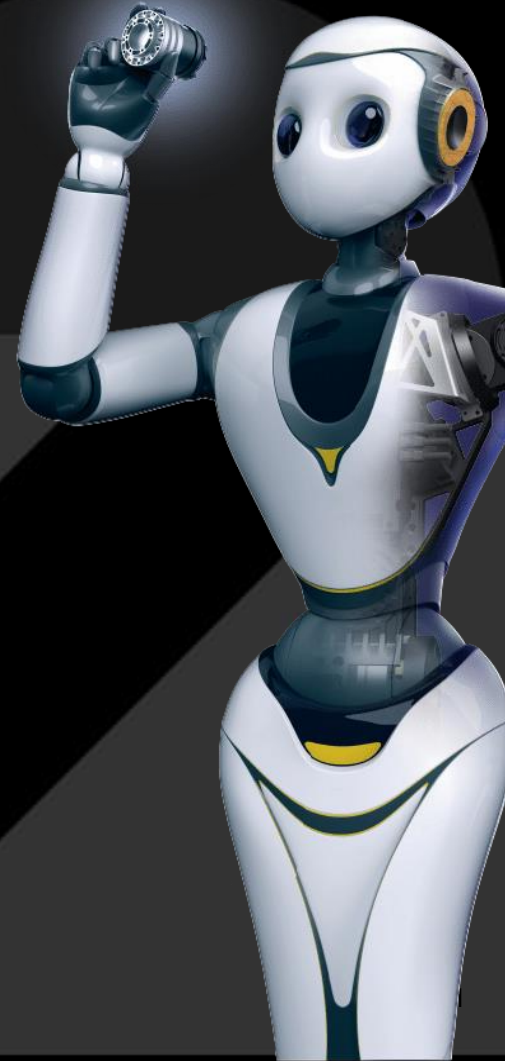




Future Ready with AI

Leslie Leung

Future Ready Skills Leader
Microsoft Hong Kong



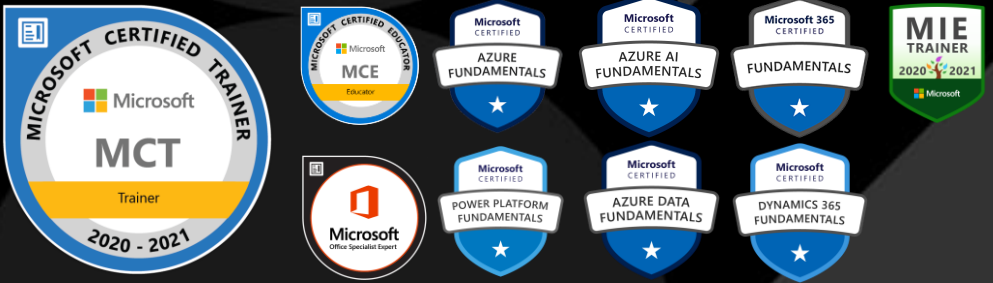
2020
Online EduDay



Leslie Leung

BEng, MBA, PGDE

Future Ready Skills Leader
Microsoft Hong Kong



A network diagram consisting of numerous small blue circular nodes connected by thin, light blue lines. The nodes are scattered across the frame, and the lines form a complex, interconnected web. The background is solid black.

1

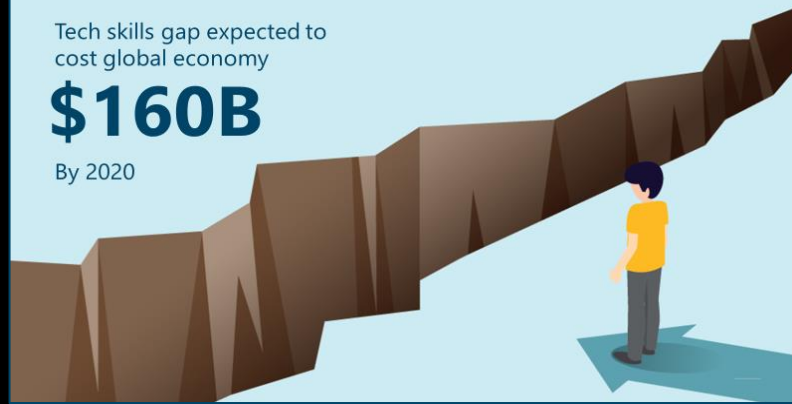
Skill Need of Artificial Intelligence

DIGITAL TRANSFORMATION REQUIRES NEW SKILLS

Tech skills gap expected to cost global economy

\$160B

By 2020



6.2 MILLION

Job Openings in

Cloud-based technologies

By 2022



ONLY 42 PERCENT

Of employers believe that new graduates are prepared for the workforce

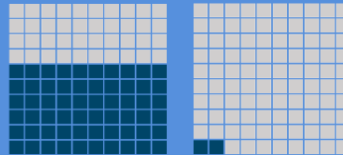


71 PERCENT

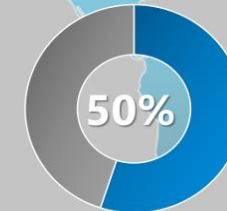
Of STEM jobs are in technology, yet only

8 PERCENT

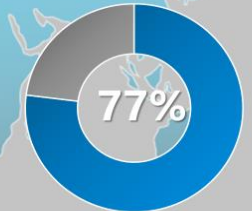
Of STEM graduates fill that demand



77% of Jobs will require technology skills by 2030



TODAY



10 YEARS FROM NOW

McKinsey Global Institute predicts that by 2020 there will be

85 MILLION SHORTFALL

Of high- and middle-skilled workers



74 PERCENT

Of current employees report needing to retrain for jobs of the future



ONLY 3 PERCENT

Of all undergraduate degrees in the US are in computer science – and only 18 percent of those are women



18 PERCENT

Emerging Jobs Report

Data and AI related roles top the list of fastest-growing jobs in the world! Are you prepared for the job market?



Below are the three fastest-growing jobs LinkedIn looked at across Asia, UK and US:

Australia

- 1.AI Specialist
- 2.Cyber Security Specialist
- 3.Robotics Engineer

India

- 1.Blockchain Developer
- 2.AI Specialist
- 3.Javascript Developer

Indonesia

- 1.AI Specialist
- 2.DevOps Engineer
- 3.Customer Success Specialist

Malaysia

- 1.Data Scientist
- 2.Customer Success Specialist
- 3.BIM Specialist

New Zealand

- 1.Cyber Security Specialist
- 2.Data Engineer
- 3.Full Stack Engineer

Philippines

- 1.Robotics Engineer
- 2.Cyber Security Specialist
- 3.Customer Success Specialist

Singapore

- 1.AI Specialist
- 2.Robotics Engineer
- 3.Full Stack Engineer

Thailand

- 1.Data Scientist
- 2.Back-end Developer
- 3.Data Engineer

United Kingdom

- 1.AI Specialist
- 2.Data Protection Officer
- 3.Robotics Engineer

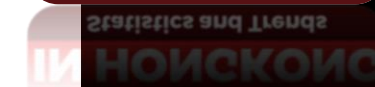
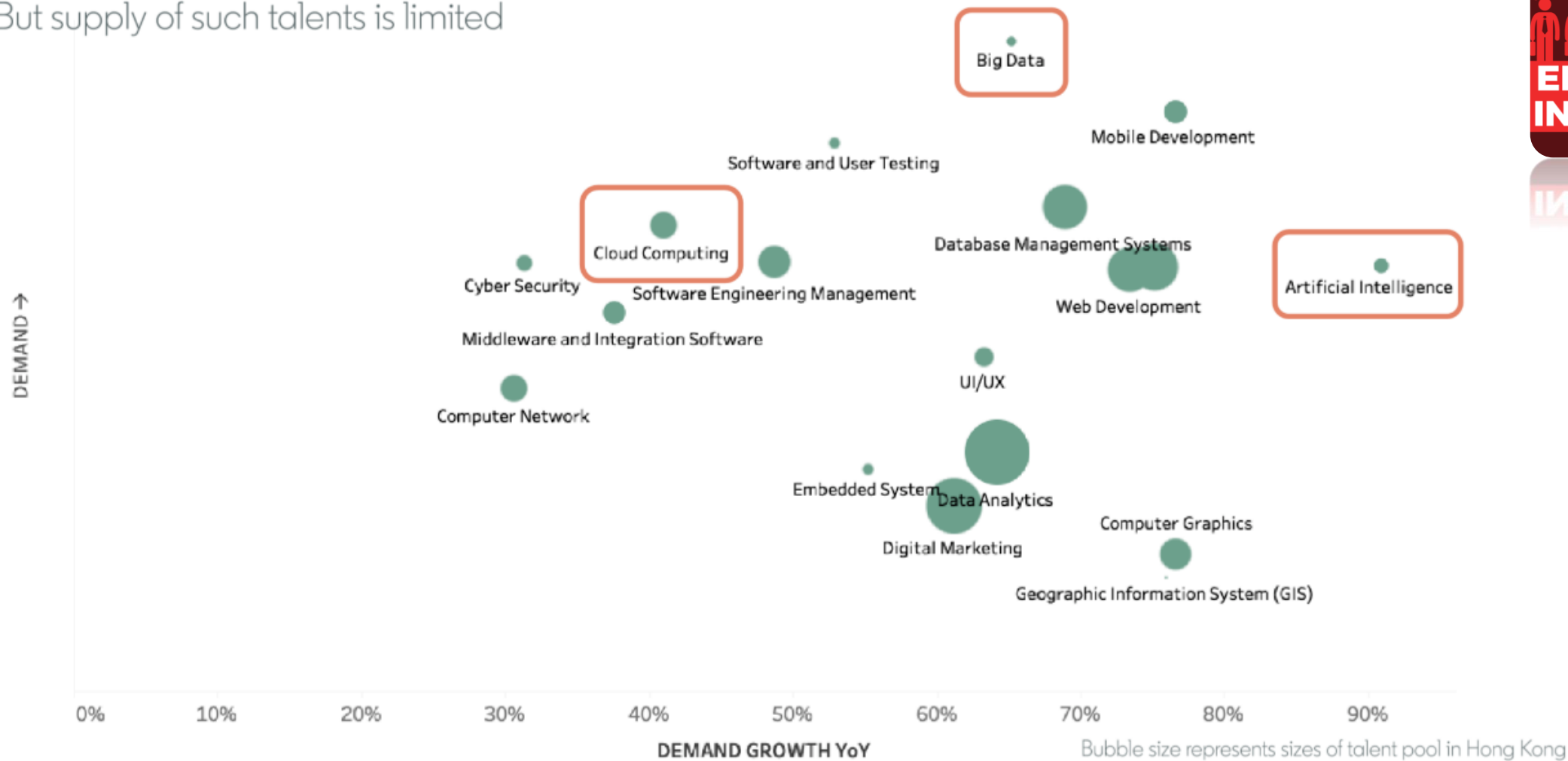
United States

- 1.AI Specialist
- 2.Robotics Engineer
- 3.Data Scientist

Updated on March 2019

AI & Big Data are great in demand in Hong Kong

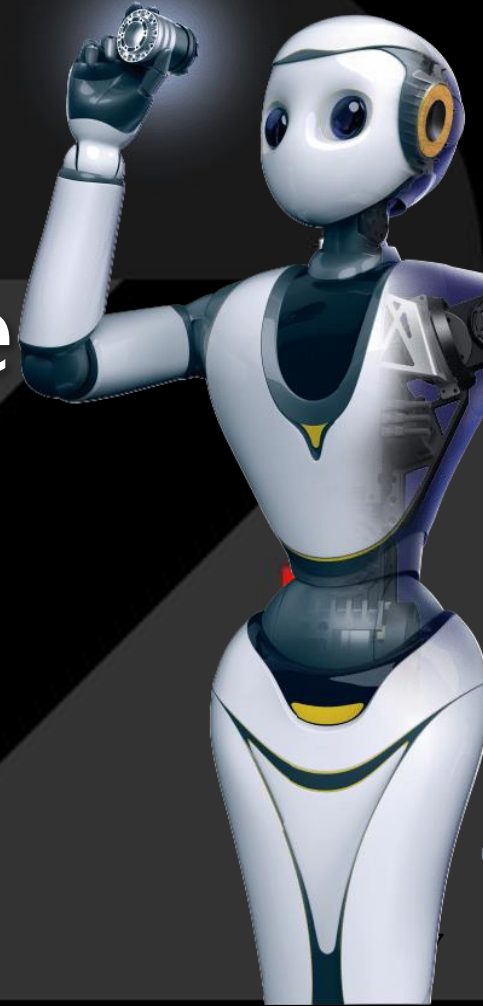
But supply of such talents is limited





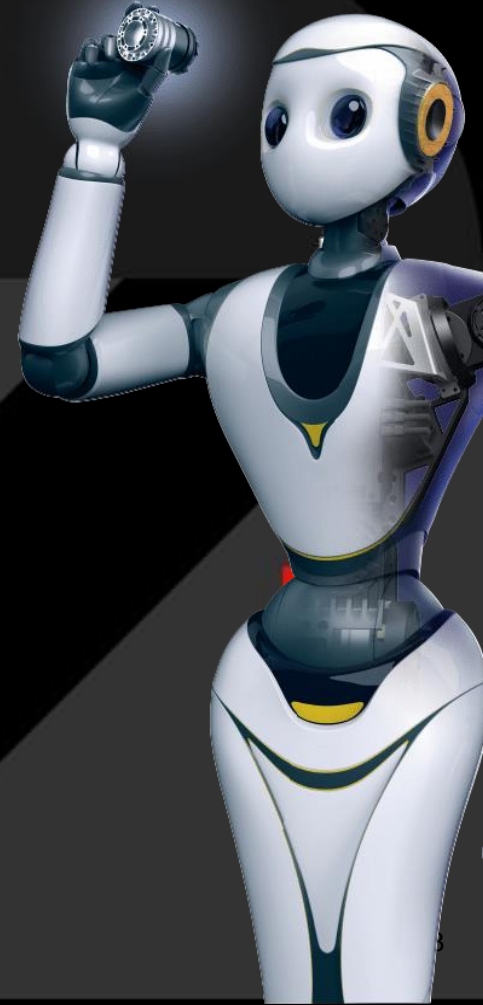
2 |

Industry Transformation with Artificial Intelligence





Microsoft



human ingenuity



Amplifying human ingenuity



soil temperature
71°



$6CO_2 + 6H_2O + ENERGY = C_6H_{12}O_6 + 6O_2$



TO SCALE ADVANCED DECISION MAKING, YOU NEED TO EMPOWER EVERY EMPLOYEE TO REASON WITH AI



Research and development



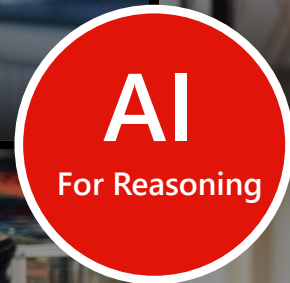
Engineering



Production and manufacturing



Product management



Novartis

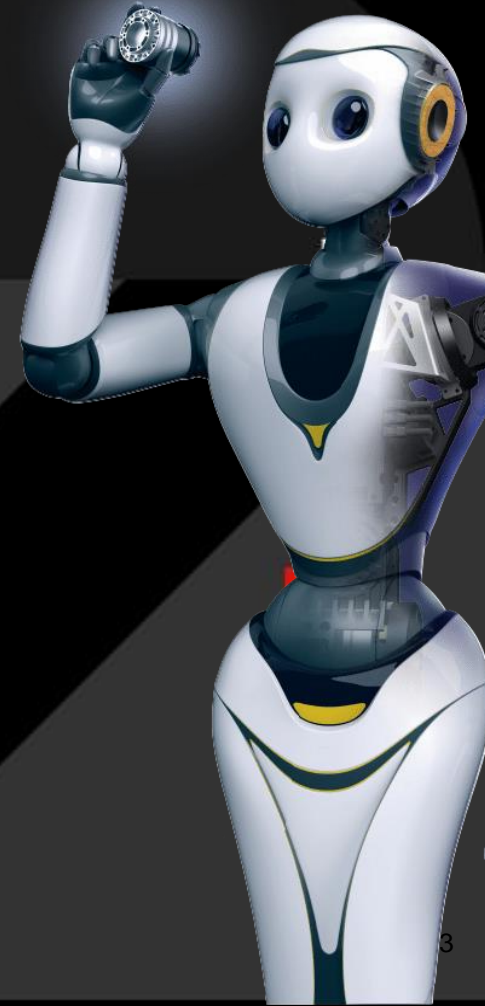
<https://www.novartis.com/news/novartis-and-microsoft-announce-collaboration-transform-medicine-artificial-intelligence>



Novartis is bringing the power of AI to the desktop of every associate

- At Novartis, they are bringing the power of AI to the desktop of every employee - *not just data scientists and developers* - with a goal of transforming how medicines are discovered, manufactured, and commercialized.
- To do this, they take a holistic approach, redefining how every business function can use AI—from research to manufacturing to distribution.
- Many of their 50,000 employees deal with a huge amount of data related to pharmaceutical information, like medical journal articles, chemical representations, gene sequences, and clinical trial results.
- With AI, they can quickly make sense of and key derive insights from this vast amount of unstructured information to take on the next wave of challenges in medicine.





Mackmyra

<https://news.microsoft.com/europe/features/meet-the-worlds-first-ai-created-whisky/>



Mackmyra combines AI with human expertise to craft award winning spirits

MACKMYRA

- While brewing whisky is not what you would typically associate with AI, Mackmyra has found a way to combine 1,000-year-old techniques, human expertise, and craftsmanship, with AI to take their product quality to the next level.
- Over the past year, **Mackmyra** has partnered with Finnish tech company **Fourkind** and Microsoft to create the world's first whisky developed with artificial intelligence.
- With the power of AI at her fingertips, Master Blender Angela D'orazio was able to coach the AI models and algorithms to select the best recipe for bottling. By doing this, she was able to evaluate, test, and refine the recommendations based on her expertise and deep knowledge of the craft at a pace and with a level of detail never before possible.
- As direct evidence of the power of putting AI in the hands of the subject matter expert, the resulting whisky, **Intelligens by Mackmyra and Fourkind** was just awarded a **Gold Medal by the American Distilling Institute and named 2020 Best of Category International Malt Whisky**. Truly revolutionary.



Mondelez



- Mondelez is one of the world's largest snack companies, world famous for brands such as Oreo, Sour Patch Kids, Trident gum, Toblerone, Cadbury, and many more. They are always looking for how to bring the next great snack to market.
- Using AI, they will now be able to provide insights and recommendations to their master tastemakers to improve snack quality, discover new taste experiences, and delight our taste buds in new ways!

Mondelez is working to provide AI based recommendations to their master tastemakers to improve snack quality and discover new ways to delight our taste buds!



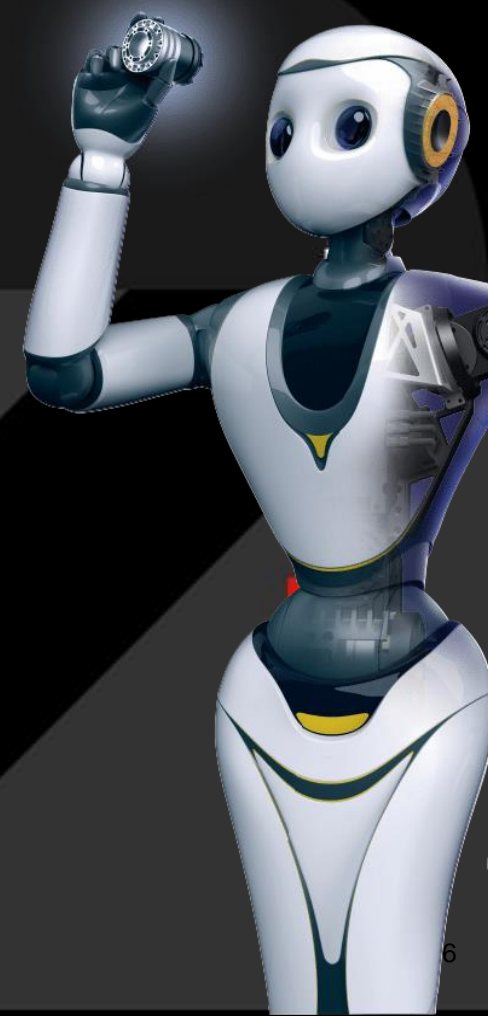


Microsoft



Name	IMO Number	Call Sign	Country	Flag
...
...
...
...

VESSEL: UNLICENSED



Microsoft AI Approach



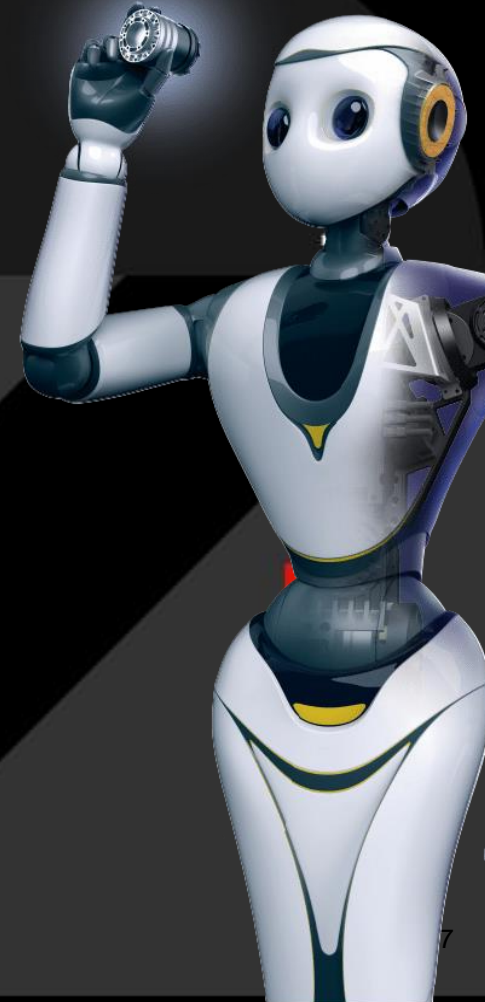
Bring AI to Every
Application



Bring AI to Every
Process



Bring AI to Every
Person





3

Microsoft AI Service Portfolio

Microsoft AI Platform



Azure AI Services

PRE-BUILT AI

Cognitive Services

CONVERSATIONAL AI

Bot Service

CUSTOM AI

Azure Machine Learning



Tools

CODING & MANAGEMENT TOOLS

VS Tools
for AI

Azure ML
Studio

Azure ML
Workbench

Others (PyCharm, Jupyter Notebooks...)

DEEP LEARNING FRAMEWORKS

3rd Party

Cognitive
Toolkit

TensorFlow

Caffe

Others (Scikit-learn, MXNet, Keras,
Chainer, Gluon...)



Azure Infrastructure

AI ON DATA

Cosmos
DB

SQL
DB

SQL
DW

Data
Lake

Spark

DSVM

Batch
AI

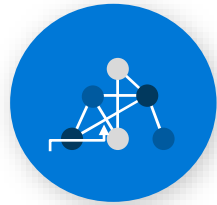
ACS

IoT
Edge

AI COMPUTE

CPU, FPGA, GPU

Azure AI



Dynamics 365 AI



Microsoft 365



Examples of Microsoft AI Services



Cognitive
Services



Microsoft
Graph



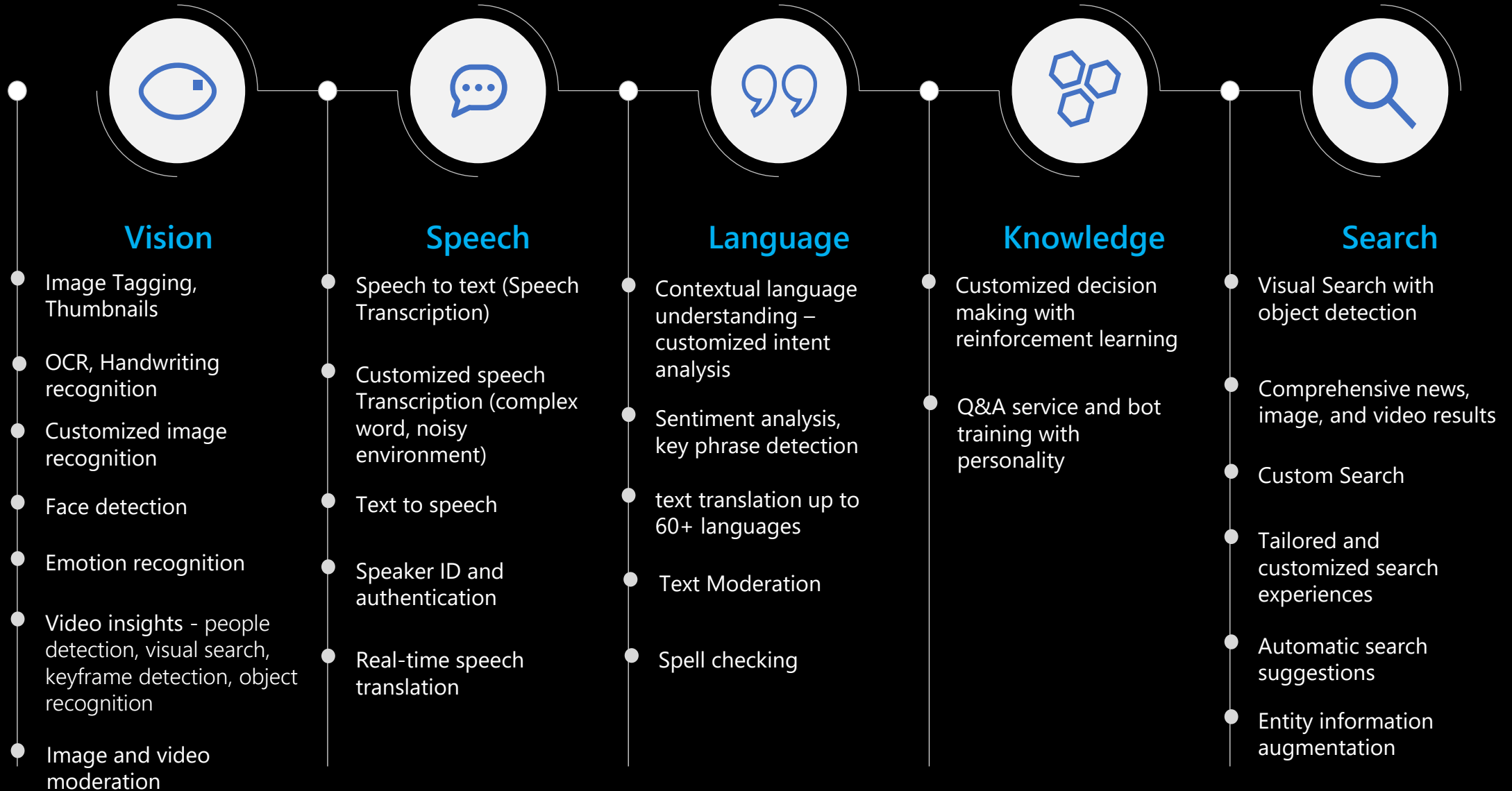
Bing APIs



Bots

Examples of Microsoft Cognitive Services

Infuse your apps, websites, and bots with human-like intelligence



Application Program Interface (API)

An Application Programming Interface (API) is a set of routines, protocols, and tools for building software applications.

The aim of APIs is to help developers build intelligent applications without having direct AI or data science skills.

The API is the interface between the developer's code and the components of complex AI systems. For example, the goal of Azure Cognitive Services is to help developers create applications that can see, hear, speak, understand, and even begin to reason.

It enables developers to create innovative applications to transform business and society.



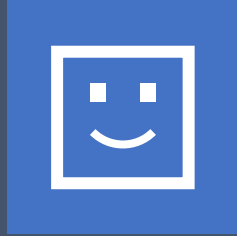
Vision APIs



Computer Vision



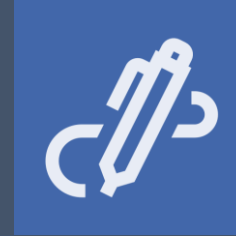
Custom Vision Service



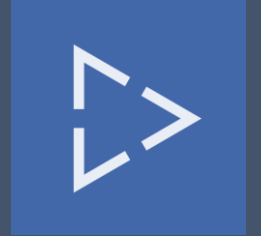
Face API



Form Recognizer



Ink Recognizer



Video Indexer

Speech APIs



Speech
Services



Speaker
Recognition



Bing
Speech



Translator
Speech

Language APIs



Language
Understanding
LUIS



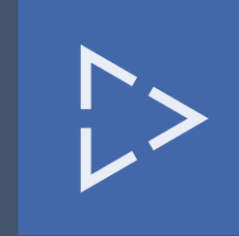
QnA Maker



Text
Analytics



Form Recognizer



Video
Indexer

Search APIs



**Bing
News
Search**



**Bing
Video
Search**



**Bing
Web
Search**



**Bing
Autosuggest**



**Bing
Custom
Search**



**Bing
Entity
Search**



**Bing
Image
Search**



**Bing
Visual
Search**



**Bing Local
Business Search
(BLBS)**



**Bing
Spell
Check**

Decision APIs



**Anomaly
Detector**



**Content
Moderator**

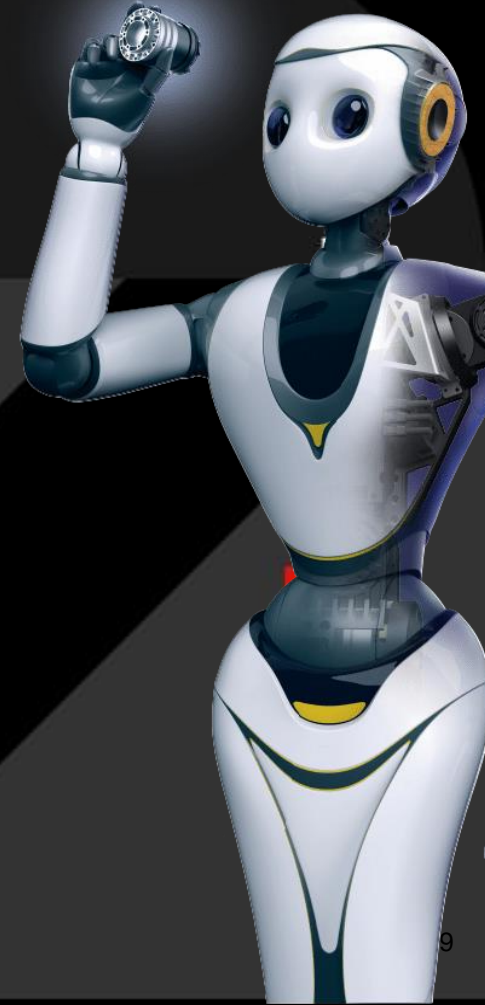


Personalizer



4

Preparing for Artificial Intelligence



AI EXPERIENCE

<https://aidemos.microsoft.com/>

The screenshot shows the Microsoft AI Demos website. At the top, there's a navigation bar with 'Microsoft AI' and links for 'Get approach', 'Features & Services', 'Blog', and 'Research'. The main heading is 'Hands on with AI' with a subtext: 'Dive in to interactive demos that showcase a selection of the capabilities of the Microsoft AI platform.' Below this, there are three featured demos: 'Machine Teaching' (with a brain icon), 'AI Route Planner' (with a location pin icon), and 'Text Analytics' (with a document icon). Each demo has a brief description and a 'Try it out >' button.

This interface shows an image of a subway platform with a train. The image is processed by an AI model, and the results are displayed in a table. The table has two columns: 'FEATURE NAME' and 'VALUE'. The 'Objects' feature lists several detected objects with their bounding boxes and confidence scores. The 'tags' feature lists broader categories like 'train', 'platform', 'station', etc., with their confidence scores.

FEATURE NAME	VALUE
Objects	[{"rectangle": {"x": 93, "y": 170, "w": 115, "h": 237}, "object": "person", "confidence": 0.764}, {"rectangle": {"x": 0, "y": 229, "w": 101, "h": 206}, "object": "person", "confidence": 0.624}, {"rectangle": {"x": 161, "y": 0, "w": 439, "h": 423}, "object": "subway train", "parent": {"object": "train", "parent": {"object": "Land vehicle", "parent": {"object": "Vehicle", "confidence": 0.926}, "confidence": 0.923}, "confidence": 0.917}, "confidence": 0.801 }]
tags	[{"name": "train", "confidence": 0.9975446}, {"name": "platform", "confidence": 0.9855431}, {"name": "station", "confidence": 0.978800761}, {"name": "indoor", "confidence": 0.9277198}, {"name": "subway", "confidence": 0.8389395}, {"name": "clothing", "confidence": 0.5043765}, {"name": "pulling", "confidence": 0.4317162 }]

This interface is for the 'Language Understanding' demo. It shows a text input field where a user can enter a statement about lighting. Below the input, there are several suggested phrases: 'Go in energy saver mode', 'It's time to go to sleep', 'I'm concentrating on my work', 'I'm watching a movie', 'She needs lighting for cooking', 'It's too dark in here', 'I need more light to read my book', 'It's too dark to work in here', 'I can't find the remote', 'I need more light to eat outside', and 'I'm expecting guests'. There is an 'Apply' button next to the input field. To the right, there is a diagram of a house with different rooms, each showing a different lighting scenario.

AI EXPERIENCE

Microsoft Office365 Application

The screenshot shows the 'Your Rehearsal Report (Preview)' in PowerPoint. It includes a summary with a total time spent of 9:50 and 12 slides rehearsed. A 'Pace' section shows a speed of 139 words/minute. There are also sections for 'Sensitive Phrases' and 'Fillers' to help improve the presentation.

The screenshot shows the Microsoft Word interface with the 'Editor' pane open on the right. The pane displays '2 Corrections' and '4 Refinements'. A large white arrow points from the Editor pane to the text 'Corrections for spelling and grammar' in the document. The document content is a chemistry text titled 'INTRODUCTION TO CARBON BONDING'.

The screenshot shows the Microsoft Math Solver app interface. It features the text 'Get step-by-step solutions to your math problems' and 'Try Math Solver'. Below this, there are input fields and buttons for solving various types of equations: Quadratic equation ($x^2 - 4x - 5 = 0$), Trigonometry ($4 \sin \theta \cos \theta = 2 \sin \theta$), and Linear equation ($y = 3x + 4$).

The screenshot shows the Microsoft Immersive Reader interface. The text 'Martin Luther King Jr. was a great civil rights leader. He was born in Georgia in 1929. Martin was an excellent speaker. He won a big' is displayed with a word-by-word highlighting effect. Navigation and reading controls are visible at the bottom.

This screenshot shows the Immersive Reader interface with a text passage about Earth's landforms. The text is: 'The study of Earth's landforms is called physical geography. Landforms can be mountains and valleys. They can also be glaciers, lakes or rivers. Landforms are sometimes called physical features. It is important for students to know about them.' The words are highlighted in different colors, and a sidebar on the right allows for adjusting the highlighting settings.

AI LEARNING

<https://docs.microsoft.com/en-us/learn/>

The screenshot displays the Microsoft Learn AI Business School interface. At the top, a large graphic spells out 'LEARN' in colorful, interconnected lines. Below this, there are several sections:

- WELCOME TO MICROSOFT LEARN Discover your path**: A dark grey box with a white button that says 'Browse all paths'.
- LEARNING PATHS Learn on your own schedule**: A white box with a blue icon of a person and a gear, containing text about exploring topics in depth through guided paths.
- CERTIFICATIONS Become Microsoft certified**: A white box with a blue icon of a certificate, containing text about jumping start your career and demonstrating achievements through industry-recognized Microsoft certifications.
- LEARN TV Watch live and recorded events**: A white box with a blue icon of a TV, containing text about viewing streaming technical content about Microsoft products from experts.

Below these are three overlapping cards for specific learning paths and modules:

- LEARNING PATH: Azure fundamentals**: 2 hr 46 min. Tags: Azure, Developer, Beginner.
- LEARNING PATH: Build AI solutions with Azure Machine Learning service**: 8 hr 28 min. Tags: Azure, Data Scientist, Beginner.
- MODULE: Classify images with the Microsoft Custom Vision Service**: 37 min, 4.6 (1,242) stars. Tags: Azure, Developer, Beginner.
- MODULE: Build a bot with QnA Maker and Azure Bot Service**: 29 min, 4.6 (401) stars. Tags: Azure, AI Engineer, Beginner.

On the right side of the main interface, there is a section titled 'Industry learning paths' with a grid of industry-specific cards:

- Manufacturing**: AI helps you use your data to make better decisions and improve your management. Data insights can enhance your ability to make better decisions, and can help you make more informed decisions about your business.
- Retail**: AI helps you use your data to make better decisions about your customers, while also improving inventory and supply chain management. Retailers can use AI to make better decisions about their customers and their products.
- Healthcare**: In healthcare, AI can deliver benefits to patients, providers and payers. AI can help you understand patient outcomes, and can help you make better decisions about your business.
- Financial services**: For financial services, AI can help meet the needs of your customers and improve your business. AI can help you make better decisions about your business and your customers.
- Government**: AI helps in the public sector by streamlining workflows, reducing costs and improving the quality of government services they offer their citizens.
- Education**: AI helps you use your data to make better decisions about your students and your business. AI can help you make better decisions about your business and your students.

AI APPLICATION

Azure Cognitive Service
PowerApps

The screenshot shows the PowerApps AI Builder interface. The left sidebar contains navigation options: Home, Learn, Apps, Create, Data, Business logic, AI Builder, Build, Models, and Solutions. The main content area is titled "Enhance your business with AI" and includes a sub-section "Make your own AI model" with four preview cards:

- Prediction**: Predict whether something will happen.
- Form Processing (preview)**: Read and save information from standard documents.
- Object Detection (preview)**: Recognize and count things in images.
- Text Classification (preview)**: Categorize text by its meaning so it's easier to analyze.

Pre-Built AI

Vision	Speech	Language	Knowledge	Search
Computer vision Face Emotion Content Moderator Video Video Indexer	Text analytics Spell check Web language model Linguistic analysis (NLP) Translator	Speaker recognition Speech Speech to text Text to custom speech	Web search Image search Video search News search Autosuggest	Academic knowledge Entity linking service Knowledge exploration QnA maker



AI DEVELOPMENT

Azure for Student
Azure Dev Tools for Teaching
Azure Lab

Start building the future with Azure for Students!

Get a \$100 credit when you create your free Azure for Students account

[Activate now >](#)

[Read the FAQ for eligibility >](#)

No credit card needed

Simply verify your student status through your school email address, and you're ready to go with \$100 in credit.

+

Free developer tools

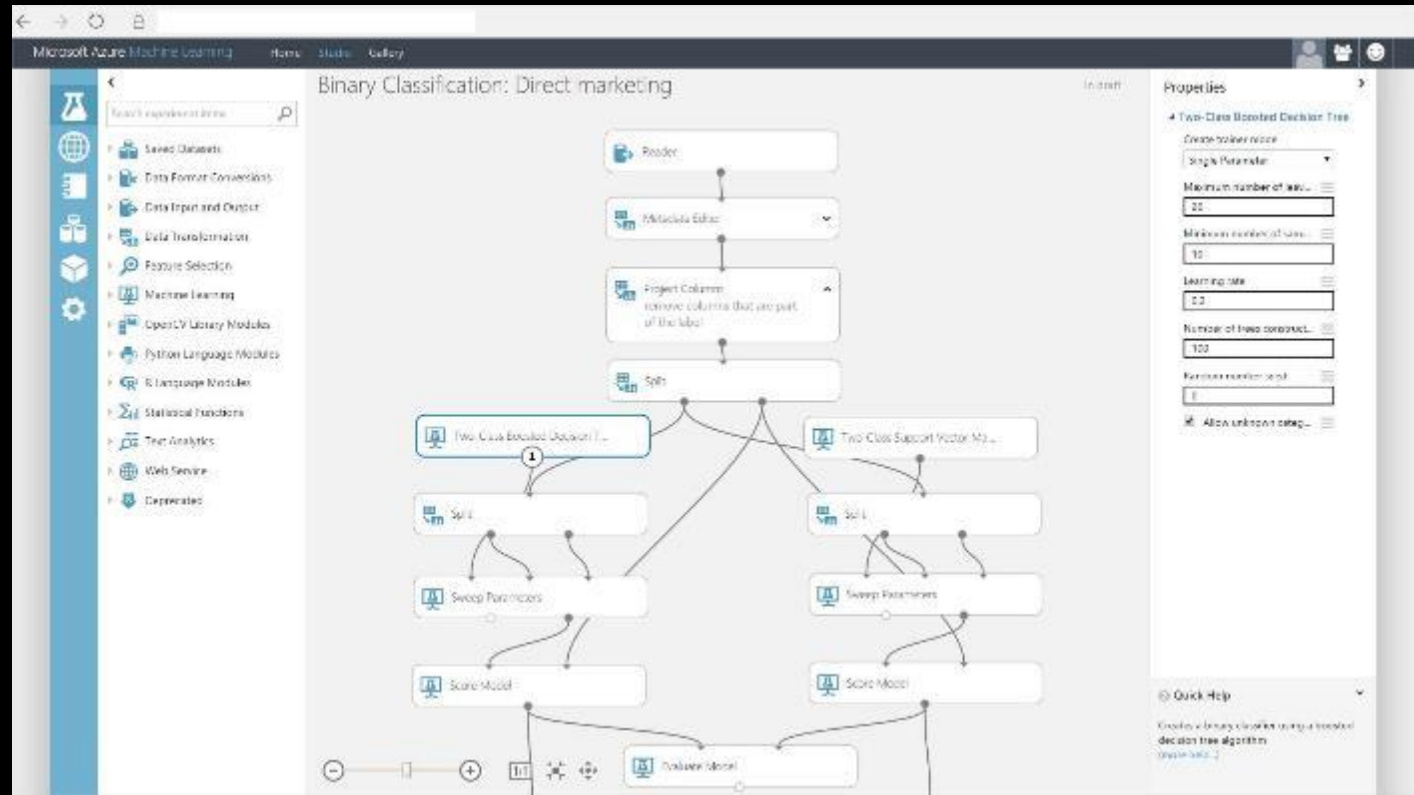
Build your skills in trending tech including data science, artificial intelligence (AI), machine learning, and other areas with access to professional developer tools.

[Learn more >](#)

+

Drive your career

Access free learning paths and labs to take your skills to the next level.



AI SERVICES

TRAINED SERVICES



Cognitive Services

CONVERSATIONAL AI



Bot Service

CUSTOM SERVICES



Azure Machine Learning

AI TOOLS



Azure ML Studio



Azure ML Workbench



VS Code Tools for AI



Azure Notebooks

AI INFRASTRUCTURE

AI ON DATA



Data Lake



SQL Server



Cosmos DB

AI COMPUTE



Spark



DSVM



Batch AI



ACS

DEEP LEARNING FRAMEWORKS



Cognitive Toolkit



TensorFlow



Caffe 2

Caffe 2

AI CERTIFICATION

Azure AI Fundamental
Azure AI Engineer Associate

AI Engineer

AI Engineers use Cognitive Services, Machine Learning, and Knowledge Mining Microsoft AI solutions.

AI Engineer certification path

The ai engineer certification path is organized into 3 levels: Fundamentals, Associate and Expert.

View by:

Azure AI Engineer ▾

An optional start for those new to Azure



FUNDAMENTALS CERTIFICATION
Microsoft Certified: Azure Fundamentals

Complete an associate certification



ASSOCIATE CERTIFICATION
Microsoft Certified: Azure AI Engineer Associate



Microsoft Certified: Azure AI Fundamentals

In response to the coronavirus (COVID-19) situation, Microsoft is implementing changes to our training and certification program. [Learn more.](#)

Candidates for the Azure AI Fundamentals certification should have foundations in learning (ML) and artificial intelligence (AI) concepts and related Microsoft Azure services.

This certification is an opportunity to demonstrate knowledge of common ML and AI concepts and how to implement them on Azure.

This certification is intended for candidates with both technical and non-technical skills. While technical skills and software engineering experience are not required; however, some knowledge or experience would be beneficial.

Azure AI Fundamentals can be used to prepare for other Azure role-based certifications such as Azure AI Engineer Associate or Azure AI Engineer Expert, but it's not a prerequisite.

Job role: AI Engineer, Data Scientist, Developer, Solutions Architect

Required exams: AI-900

Important: See details

[Go to Certification Dashboard](#)

Certification details

Take one exam



CERTIFICATION EXAM
Microsoft Azure AI Fundamentals (beta)

Earn the certification



FUNDAMENTALS CERTIFICATION
Microsoft Certified: Azure AI Fundamentals





Questioning what AI is
and how to apply it



Hopeful on AI and
its promise



Experimented and
applied AI



Emerging data science and
operational capability



Microsoft



Thank You

