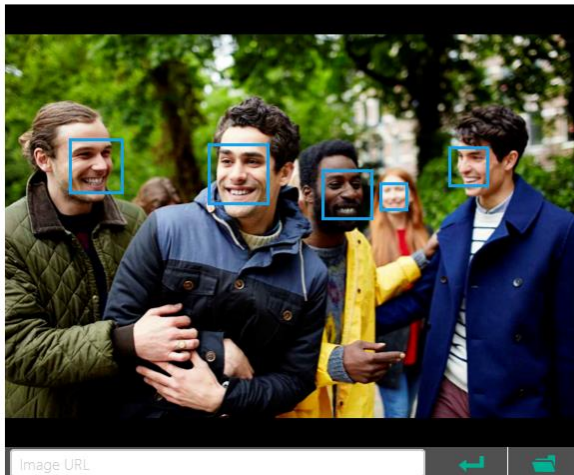
Get started for free



Put intelligence APIs to work

Microsoft Cognitive Services let you build apps with powerful algorithms using just a few lines of code. They work across devices and platforms such as iOS, Android, and Windows, keep improving, and are easy to set up.

See just one of the many insights we can infer from your data with this demo of the Emotion API. We don't keep any images uploaded to this demo.



```
Detection Result:
5 faces detected

JSON:
[
  {
    "faceRectangle": {
      "left": 488,
      "top": 263,
      "width": 148,
      "height": 148
    },
    "scores": {
      "anger": 9.075572e-13,
      "contempt": 7.048959e-9,
      "disgust": 1.02152783e-11,
      "fear": 1.778957e-14,
      "happiness": 0.9999999,
      "neutral": 1.31694478e-7,
      "sadness": 6.04054263e-12,
      "surprise": 3.92249462e-11
    }
  },
  {
    {
```

Microsoft Cognitive Services 一覽



Vision

見る
＋
認知機能

画像/ビデオの読
解
顔識別、感情判
別



Speech

聞く/話す
＋
認知機能

話し手の識別
文章の聞き取り&理解



Language

言語
＋
認知機能

文章読解
文意、文脈の理解



Knowledge

情報
＋
認知機能

Web/学術情報/
ビックデータを
集約



Search

検索
＋
認知機能

Bing検索エンジ
ンによる検索

Cognitive Services のアプリケーション例

How-Old.net
HOW OLD DO I LOOK? #HowOldRobot



Sorry if we didn't quite get the age and gender right - we are still improving this feature

Try Another Photo!

TwinsOrNot.net
Are you twins? #TwinsOrNotRobot



Help us improve or start over

You can also click a pic to compare to someone new

Powered by Project Oxford

365 1.85K

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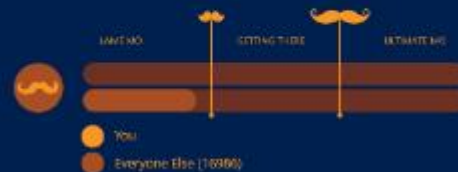
Microsoft

MyMoustache.net
18,381 faces analyzed and counting #MyMoustacheRobot



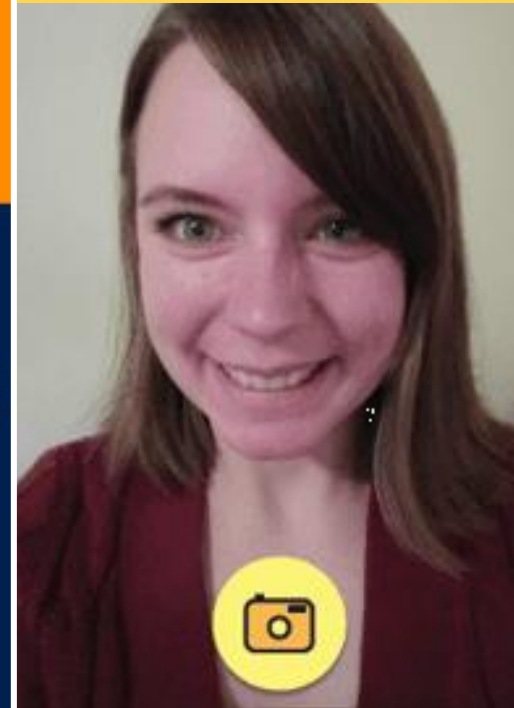
De-stache Me! Try Again!

Sorry if we didn't quite get the results quite right - we are still improving this feature
It doesn't look like you have a moustache! #NOSTACHE



Mimicker Alarm

Mimic a happy face



CaptionBot

I think it's a young man jumping in the air on a skateboard.



How did I do?



Try another

The Magic behind CaptionBot.ai

Powered by Microsoft Cognitive Services



Computer Vision API

- 画像分析
 - オブジェクト、カラー、画像/絵、アウトライン化
 - 顔: 年齢/性別/表示位置
- タグ、キャプション付け
- 画像から文字データの読み取り (OCR: Optical Character Recognition)
- 画像の趣旨に沿ったサムネイル画像の作成



Analyze image

Category	People; 1 face found
Adult	False
Black & White?	No
Dominant colors	
Accent color	



OCR

A GOAL WITHOUT
A PLAN IS
JUST A WISH



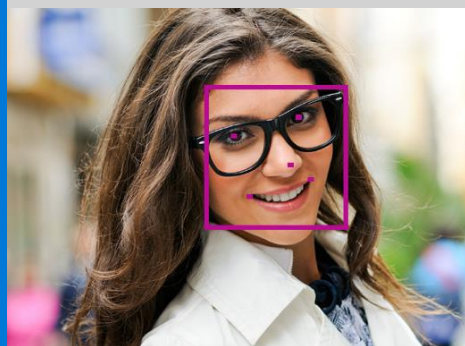
Smart thumbnail



Face API

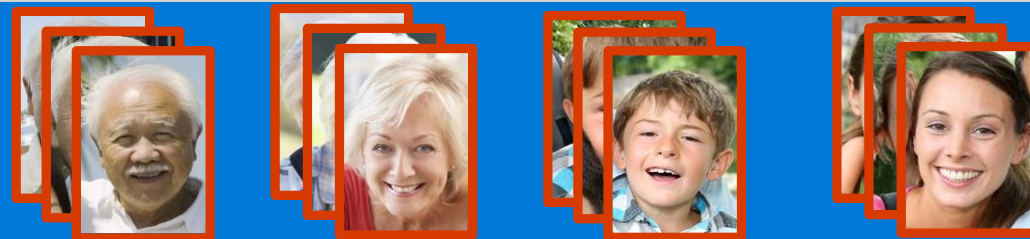
- 顔検出
- 年齢、性別
- 顔認識
- 顔検証
- 類似検索
- グループ化
- 顔認証

Detection Result

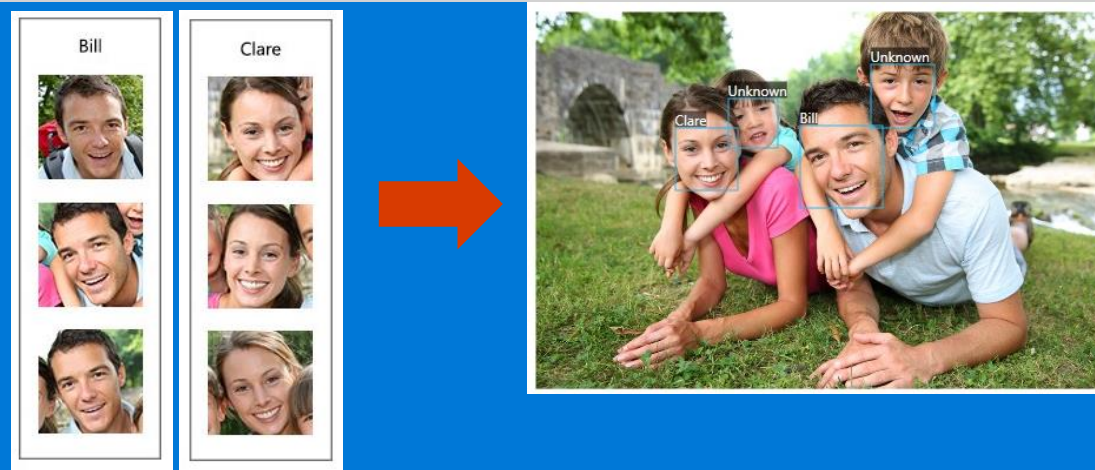


```
"faceId": "48cdf8c8-841c-4d33-b875-1710a3fc6542",
"faceRectangle": {
  "width": 228, "height": 228, "left": 460, "top": 125
},
"faceAttributes": {
  "age": 23.5, "gender": "female",
  "headPose": {"roll": -16.5, "yaw": 22.1, "pitch": 0},
  "smile": 0.998,
  "facialHair": {"moustache": 0, "beard": 0, "sideburns": 0},
  "glasses": "ReadingGlasses"
}
```

Grouping



Identity



Emotion API

- 感情認識
 - 喜び、驚き、悲しみ、怒り、恐れ、嫌悪、軽蔑、中立



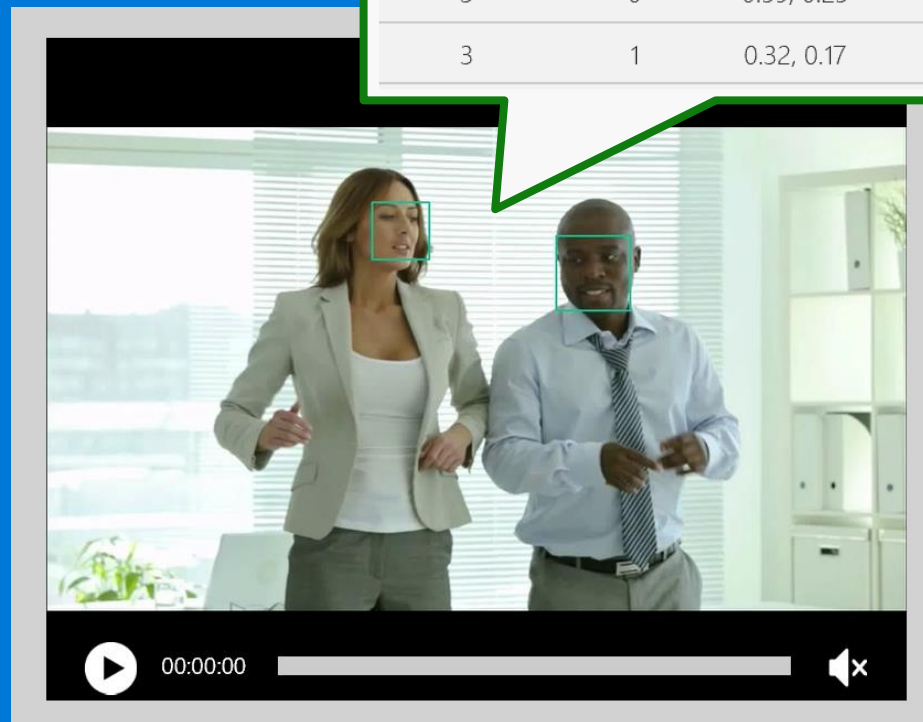
```
"faceRectangle": {  
  "left": 289, "top": 209,  
  "width": 117, "height": 117  
},  
"scores": {  
  "anger": 0.0003364322,  
  "contempt": 0.008513732,  
  "disgust": 0.000237169676,  
  "fear": 0.001399079,  
  "happiness": 0.03209325,  
  "neutral": 0.1274486,  
  "sadness": 0.000152969456,  
  "surprise": 0.8298188  
}
```

```
"faceRectangle": {  
  "left": 479, "top": 190,  
  "width": 158, "height": 158  
},  
"scores": {  
  "anger": 0.00001619889,  
  "contempt": 0.000121588469,  
  "disgust": 0.0000216889184,  
  "fear": 0.00138592813,  
  "happiness": 0.00001577913,  
  "neutral": 0.002224847,  
  "sadness":  
    0.00000300440252,  
  "surprise": 0.996211  
}
```

Video API

- 動画の手ぶれ補正
- 顔とその表示位置の検出
- 動きが発生しているフレームの検知

Time (sec)	Face ID	x, y	Width, Height
0	0	0.59, 0.23	0.09, 0.16
0	1	0.38, 0.15	0.07, 0.12
1	0	0.54, 0.25	0.09, 0.15
1	1	0.23, 0.18	0.07, 0.12
2	0	0.68, 0.23	0.08, 0.15
2	1	0.41, 0.15	0.07, 0.12
3	0	0.59, 0.25	0.08, 0.14
3	1	0.32, 0.17	0.07, 0.13



 Vision

 Speech

 Language

 Knowledge

 Search

Bing Speech API

Speech-to-Text (音声→テキスト)

9 言語 / 17 地域

Text-to-Speech (テキスト→音声)

18 言語 / 28 地域 *ja-jp 含む

Speech Recognition



450 6th St.
San
Francisco

Speech Intent Recognition



"450 sixth St in San
Francisco."

~~"For 50 six St San Francisco."~~

~~"456th St San Francisco."~~

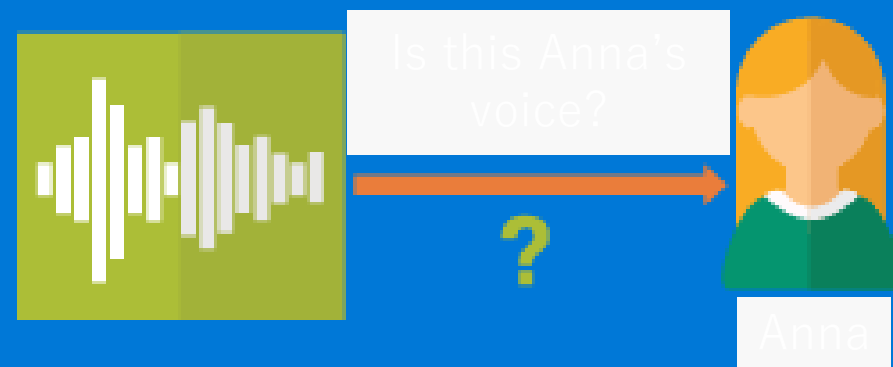
Text to Speech Conversion



Speaker Recognition API

- 声紋登録による話し手認識
 - Y/N判定
 - 認証

Speaker Recognition



Speaker Verification



Language Understanding Intelligent Service (LUIS)

- 自然言語からの文意やキーワードの抽出
 - Intent: 文章の意図 (インテント)
 - Entity: 文章におけるエンティティ



Language Understanding Intelligent Service (LUIS)

- 自然言語からの文意やキーワードの抽出
- Intent : 文章の意図 (インテント)
- Entity: 文章におけるエンティティ

The screenshot displays the LUIS 'Review labels' interface. It shows three utterances with their model predictions and intent labels:

- Utterance 1: "what will the weather be tomorrow in san francisco". Model prediction: "GetWeatherForecast (0.96)". Intent label: "GetWeatherForecast(0.96)".
- Utterance 2: "when will the sunrise be tomorrow in germany". Model prediction: "GetSunriseTime (0.97)". Intent label: "GetSunriseTime(0.97)".
- Utterance 3: "please tell me the temperature in germany". Model prediction: "GetCurrentTemperature (1)". Intent label: "GetCurrentTemperature(1)".

The right sidebar shows the 'Performance analysis' section, listing various intents and their performance metrics:

- GetSunsetTime: 15 utterances: 15 correctly predicted
- GetSunriseTime: 16 utterances: 16 correctly predicted
- GetCurrentWeather: 22 utterances: 22 correctly predicted
- GetHelp: 17 utterances: 17 correctly predicted
- GetWeatherForecast: 48 utterances: 46 correctly predicted
- GetCurrentTemperature: 32 utterances: 32 correctly predicted
- None: 22 utterances: 22 correctly predicted

Legend:
Green bar: Correctly predicted
Red bar: Error (predicted as other intent)

Recommendations

- 関連性の高いアイテム、ユーザーの嗜好に沿ったアイテムの推定
 - よく一緒に購入されるアイテム
 - よく同時に見られているアイテム
 - ユーザーの履歴に基づくおススメ



Custom Cognitive Services

Cognitive Services



Computer vision
Face
Emotion
Content Moderator
Video

NEW
Video Indexer

NEW
Cognitive Services Labs



Text analytics
Spell check
Web language model
Linguistic analysis
Translator



Speaker recognition
Speech



Web search
Image search
Video search
News search
Autosuggest



Academic knowledge
Entity linking service
Knowledge exploration
Recommendations
QnA maker

Cognitive Services



Vision



Language



Speech



Search



Knowledge

Computer vision

Face

Emotion

Content Moderator

Video

NEW

Video Indexer

NEW

Cognitive Services Labs

Text analytics

Spell check

Web language model

Linguistic analysis

Translator

Speaker recognition

Speech

Web search

Image search

Video search

News search

Autosuggest

Academic knowledge

Entity linking service

Knowledge exploration

Recommendations

QnA maker

NEW

Custom

Vision Service

Custom

Language
Understanding

Custom

Speech Service

NEW

Custom

Search

NEW

Custom

Decision Service

Azure + AI

AI を全ての開発者に

Data platform

Data Lake

NEW

Cosmos DB

SQL Server

Tools

Visual Studio | Azure Machine Learning | Bot Framework

Cognitive Toolkit | TensorFlow | Caffe

Infrastructure

NEW

Batch AI Training Service

FPGA/GPU/CPU

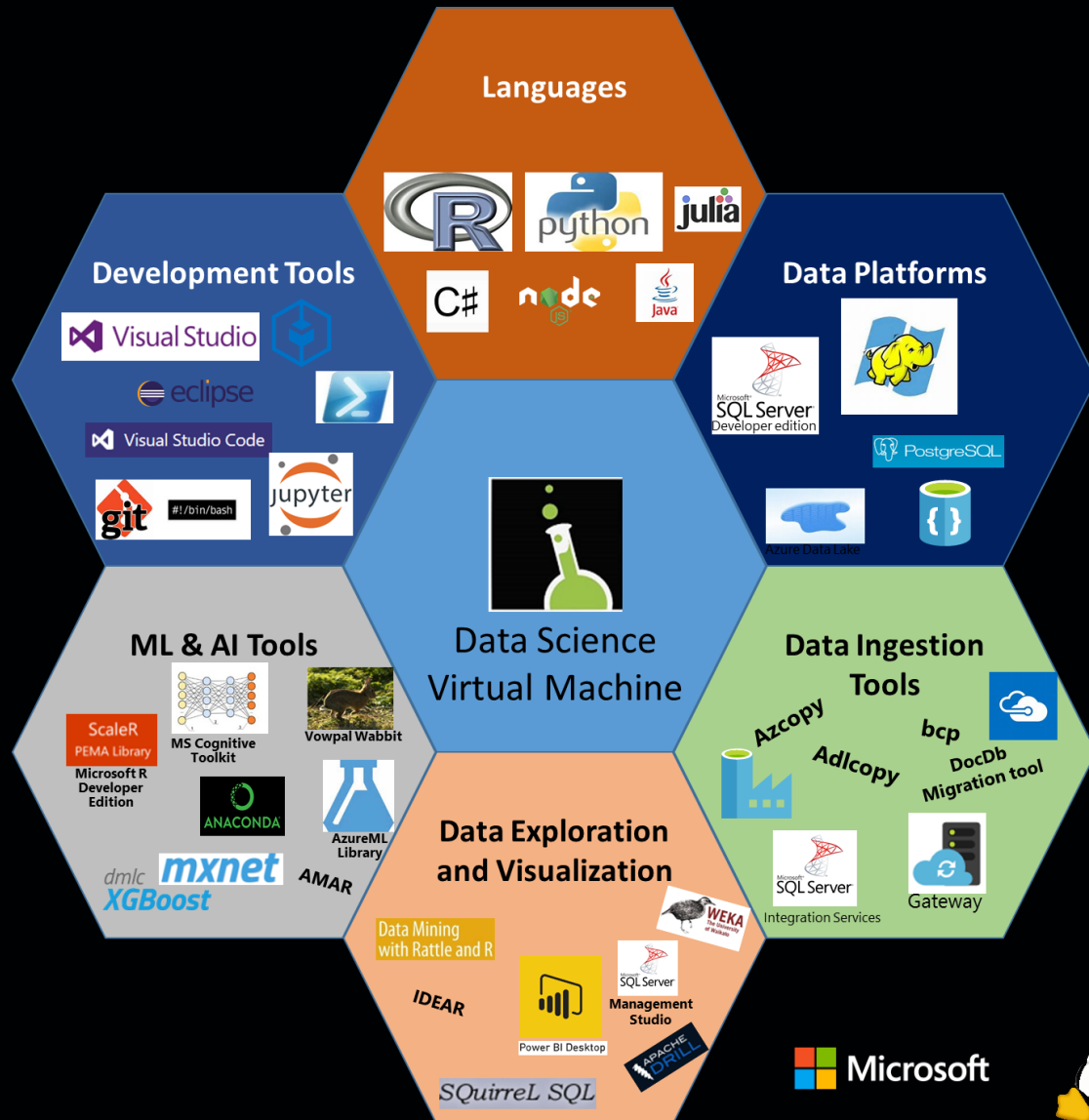
Services

Cognitive Services

Bot Service

Deep Learning

Azure Data Science Virtual Machine



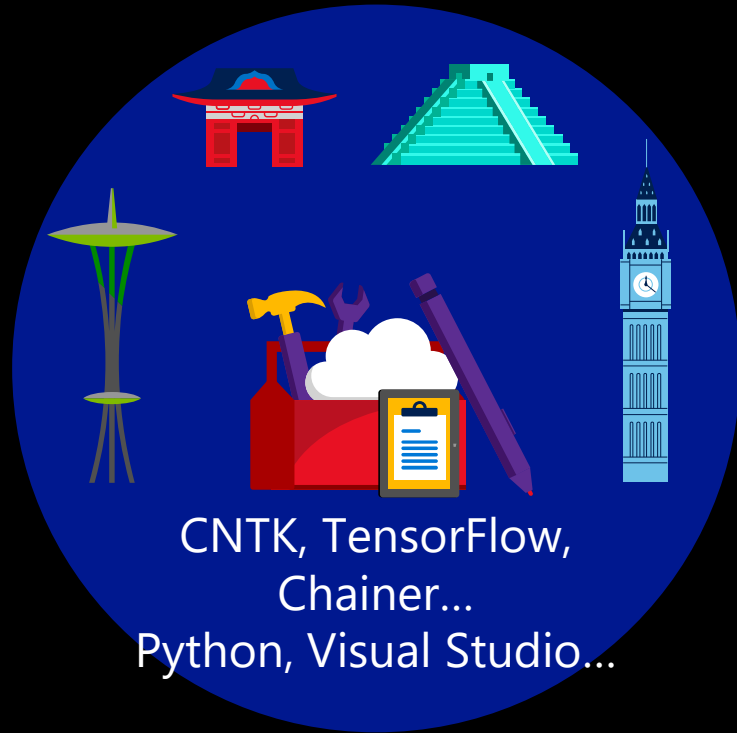
メジャーな分析ツールが
インストール、構成済み

Azure GPU VM 上に
Deep Learning 拡張機能が組み込み

Developer Editions of SQL & R Server

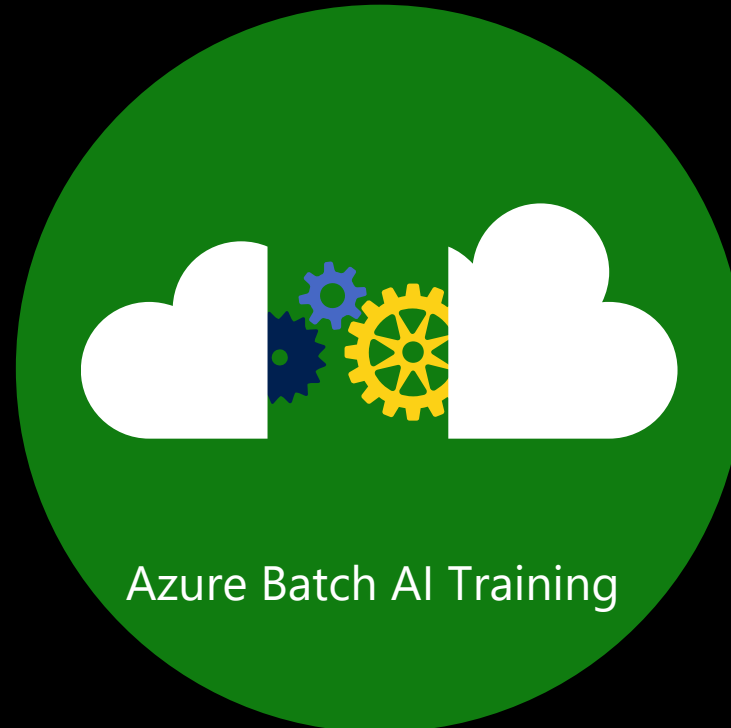
Azure Batch が利用可能に

ハイパースケール環境での トレーニングとデプロイ



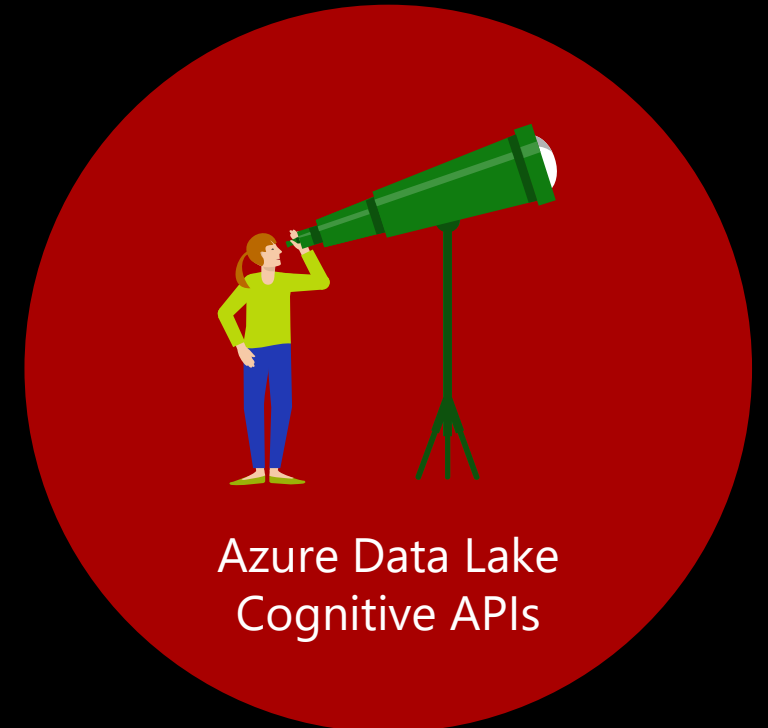
全ての AI ツール
でデータを扱える

+



オンデマンドでトレーニングが
出来、スケールアウト
するGPU環境

=



あなたのアプリとデータに
インテリジェンスを

Sign-up for preview: aka.ms/batchaitraining

Data Science VM

Microsoft Azure

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Products > Data Science Virtual Machine



Data Science Virtual Machine

Microsoft

Overview **Plans + Pricing**

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 mxnet; 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 Datawarehouse, 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.

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Products > Data Science Virtual Machine for Linux (CentOS)



Data Science Virtual Machine for Linux (CentOS)

Microsoft

[Overview](#) [Plans + Pricing](#)

Virtual machine with tools for the data science modeling and development

This virtual machine built on OpenLogic CentOS-based Linux, contains popular tools for data science and development activities, including Microsoft R Open, Anaconda Python, Azure command line tools, and Jupyter notebooks for Python, R and Julia. It also has machine learning tools and algorithms like mxnet, CNTK, Vowpal Wabbit and xgboost.

What's new

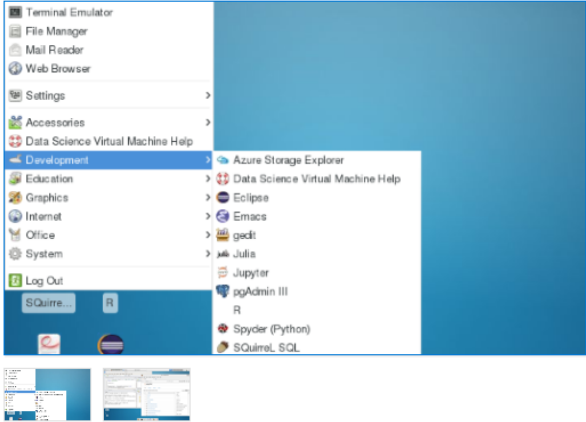
The Linux data science virtual machine now includes

- Microsoft R Server 9.0, now with Microsoft R Open 3.3.2 and new options for operationalizing R models
- Weka for easy graphical exploration and machine learning
- Apache Drill for querying non-relational data using SQL
- Spark local 2.0.2 with a PySpark Jupyter kernel
- Single node local Hadoop (HDFS, Yarn)
- Visual Studio Code IDEs, IntelliJ IDEA, PyCharm, Atom
- mxnet for deep learning
- JuliaPro - a curated distribution of Julia Language and tools

You can view a full list of installed tools for the Linux edition [here](#).

Learn more

[About the Data Science Virtual Machine Tutorial](#)
[Data Science Virtual Machine for Linux \(Ubuntu\)](#)
[Data Science Virtual Machine for Windows](#)



TrainやTestのデータをロードするドライバ群やCaffe / Tensor Flow / Cognitive Toolkit (CNTK)などを予め準備（GPUも対応）

Jupyter note bookなども含まれる

Deep Learning toolkit VM

Microsoft Azure

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Products > Deep Learning toolkit for Data Science VM



Deep Learning toolkit for Data Science VM

Microsoft

Overview Plans

A deep learning toolkit for the data science virtual machine

The data science virtual machine (DSVM) on Azure, based on Windows Server 2012, contains popular tools for data science modeling and development activities such as Microsoft R Server Developer Edition, Anaconda Python, Jupyter notebooks for Python and R, Visual Studio Community Edition with Python and R Tools, SQL Server Developer edition, and many other data science and ML tools. Use the DSVM to jump-start modeling and development for your data science project.

This deep learning toolkit provides GPU versions of mxnet, CNTK, TensorFlow, and Keras for use on Azure GPU N-series instances. These GPUs use discrete device assignment, resulting in performance that is close to bare-metal, and are well-suited to deep learning problems that require large training sets and expensive computational training efforts. The deep learning toolkit also provides a set of sample deep learning solutions that use the GPU, including image recognition on the CIFAR-10 database and a character recognition sample on the MNIST database. GPU instances are currently available in South Central US, East US, West Europe, and Southeast Asia.

By continuing to create and use this toolkit you are accepting the following license agreements.

Deploying this toolkit requires access to Azure GPU NC-class instances.

Learn more

[Ten things you can do on the data science virtual machine](#)
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Pricing information

[Cost of deployed template components](#)

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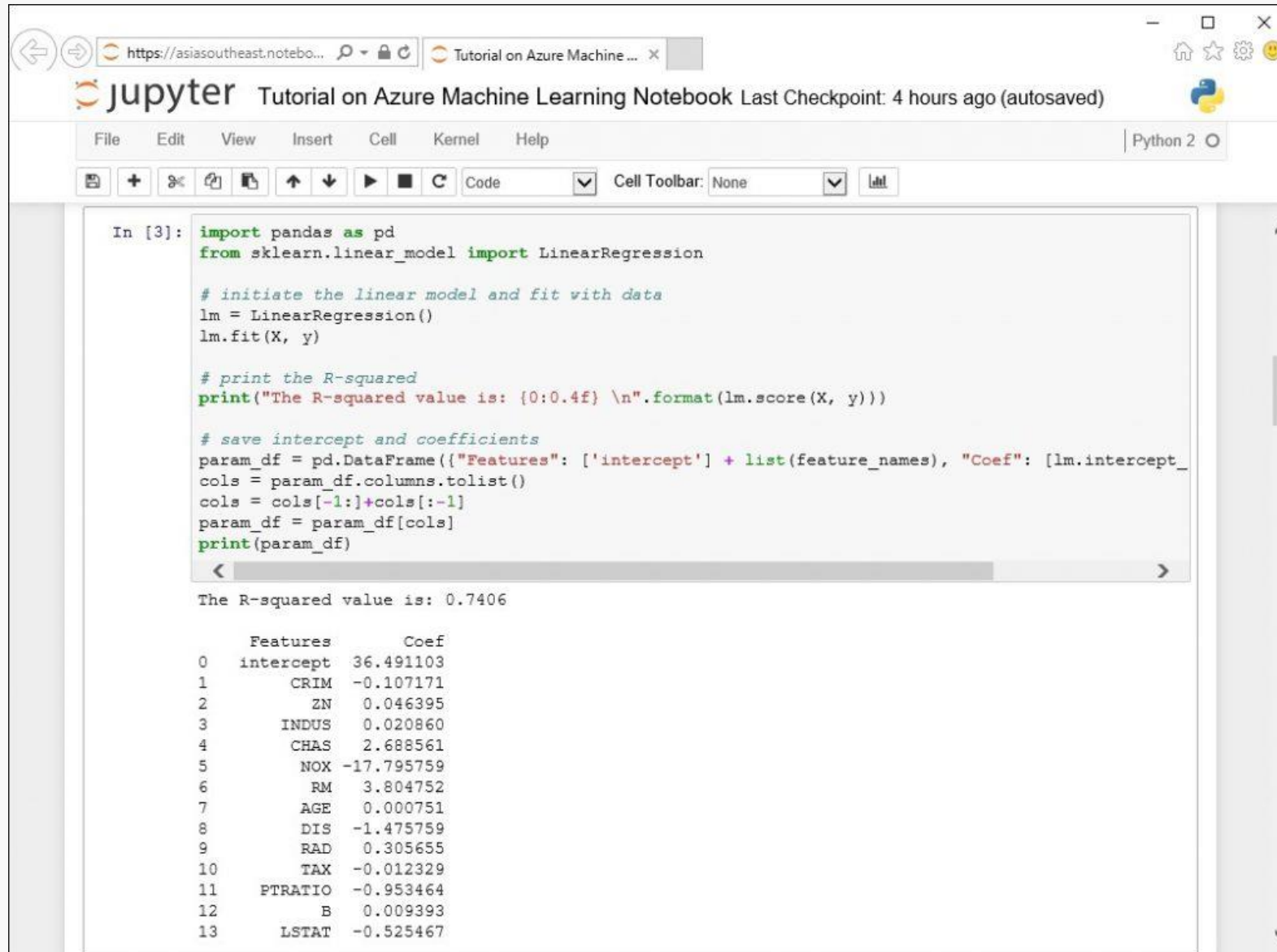
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TrainやTestのデータをロードするドライバ群やCaffe / Tensor Flow / Cognitive Toolkit (CNTK)などを予め準備（GPUも対応）

Jupyter note bookなども含まれる

Jupyter notebook も入ってます



The screenshot shows a Jupyter Notebook window titled "Tutorial on Azure Machine Learning Notebook Last Checkpoint: 4 hours ago (autosaved)". The interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Help) and a toolbar with various icons. The code cell contains the following Python code:

```
In [3]: import pandas as pd
from sklearn.linear_model import LinearRegression

# initiate the linear model and fit with data
lm = LinearRegression()
lm.fit(X, y)

# print the R-squared
print("The R-squared value is: {0:0.4f} \n".format(lm.score(X, y)))

# save intercept and coefficients
param_df = pd.DataFrame({"Features": ['intercept'] + list(feature_names), "Coef": [lm.intercept_
cols = param_df.columns.tolist()
cols = cols[-1:] + cols[:-1]
param_df = param_df[cols]
print(param_df)
```

The output of the code cell shows the R-squared value and a table of coefficients:

```
The R-squared value is: 0.7406
```

	Features	Coef
0	intercept	36.491103
1	CRIM	-0.107171
2	ZN	0.046395
3	INDUS	0.020860
4	CHAS	2.688561
5	NOX	-17.795759
6	RM	3.804752
7	AGE	0.000751
8	DIS	-1.475759
9	RAD	0.305655
10	TAX	-0.012329
11	PTRATIO	-0.953464
12	B	0.009393
13	LSTAT	-0.525467

Deep Learning toolkit VM

The image shows the Start Page of Microsoft Visual Studio Community 2015. The Tools menu is open, and the 'Python Environments' option is highlighted with a red circle. The Python Environments submenu is also visible, showing options like 'Python Debug Interactive', 'Anaconda 2.7 Interactive', and 'New Environment 1 Interactive'. The right sidebar shows the 'Python Environments' pane with a list of environments, including 'Anaconda 2.7' and 'New Environment 1'. The 'Configure' button is visible, and the 'Prefix path' is set to 'c:\anaconda\envs\py35'. The 'Interpreter path' is set to 'c:\anaconda\envs\py35\python.exe'. The 'Language version' is set to '3.5' and the 'Architecture' is set to '64-bit'. The 'Path environment variable' is set to 'e.g. PYTHONPATH'.

Start Page - Microsoft Visual Studio (Administrator)

Tools

- Connect to Database...
- Connect to Server...
- Connect to Microsoft Azure Subscription...
- SQL Server
- Code Snippets Manager... (Ctrl+K, Ctrl+B)
- Choose Toolbox Items...
- NuGet Package Manager
- Python Tools**
 - Diagnostic Info...
 - Survey/News...
 - Python Environments** (Ctrl+K, Ctrl+)
 - Anaconda 2.7 Interactive (Alt+I)
 - Anaconda 2.7 Interactive (Ctrl+K, I)
 - New Environment 1 Interactive (Ctrl+K, Z)
 - New Environment 2 Interactive (Ctrl+K, J)
- Extensions and Updates...
- Create GUID
- Error Lookup
- PreEmptive Debugger and Analytics
- WCF Service Configuration Editor
- External Tools...
- Import and Export Settings...
- Customize...
- Options...

Python Environments

Anaconda 2.7

Anaconda 2.7

New Environment 1

New Environment 2

Go online and help me find other environments

Configure

Description

Anaconda Python 3.5

Prefix path

c:\anaconda\envs\py35

Interpreter path

c:\anaconda\envs\py35\python.exe

Windowed interpreter

c:\anaconda\envs\py35\pythonw.exe

Library path

c:\anaconda\envs\py35\lib

Language version

3.5

Architecture

64-bit

Path environment variable

e.g. PYTHONPATH

New on Microsoft Platforms

Windows

Microsoft Azure

ASP.NET and Web

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AppStudio Publish to Windows 10 Store from Source Code

24:11

Windows Presentation Foundation (WPF) Application Development

15:45

What's new in C# 6.3

7:49

What's New for .NET 2015

6:21

Connecting to Services with Visual Studio

7:12

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Clang with Microsoft CodeGen in VS 2015 Update 1

One of the challenges with developing and maintaining cross-platform C++ code is dealing with different C++ compilers for different platforms. You...

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Windows IoT Core and Azure IoT Hub - Putting the 'I' in IoT

Earlier this year, we announced the availability of Windows IoT Core - a new edition of Windows designed for maker boards and small devices. We've...

Wednesday, December 16, 2015

The .NET Journey: Recappping the last year

Having just completed Connect() // 2015, we thought to take a moment to review everything that's happened with .NET over the last year, between last year's and t...

Wednesday, December 16, 2015

Improving your build times with IncrediBuild and Visual Studio 2015

IncrediBuild is a software acceleration technology that allows build, test, and other development processes to execute in parallel across a distributed network of...

Improvements for C++ Edit and Continue in Visual Studio 2015 Update 1

In Visual Studio 2015 RTM we announced Edit and Continue (EnC) support for both x86 and x64 C++ in the default Debug Engine with the VC++ 2015 toolset...

Thursday, December 10, 2015

Developer update for Microsoft Band

It's been a year since we launched Microsoft Band and Microsoft Health. We've made a commitment to the developer community to make our ecosystem open a...

Thursday, December 10, 2015

What's New in Visual Studio Update 1 for .NET Managed Languages

Hold on to your hats, cowboys and cowgirls! A lot of exciting things are coming out of the .NET Managed Languages team for Visual Studio 2015 Update 1. Rea...

Tuesday, December 8, 2015

Node.js Tools 1.1 for Visual Studio Released

Since our first stable release of Node.js Tools 1.0 for...



R & Python ベースの
AI のストアードプロシージャ

Graph モデルのサポートによる
より複雑な関係进行分析

クエリ 処理の最適化による
比類なき パフォーマンス

AI を組み込んだ最初の商用データベース



R Server 9.1

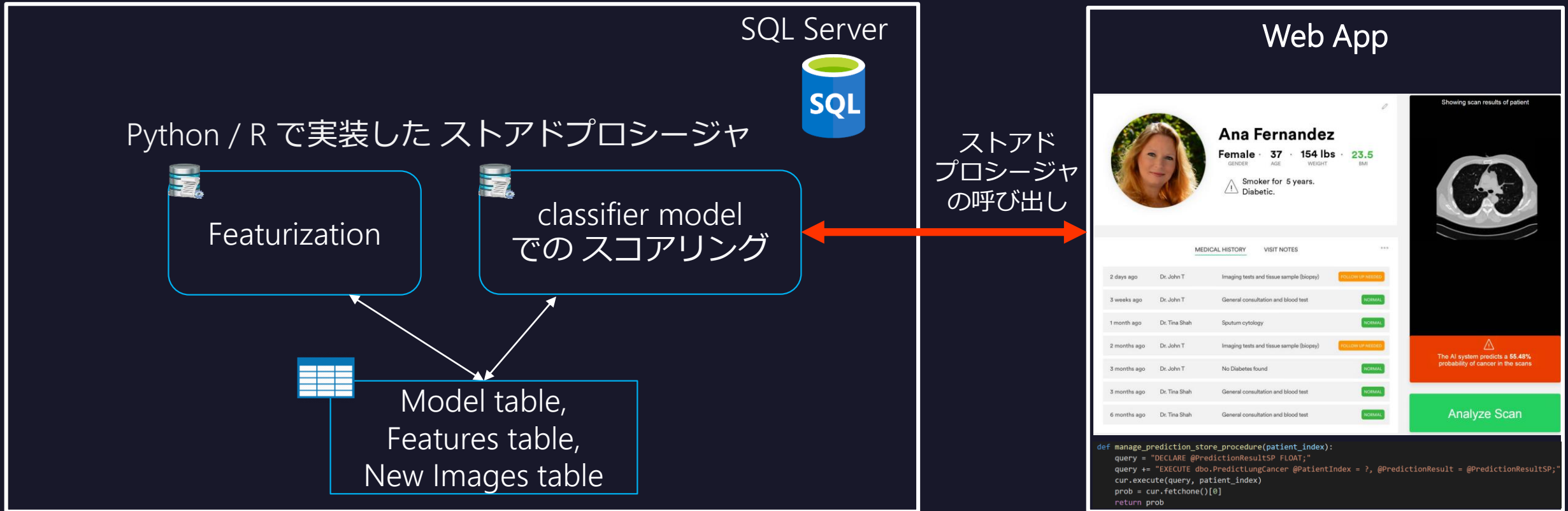
スケールアウトする 機械学習エンジン
トレーニング 済みの Cognitive モデル

GPU powered Deep Learning
エンタープライズ グレード の
サポート と操作性



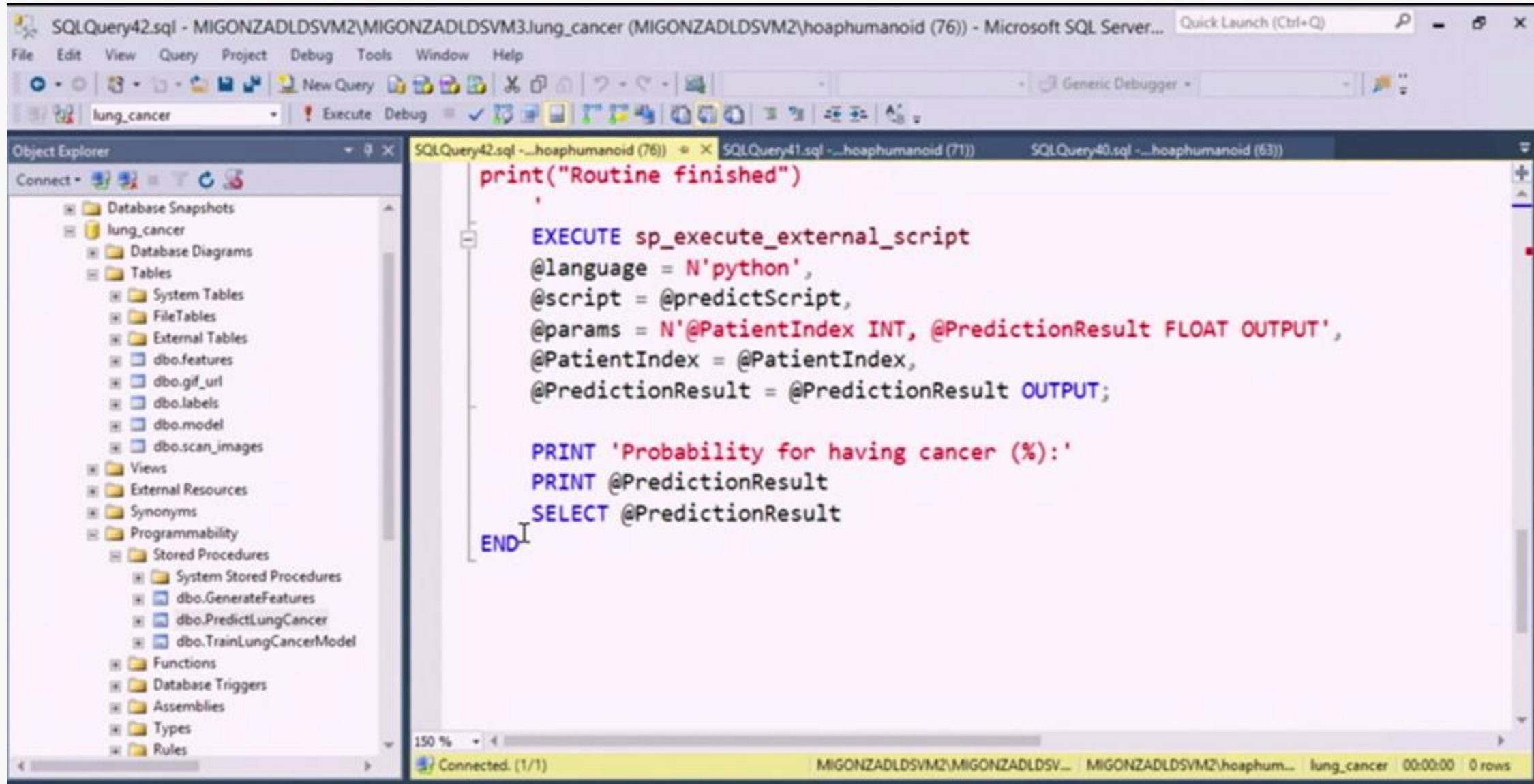
オープンソース と Microsoft の コンビネーション による革新

AI アプリの簡素化 - “just a stored proc”

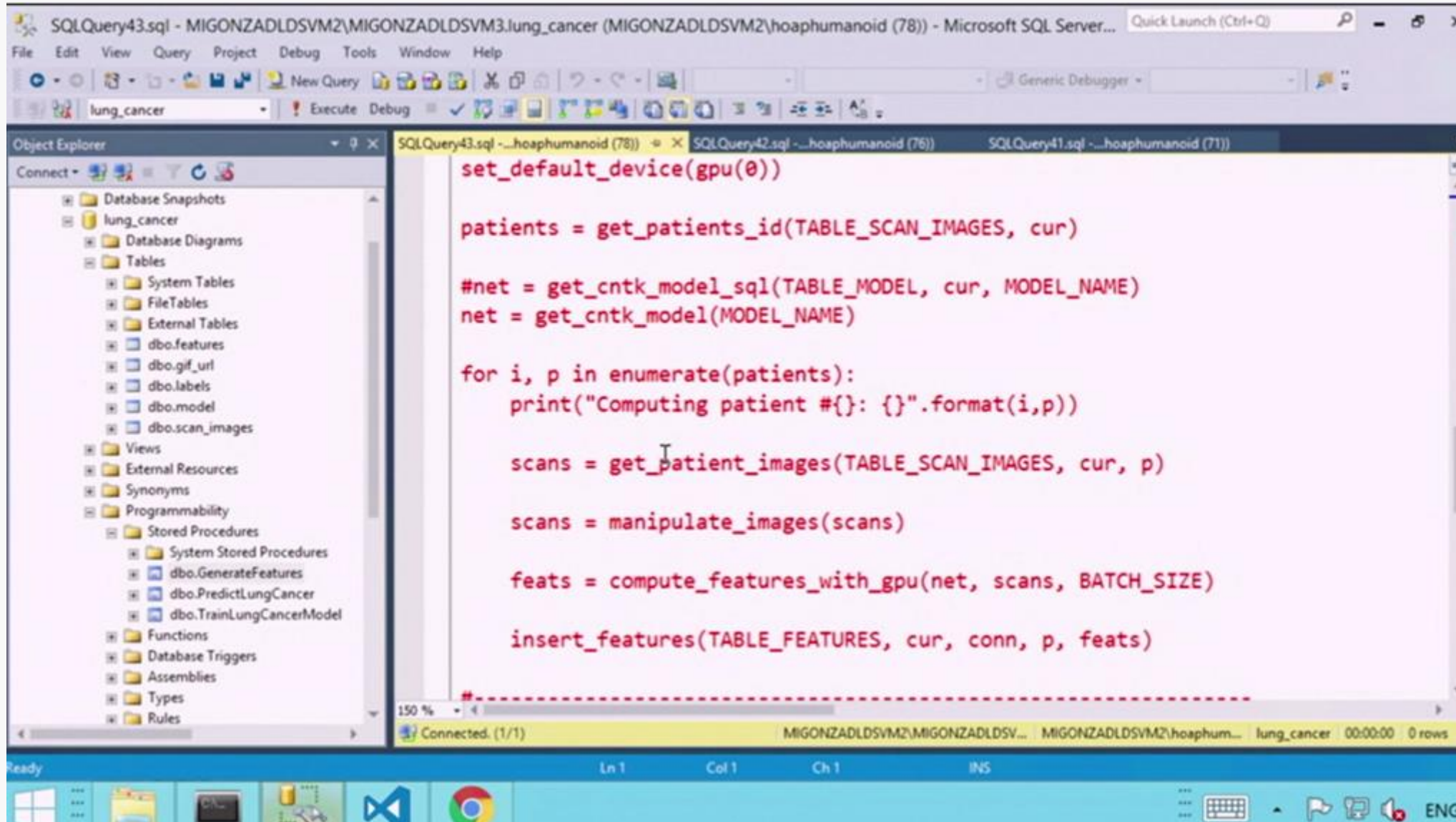


- SQL Server, CNTK & R/Python – それぞれの強い部分を連携させたエンタープライズグレードのAIアプリケーション
- データを移動させる必要がないため、セキュリティと効率化が向上
- GPU による、処理能力の向上

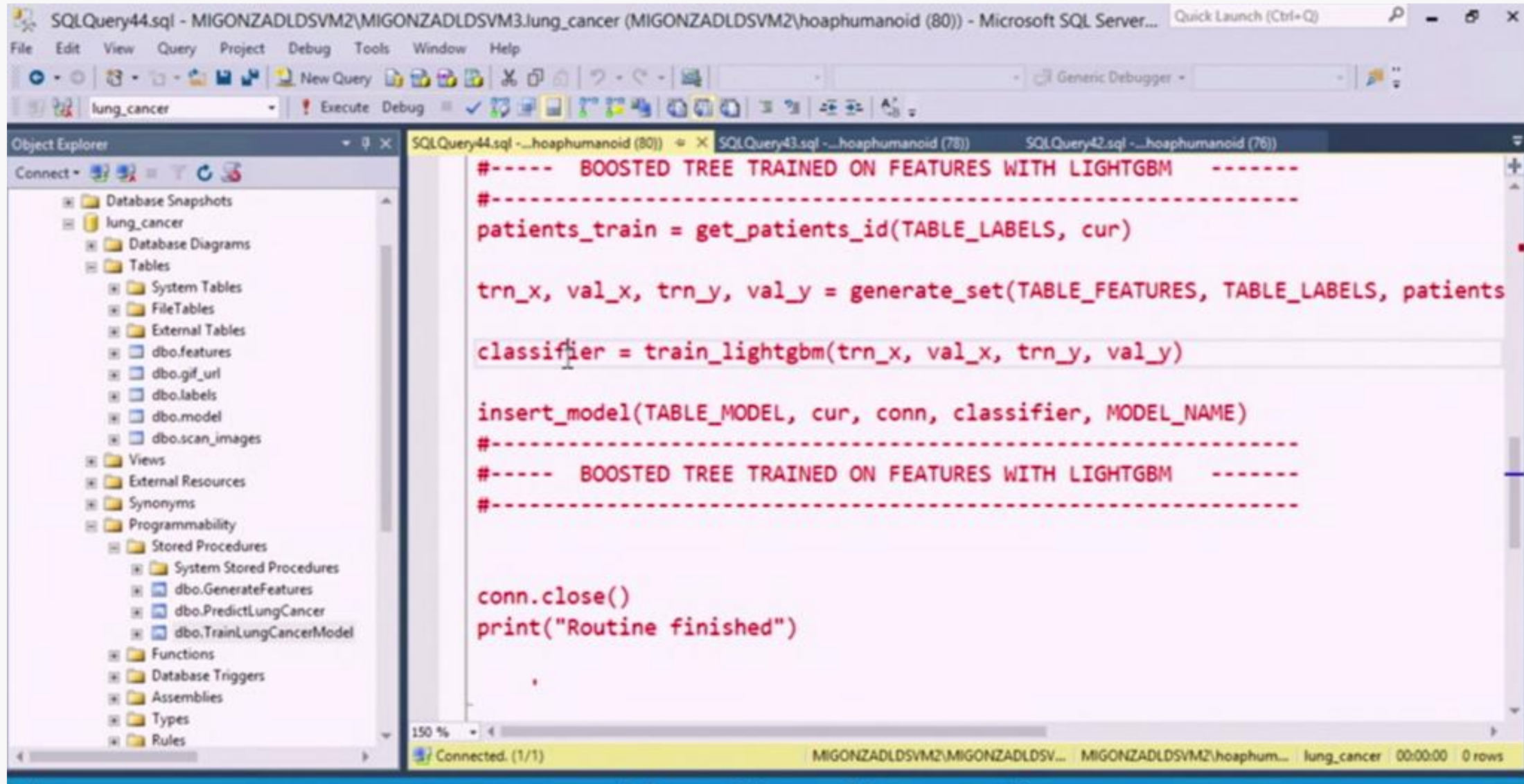
SQL Server 2017 + Deep Learning



SQL Server 2017 + Deep Learning



SQL Server 2017 + Deep Learning



Q & A

