AI at your fingertips: Building Smart Apps

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Developer Experience
Microsoft Asia Pacific
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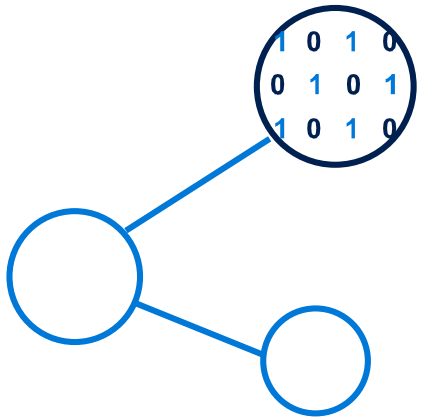
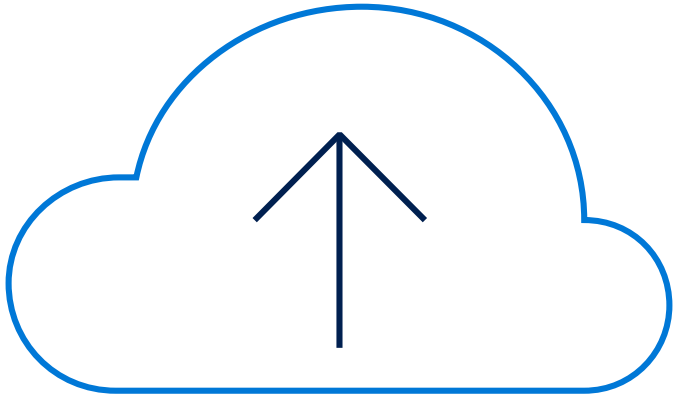
Microsoft

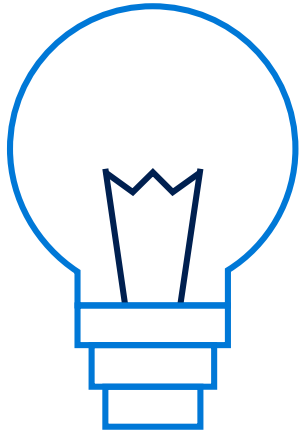
Businesses are being transformed by three trends



Big Data

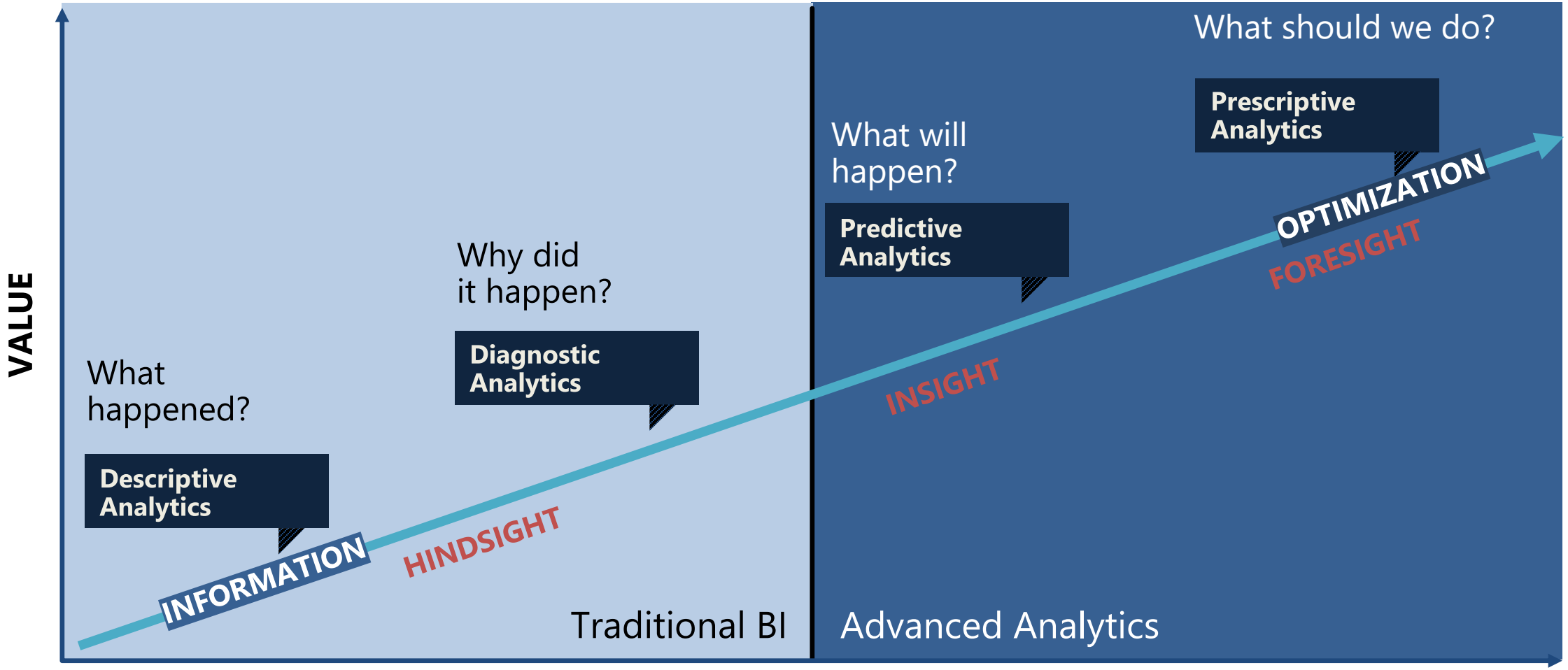


Cloud



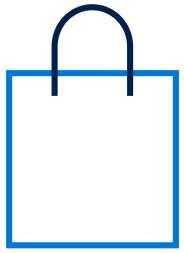
Intelligence

Going beyond traditional business intelligence



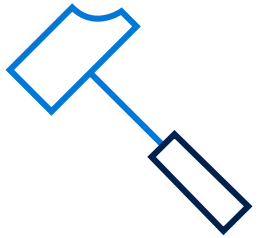
Source: Gartner

Opportunities exist across industries



Retail

- Real Time Offers & Personalized Services
- Demand Forecasting
- Sentiment Analysis



Real Estate

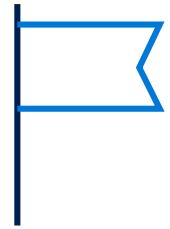
- Predictive maintenance
- Remote monitoring

Financial Services

- Customer Experience
- Risk Assessment

Health

- Remote Health Monitoring
- Population Health Management



Government

- Smart Buildings
- Transit & Traffic Optimization

How are businesses in Singapore transforming with big data and machine learning?

Smart City in a box

SURBANA JURONG

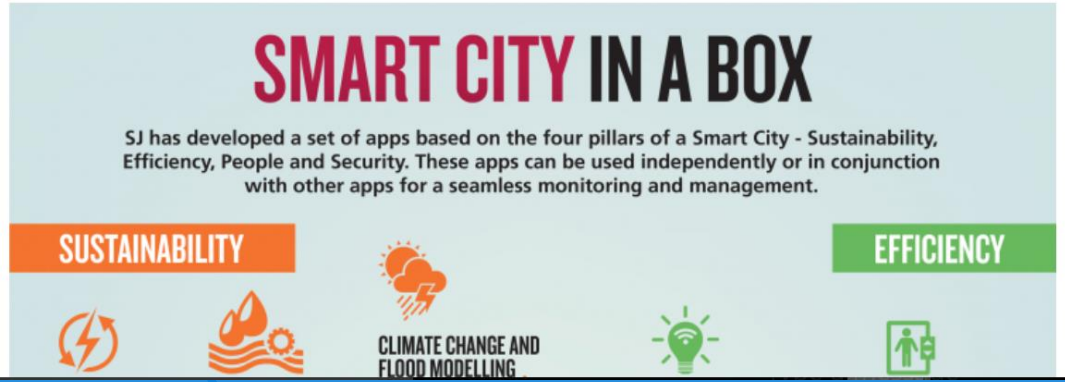
Surbana Jurong and Microsoft develop cloud-based Smart City in a box solutions, enhance app offerings

Posted November 25, 2016 By Singapore News Center

0 72

Singapore, 25 November 2016 – Surbana Jurong and Microsoft announced today that they have signed a Memorandum of Understanding (MOU) to jointly develop cloud-based Smart City in a Box solutions, while enhancing its suite of applications, in the Asia Pacific region.

Launched in July 2016, Surbana Jurong's Smart City in a Box is an integrated set of solutions with a dashboard that allows city officials to load customisable applications (Apps) in four key areas – security, efficiency, sustainability and community. This enables them to track, monitor and manage cities better.

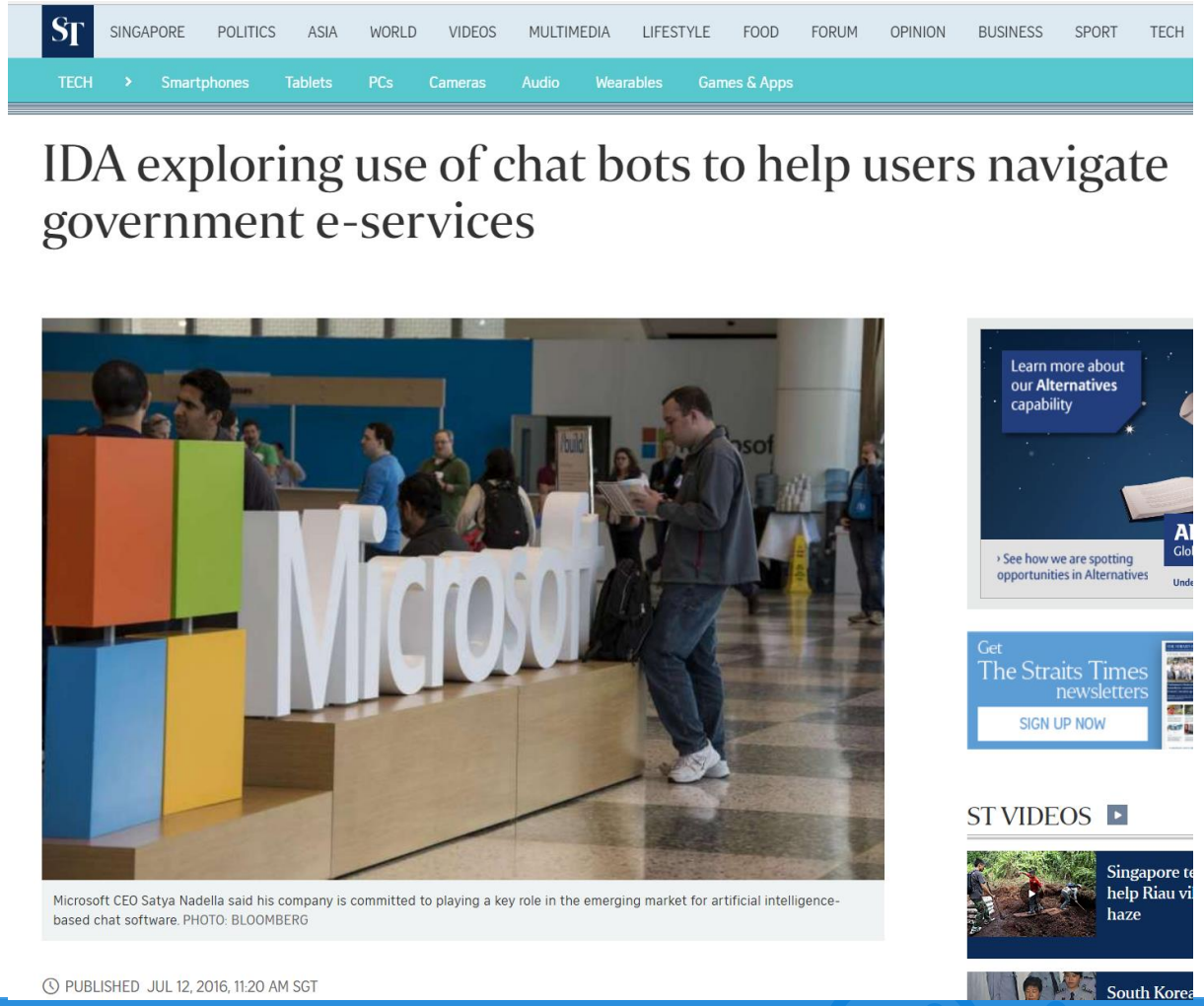


Intelligent Digital Representatives

INFOCOMM DEVELOPMENT AUTHORITY OF SINGAPORE

"I believe there are more intuitive ways for government services to be delivered to our citizens. Everybody expects responsive and personalised interactions in real time."

- Dr Vivian Balakrishnan, Minister for Foreign Affairs and Minister-In-Charge of the Smart Nation Initiative



ST SINGAPORE POLITICS ASIA WORLD VIDEOS MULTIMEDIA LIFESTYLE FOOD FORUM OPINION BUSINESS SPORT TECH

TECH › Smartphones Tablets PCs Cameras Audio Wearables Games & Apps

IDA exploring use of chat bots to help users navigate government e-services

Microsoft CEO Satya Nadella said his company is committed to playing a key role in the emerging market for artificial intelligence-based chat software. PHOTO: BLOOMBERG

PUBLISHED JUL 12, 2016, 11:20 AM SGT

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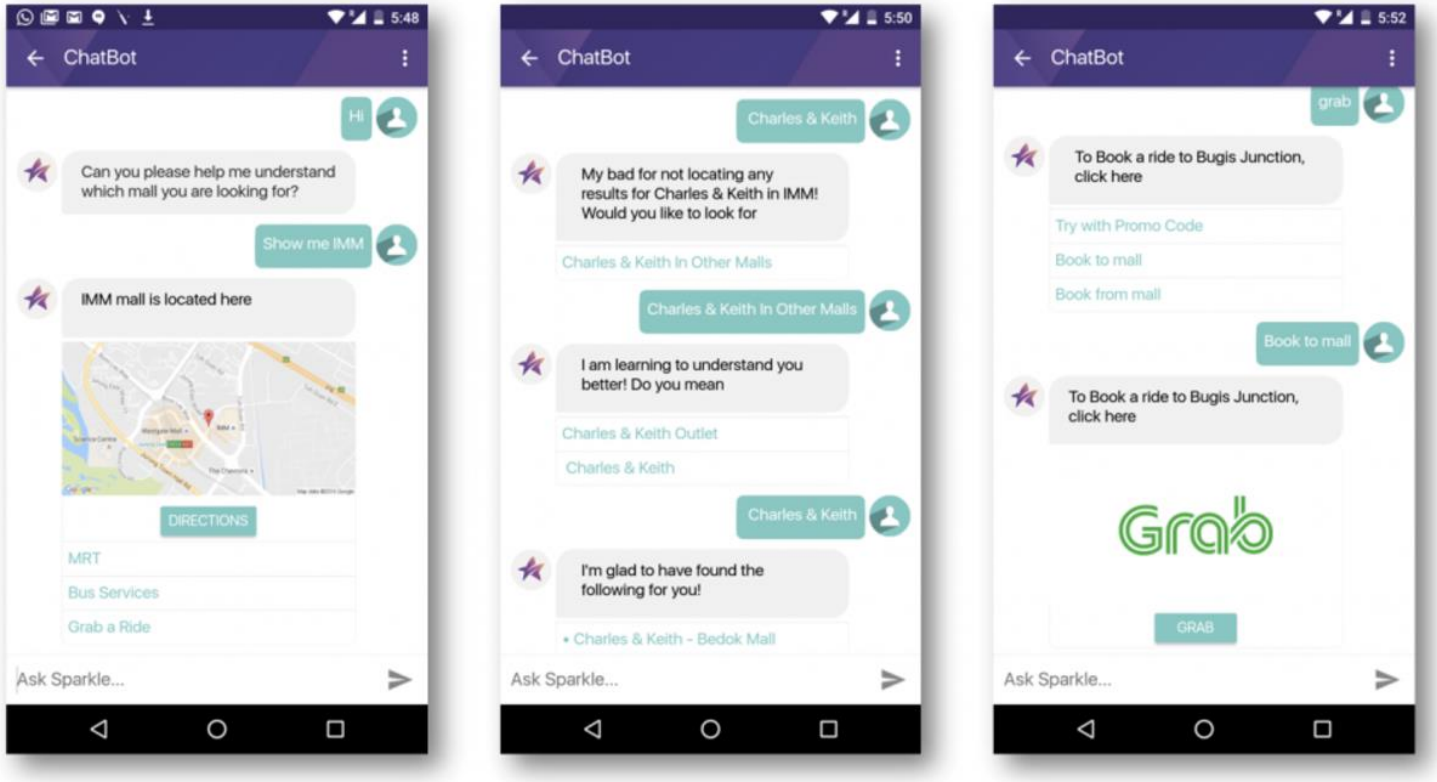
South Korea

Capitaland Sparkle chatbot



Sparkle in action: The chatbot on the CAPITASTAR app will assist CapitaLand Mall shoppers on frequently asked questions, and even help book a taxi ride to their preferred mall

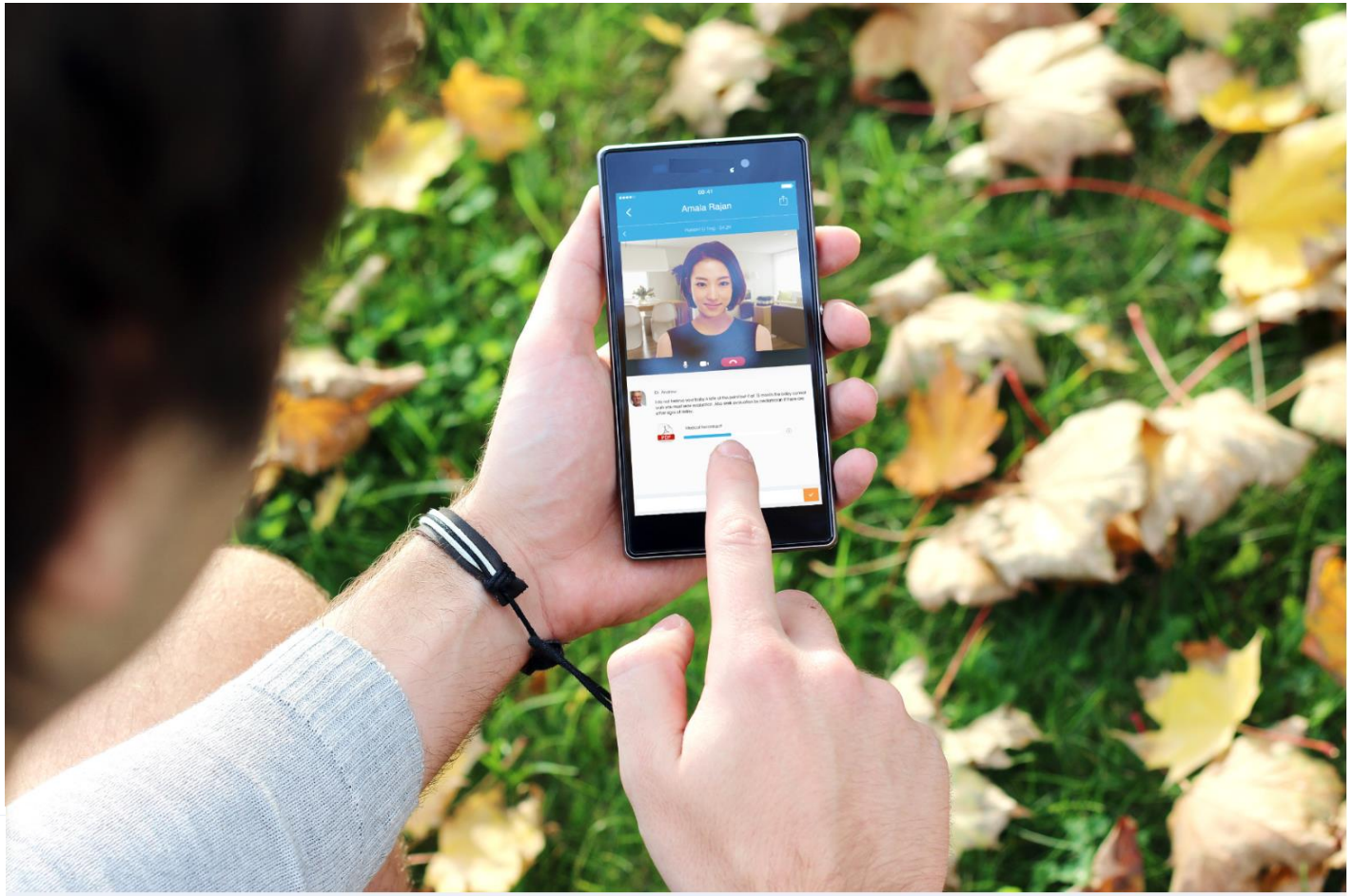
CAPITASTAR

RingMD – Remote Health Monitoring

Today

Hello, my name is Cardea. I can help you understand the symptoms you're experiencing. I'm quite chatty, but keep in mind that I am not a certified medical doctor.

Say "hello" to start chatting.



Doctors are improving patient outcomes by offering teleconsultations – all through mobile devices which are prevalent today across Asia

Bank in South Africa

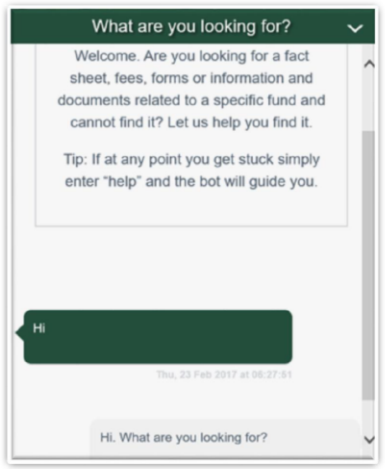
Nedbank Wealth

smartbot for call center top questions

MAKE THINGS HAPPEN

NEDGROUP INVESTMENTS

1



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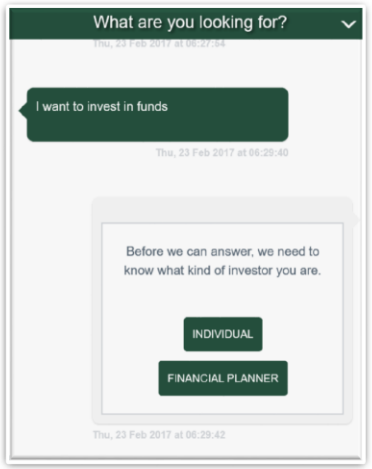

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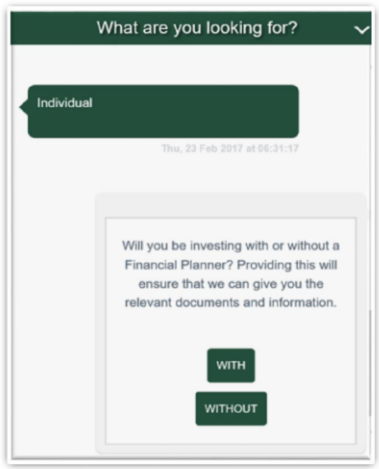
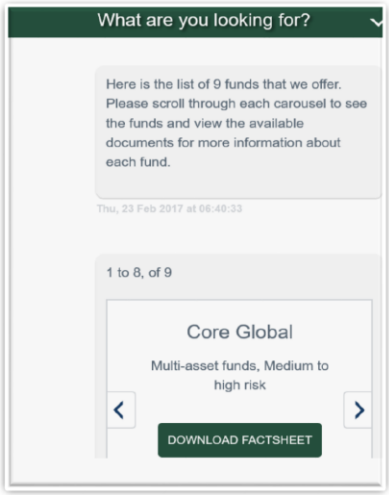


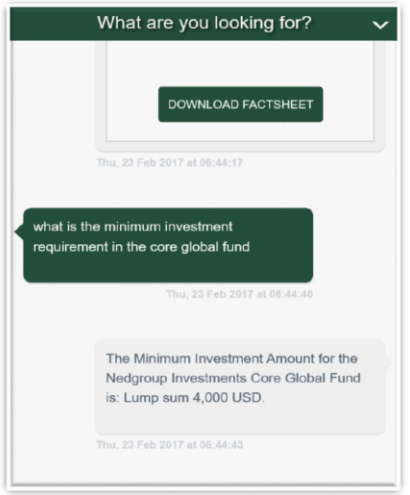
Nedbank Wealth

smartbot for call center top questions

MAKE THINGS HAPPEN

NEDGROUP INVESTMENTS





Microsoft

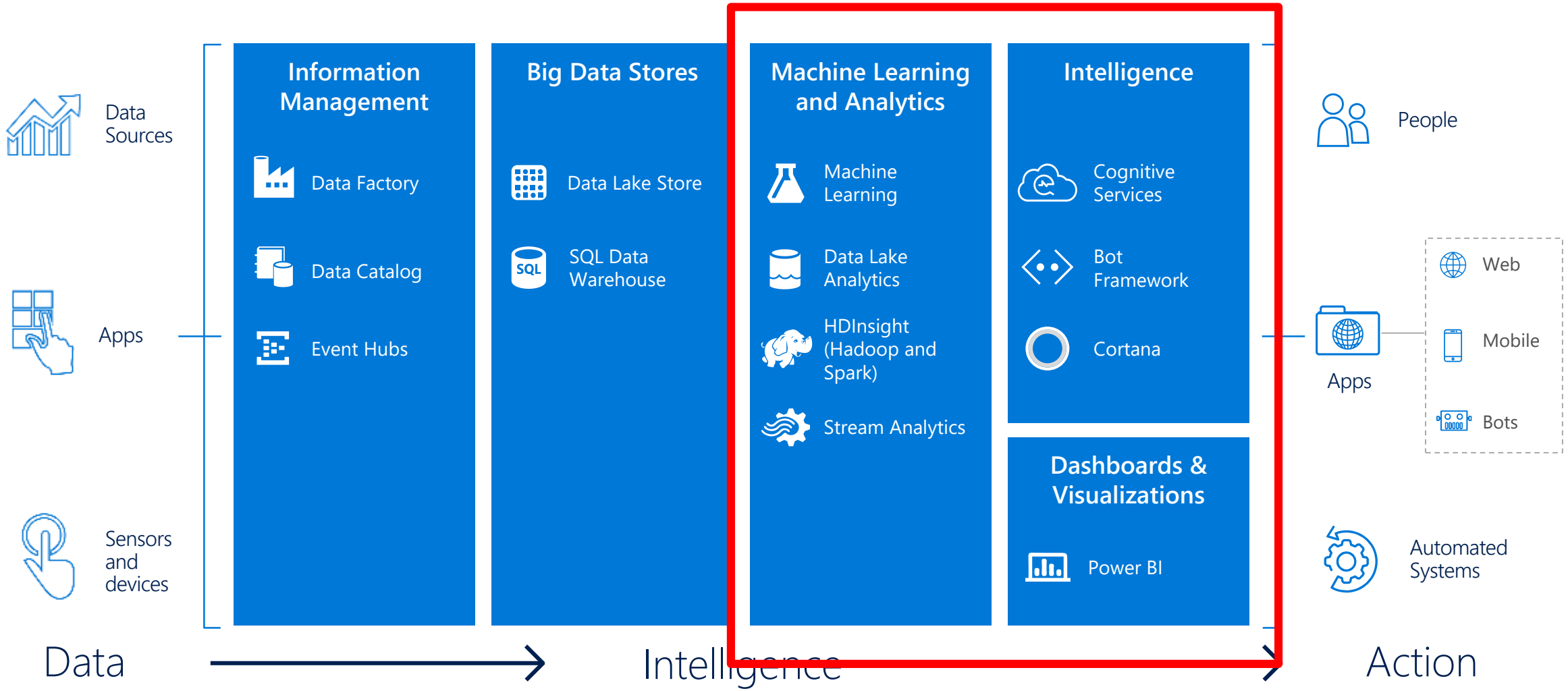
Cortana Intelligence Suite

Microsoft's Big Data Toolkit

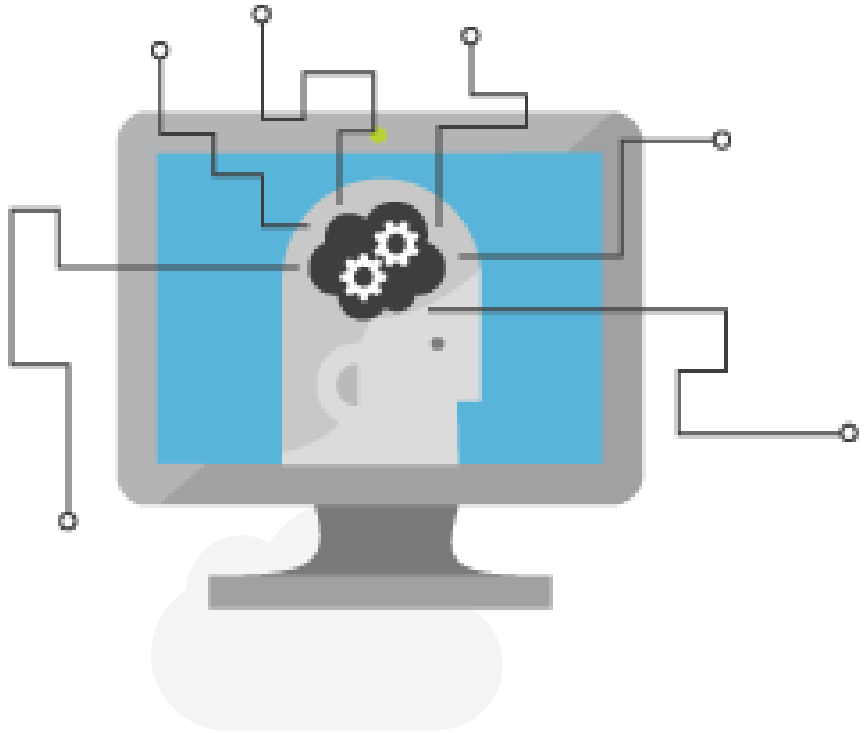
Stay ahead of the curve with Cortana Intelligence Suite

Data → Intelligence → Action

Easily turn data into intelligent action



What is Machine Learning?



Computing Systems that become smarter with Experience

Learning patterns from historic data to make predictions

What are the different ML tools you can use?

Difficulty

Customizability

Cognitive Services

Analytics APIs

Ready to consume APIs for Vision, Speech, Language, Knowledge

Azure Machine Learning

Cloud analytics

Easy drag/drop UX with single click operationalization

Cognitive Toolkit

Fast DNN Framework

Microsoft's open-source ML toolkit

Cognitive Services

Give your solutions a human side

Microsoft Cognitive Services preview

Vision

Computer Vision | Emotion | Face | Video | Content Moderator

Speech

Custom Recognition | Speaker Recognition | Speech

Language

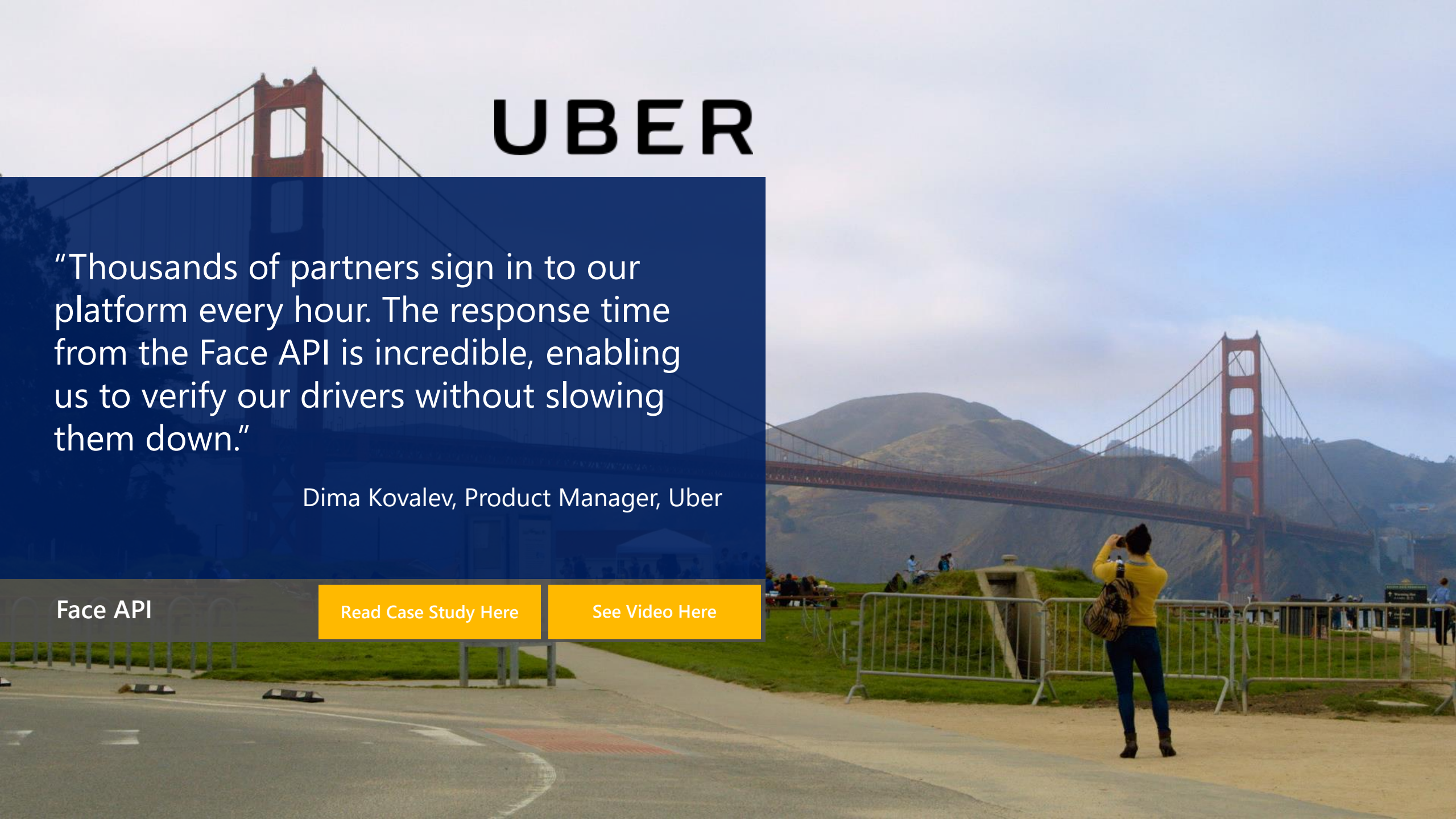
Bing Spell Check | Language Understanding | Linguistic Analysis | Text Analytics | Web Language Model | Translator Text and Speech

Knowledge

Academic Knowledge | Entity Linking | QnA Maker Knowledge Exploration

Search

Bing Auto Suggest | Bing Image Search | Bing News Search | Bing Video Search | Bing Web Search


UBER
"Thousands of partners sign in to our platform every hour. The response time from the Face API is incredible, enabling us to verify our drivers without slowing them down."
Dima Kovalev, Product Manager, Uber
Face API
Read Case Study Here
See Video Here

How-Old.net

How old do I look? #HowOldRobot

Happy #CokeBottleBirthday!

Learn more about the iconic Coca-Cola Bottle

Sorry if we didn't quite get it right - we are still improving this feature.

Try Another Photo!

Need customizability?

Custom Recognition Service

Customize your speech recognition model

Language Understanding Service

Customize your natural language model

Custom Vision Service

Customize your speech recognition model

Azure Machine Learning Service

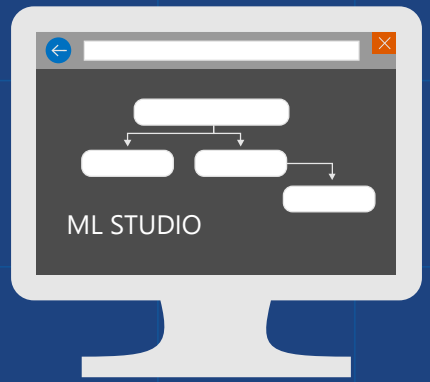
Data -> Predictive model -> Operational web API in minutes

Data

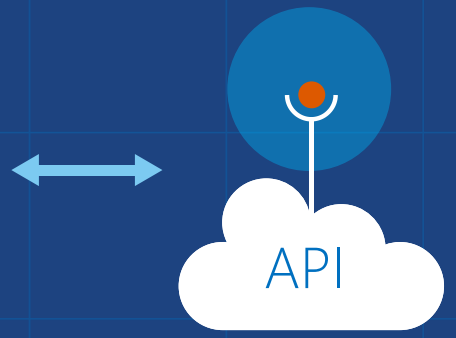
Blobs and Tables

Hadoop (HDInsight)

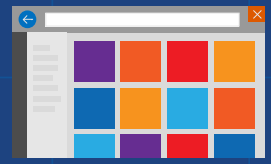
Relational DB (Azure SQL DB)



Integrated development environment for Machine Learning



Model is now a web service that is callable



Monetize the API through our marketplace

Clients

ML can answer these main types of questions:

- **Classification** – is this group A, B, C or D?
- **Anomaly detection** – is this weird?
- **Regression** – numerical predictions
- **Clustering** – how is this organized?

What can Azure ML do for you…?

Telemetry data analysis

Buyer propensity models

Social network analysis

Predictive maintenance

Web app optimization

Churn analysis

Natural resource exploration

Weather forecasting

Healthcare outcomes

Fraud detection

Life sciences research

Targeted advertising

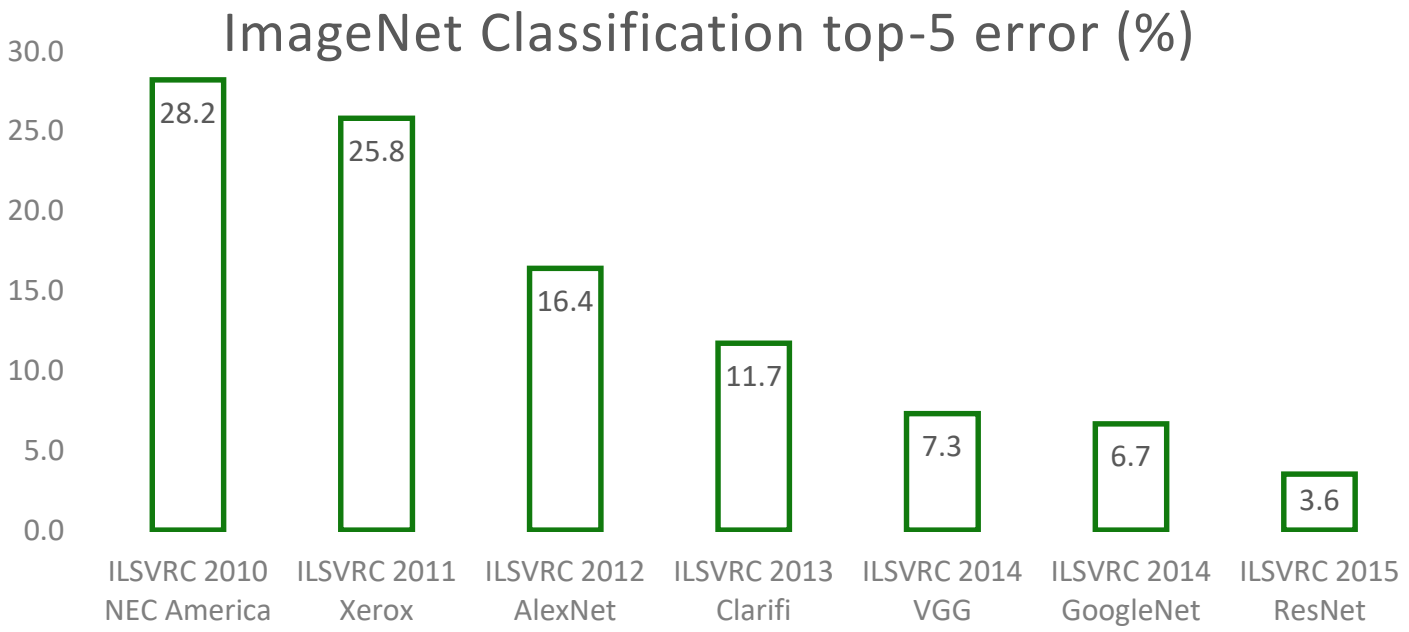
Network intrusion detection

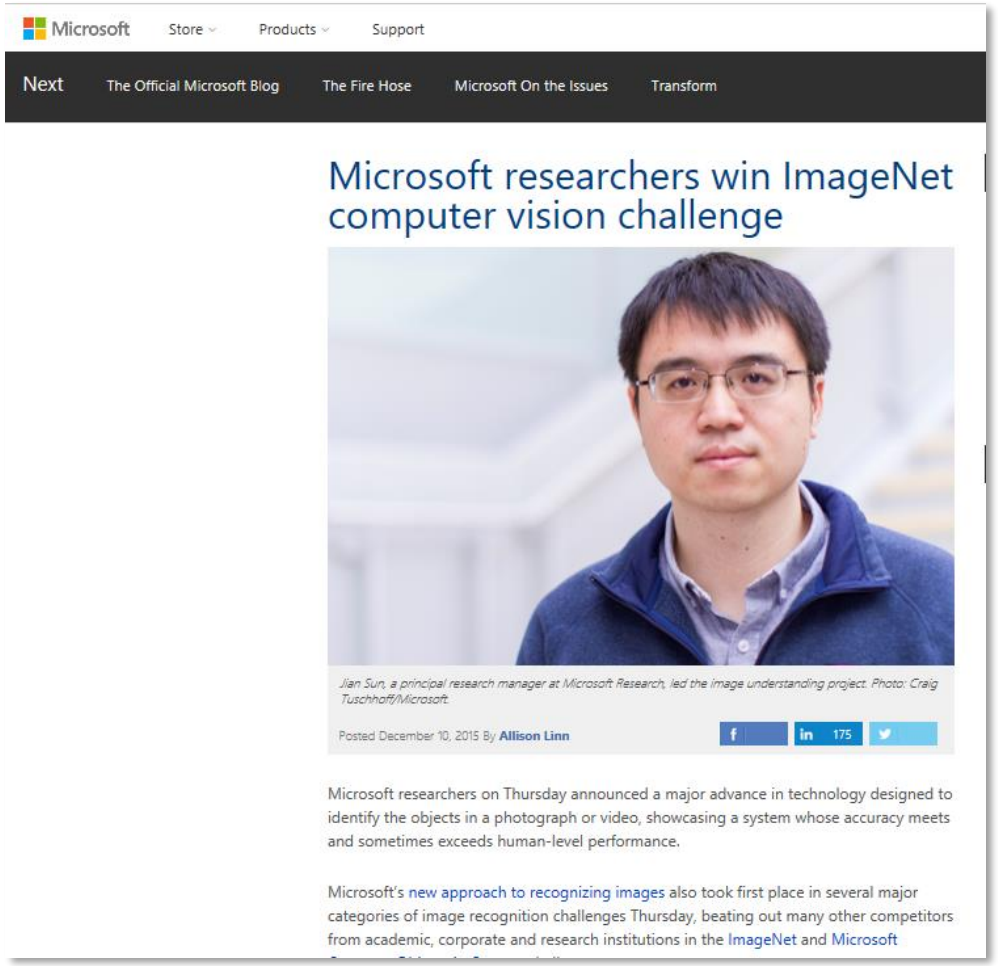
Smart meter monitoring

Microsoft Cognitive Toolkit (CNTK)

A free and open source deep learning toolkit

ImageNet: Microsoft 2015 ResNet





Microsoft Store Products Support

Next The Official Microsoft Blog The Fire Hose Microsoft On the Issues Transform

Microsoft researchers win ImageNet computer vision challenge

Jian Sun, a principal research manager at Microsoft Research, led the image understanding project. Photo: Craig Tuschhoff/Microsoft.

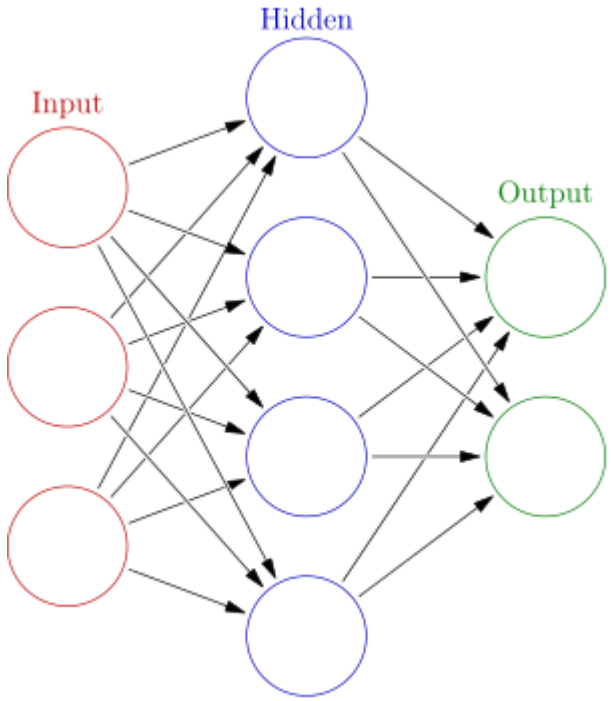
Posted December 10, 2015 By **Allison Linn**

Microsoft researchers on Thursday announced a major advance in technology designed to identify the objects in a photograph or video, showcasing a system whose accuracy meets and sometimes exceeds human-level performance.

Microsoft's new approach to recognizing images also took first place in several major categories of image recognition challenges Thursday, beating out many other competitors from academic, corporate and research institutions in the ImageNet and Microsoft

Aritificial Neural Networks

- Simulates a human brain
- Each time the NN completes a cycle, the hidden nodes are adjusting their weights.
- Weights are adjusted by backpropagation

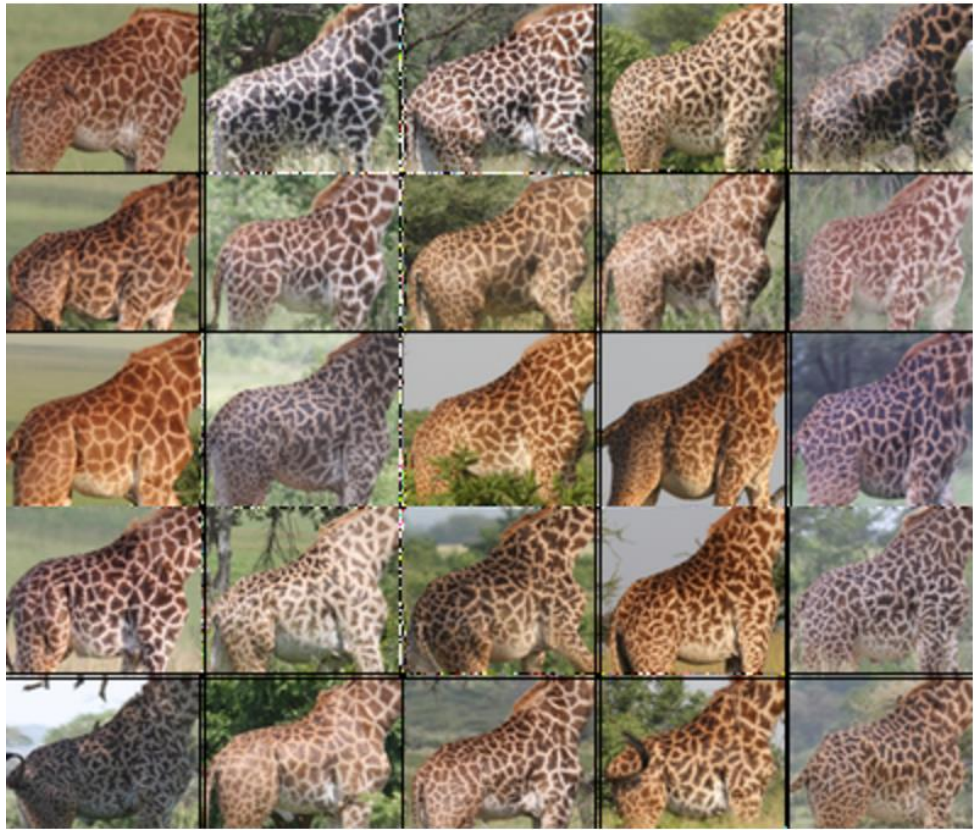


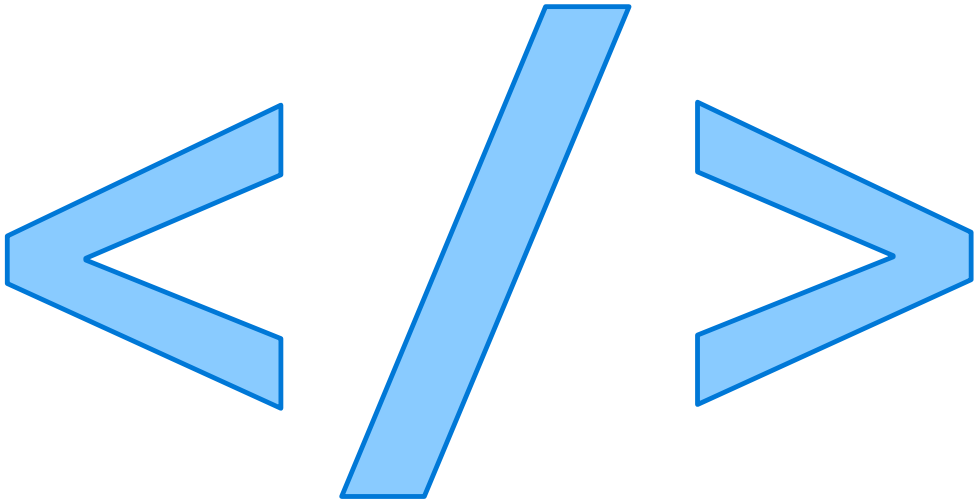
Case study and demo: Liebherr Intelligent Fridges

"Liebherr refrigerators will help in shopping and planning meals with intelligent food management. This information flows automatically into an inventory list, which lets the customer see quickly and clearly what is in the refrigerator from anywhere. "

Case study: Protecting the Masai Giraffe with Wild Nature Institute

"Using this technique, the scientists monitor seasonal survival, reproduction, and movements of over 2000 different individual giraffe around the Tarangire Ecosystem of Tanzania."



Microsoft Cognitive Toolkit

- Free and open-source
- Works with CPUs and GPUs and scales to multiple machines
- Includes prebuilt algorithms for implementing neural networks
- Production-grade DNN tool