Democratization of AI with Cognitive Services

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UST Global
Adnan Masood, Ph.D. is an Artificial Intelligence and Machine Learning researcher, software architect, and Microsoft MVP (Most Valuable Professional) for Data Platform. As Chief Architect of AI and Machine Learning at UST Global, he collaborates with Stanford Artificial Intelligence Lab, and MIT AI Lab for building enterprise solutions.

Author of Amazon bestseller in programming languages, "Functional Programming with F#", Dr. Masood teaches Data Science at Park University, and has taught Windows Communication Foundation (WCF) courses at the University of California, San Diego. He is a regular speaker to various academic and technology conferences (WICT, DevIntersection, IEEE-HST, IASA, and DevConnections), local code camps, and user groups. He also volunteers as STEM (Science Technology, Engineering and Math) robotics coach for elementary and middle school students.

A strong believer in giving back to the community, Dr. Masood is a co-founder and president of the Pasadena .NET Developers group, co-organizer of Tampa Bay Data Science Group, and Irvine Programmer meetup. His recent talk at Women in Technology Conference (WICT) Denver highlighted the importance of diversity in STEM and technology areas, and was featured by variety of news outlets.
Microsoft AI Services

With Azure AI services you can build next-gen of smart applications where your data lives, in the intelligent cloud, on-premises and on the intelligent edge. AI services include from pre-built APIs, such as Cognitive Services & Conversational AI with Bot tools, to building custom models with Azure Machine Learning for any scenario.

Microsoft Cognitive Toolkit / Deep Learning
A free, open-source, commercial-grade toolkit that trains deep learning algorithms to learn like human brain.
- Empowers you to harness the intelligence within massive datasets
- Provides uncompromised scale, speed, and accuracy with commercial-grade quality
- Compatibility with languages you use like C++ and Python

Azure Bot Framework
Build, connect, deploy, and manage intelligent bots to interact naturally with your users on websites, and other apps.
- Integrated environment that is purpose-built for bot development with the Microsoft Bot Framework
- Give your bot intelligence with Cognitive Services
- Integration across multiple channels – Website, App, Email, Skype, Slack, Cortana, Facebook Messenger and more

Azure Machine Learning
A fully-managed cloud service that enables you to easily build, deploy and share predictive analytics solutions.
- Container based AI deployment from cloud to edge
- Python pip-installable extensions for Azure ML – Build & deploy highly accurate ML & deep learning models
- Package pre-built models like predictive maintenance, image classification & speech processing and deploy to IoT devices

Intelligent Applications
Experience the intelligence built into Microsoft products and services you use every day – from Office to Skype to Calendar
- Intelligent Search – Makes it easier to find what you’re looking for
- Microsoft Translator - translate real time via text, voice and video across experiences like Skype
- AI in Office 365 - Connect to relevant information, and surface new insights

Cognitive Services
APIs and services that allow systems to speak, hear, see, understand and interpret human needs
- APIs for speech, vision, language, search, and knowledge
- Customised to your organisation’s availability, security and compliance requirements
- Works across devices and platforms such as iOS, Android, and Windows

Ask us for an Envisioning Session on Microsoft AI Services.

Source WinWire via @BrianJohnson_01

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https://www.DEVintersection.com
“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
"The results are very impressive. The Microsoft Cognitive Services Recommendations API has helped us take a big step in improving our user experience and building more loyalty to our services"

With Cortana Intelligence Suite capabilities and Azure Machine Learning APIs, we are looking forward to additional integrations that will give us the flexibility to use data in different ways so we can continue to build new services for our customers."

Joana Pina Pereira,
Head of TV Business Department
MEO at Portugal Telecom
Three real projects
OpenCV and Tensorflow
Business Problem
The space between the top of the cart and the bottom of the cart is responsible for millions of dollars worth of merchandise that is unpaid. How do we stop this pragmatically?

Key Business Value:
Reducing Fraud is adding millions back to the bottom line without doing much. By having a camera that scans the bottom of the cart, cashiers can make sure that all products are scanned and accounted for.

Technologies Used:
Computer vision, Object Detection, and Machine learning.
Roll your own with REST APIs
Simple to add: just a few lines of code required

Integrate into the language and platform of your choice
Breadth of offerings helps you find the right API for your app

Built by experts in their field from Microsoft Research, Bing, and Azure Machine Learning
Quality documentation, sample code, and community support
Microsoft Cognitive Services

Give your apps a human side

**Vision**
Computer Vision | Content Moderator | Emotion | Face | Video | Video Indexer | Custom Vision Service

**Speech**
Bing Speech | Custom Speech Service | Speaker Recognition

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

**Knowledge**
Academic Knowledge | Entity Linking | Knowledge Exploration | Recommendations | QnA Maker | Custom Decision Service

**Search**
Bing Autosuggest | Bing Image Search | Bing News Search | Bing Video Search | Bing Web Search | Bing Custom Search

**Labs**
Project Prague | Project Cuzco | Project Johannesburg | Project Nanjing | Project Abu Dhabi | Project Wollongong
### Cognitive Services

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Computer Vision API
Distill actionable information from images

Face API
Detect, identify, analyze, organize, and tag faces in photos

Emotion API
Personalize experiences with emotion recognition

Video API
Analyze, edit, and process videos within your app
Vision

Speech

Bing Speech API
Convert speech to text and back again, and understand its intent

Speaker Recognition API
Give your app the ability to know who's talking

Custom Recognition Intelligent Service
Fine-tune speech recognition for anyone, anywhere
Bing Spell Check API
Detect and correct spelling mistakes within your app

Web Language Model API
Leverage the power of language models trained on web-scale data

Linguistic Analysis API
Easily parse complex text with language analysis

Language Understanding Intelligent Service (LUIS)
Teach your apps to understand commands from your users

Text Analytics API
Detect sentiment, key phrases, topics, and language from your text
**Knowledge**

**Academic Knowledge API**
Explore relationships among academic papers, journals, and authors

**Knowledge Exploration Service**
Add interactive search over structured data to your project

**Entity Linking Service**
Contextually extend knowledge of people, locations, and events

**Recommendations API**
Provide personalized product recommendations for your customers
Bing Web Search API
Connect powerful search to your apps

Bing Autosuggest API
Give your app intelligent autosuggest options for searches

Bing Image Search API
Bring advanced image and metadata search to your app

Bing Video Search API
Trending videos, detailed metadata, and rich results

Bing News Search API
Link your users to robust and timely news searches
Introducing Language Understanding Intelligence Service (LUIS)

A Microsoft Cognitive Service that provides developers with an easy way to create language models to allow applications to understand user commands.

- Create your own LU model
- Train by providing examples
- Deploy to an HTTP endpoint and activate on any device
- Maintain model with ease
Moving to Production & Scaling
Transform data into intelligent action with Cortana.
Type of Image:
- Clip Art Type: 0 Non-clipart
- Line Drawing Type: 0 Non-Line Drawing
- Black & White Image: False

Content of Image:
- Categories: 
  - "people_swimming": 0.099609375
- Adult Content: False
- Adult Score: 0.18533889949321747
- Faces: 
  - "age": 27, "gender": "Male", "faceRectangle": 
    - "left": 472, "top": 258, "width": 199, "height": 199

Image Colors:
- Dominant Color Background: White
- Dominant Color Foreground: Grey
- Dominant Colors: 
- Accent Color: White

Age: 27
Gender: Male
“a brown cow standing on top of a lush green field”
“a cow standing on top of a lush green field”
“a large brown cow standing on top of a lush green field”
Visual Intelligence Made Easy
Easily customize your own state-of-the-art computer vision models that fit perfectly with your unique use case. Just bring a few examples of labeled images and let Custom Vision do the hard work.

Upload Images
Bring your own labeled images, or use Custom Vision to quickly add tags to any unlabeled images.

Train
Use your labeled images to teach Custom Vision the concepts you care about.

Evaluate
Use simple REST API calls to quickly tag images with your new custom computer vision model.
Call to action

- Get started for free at https://www.microsoft.com/cognitive-services
- Re-visit Build session recordings on Channel 9.
- Continue your education at Microsoft Virtual Academy online.
Conclusion

THE #1 deep learning expert EXCUSE FOR LEGITIMATELY SLACKING OFF:

"MY model's training"

HEY! GET BACK TO WORK!

OH. CARRY ON.

training!
Questions?

*Please use EventsXD to fill out a session evaluation.*

Thank you!