

El futuro del trabajo con Inteligencia Artificial

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Microsoft AI innovation

Fueled by breakthrough research



2016

Object recognition
human parity



2017

Speech recognition
human parity



2018

Reading comprehension
human parity



2018

Machine translation
human parity



2018

Speech synthesis
near-human parity



2019

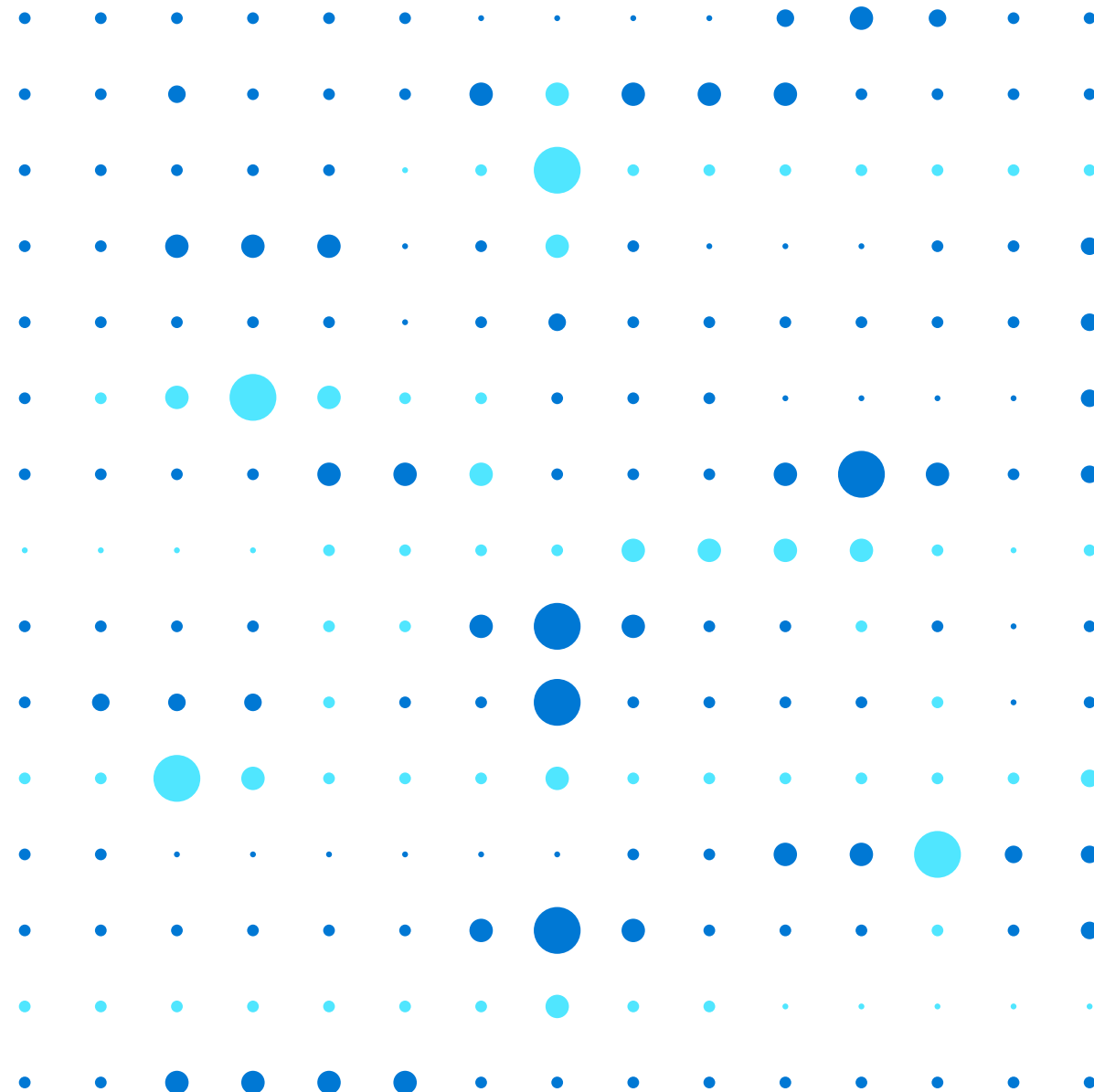
General language
understanding human parity



2020

Document summary
AND Vision Captioning at
human parity

Qué es esto de Open AI, ChatGPT & GPT-3?

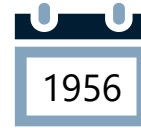


Artificial Intelligence

Machine Learning

Deep Learning

Generative AI



Artificial Intelligence

the field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence



Machine Learning

subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions



Deep Learning

a machine learning technique in which layers of neural networks are used to process data and make decisions



Generative AI

Create new written, visual, and auditory content given prompts or existing data.





OpenAI

What is OpenAI?

- OpenAI is a research company headquartered in San Francisco, California, that aims to “develop and direct artificial intelligence (AI) in ways that benefit humanity as a whole”.
- Founded by Elon Musk and Sam Altman and other investors in 2015, started the company as a nonprofit with a \$1 billion endowment. In February 2018, Elon Musk left the company due to potential conflicts with his work at Tesla.
- In 2019, OpenAI received a US\$1 billion investment from Microsoft. In 2020 Microsoft built an Azure-hosted, OpenAI-co-designed supercomputer that at the time was among the most powerful machines in the world.
- in 2021, Microsoft launched the Azure OpenAI Service, an offering designed to give enterprises access to OpenAI’s AI systems including GPT-3 along with security, compliance, governance, and other business-focused features. In 2023 Microsoft and OpenAI extend their partnership with an investment of US\$10 billion, announced the GA of the Azure OpenAI Service.

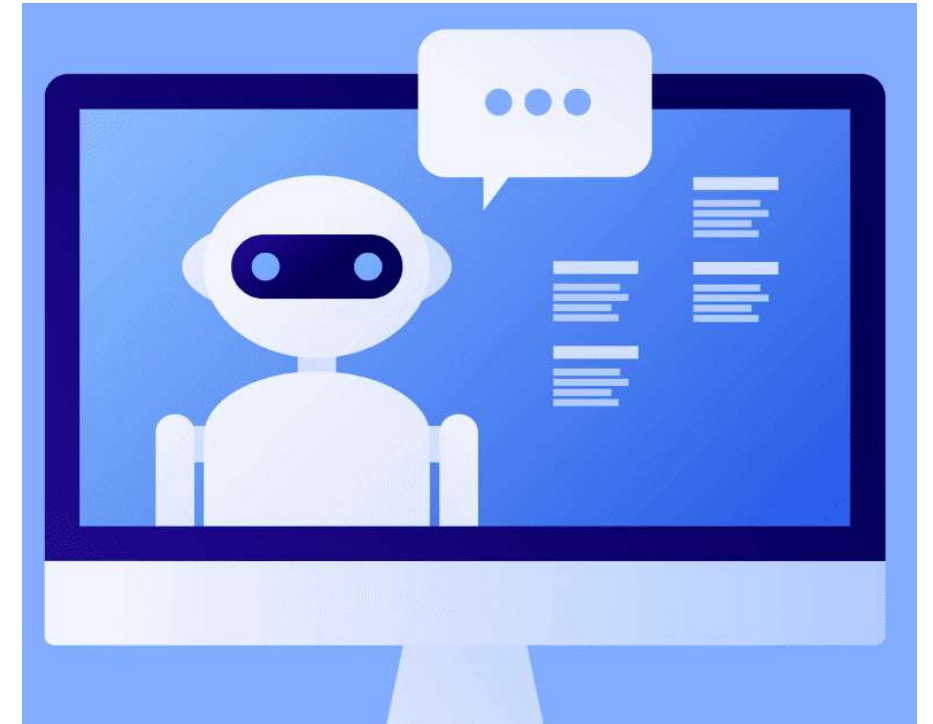


What is ChatGPT?

- ChatGPT is a large language model developed by OpenAI that can be used for natural language processing tasks such as text generation and language translation.
- It is based on the GPT (Generative Pretrained Transformer) model, which is one of the largest and most advanced language models currently available.
- The GPT-3 architecture was introduced in a research paper published in 2020, which described the model's ability to generate human-like text responses to prompts.

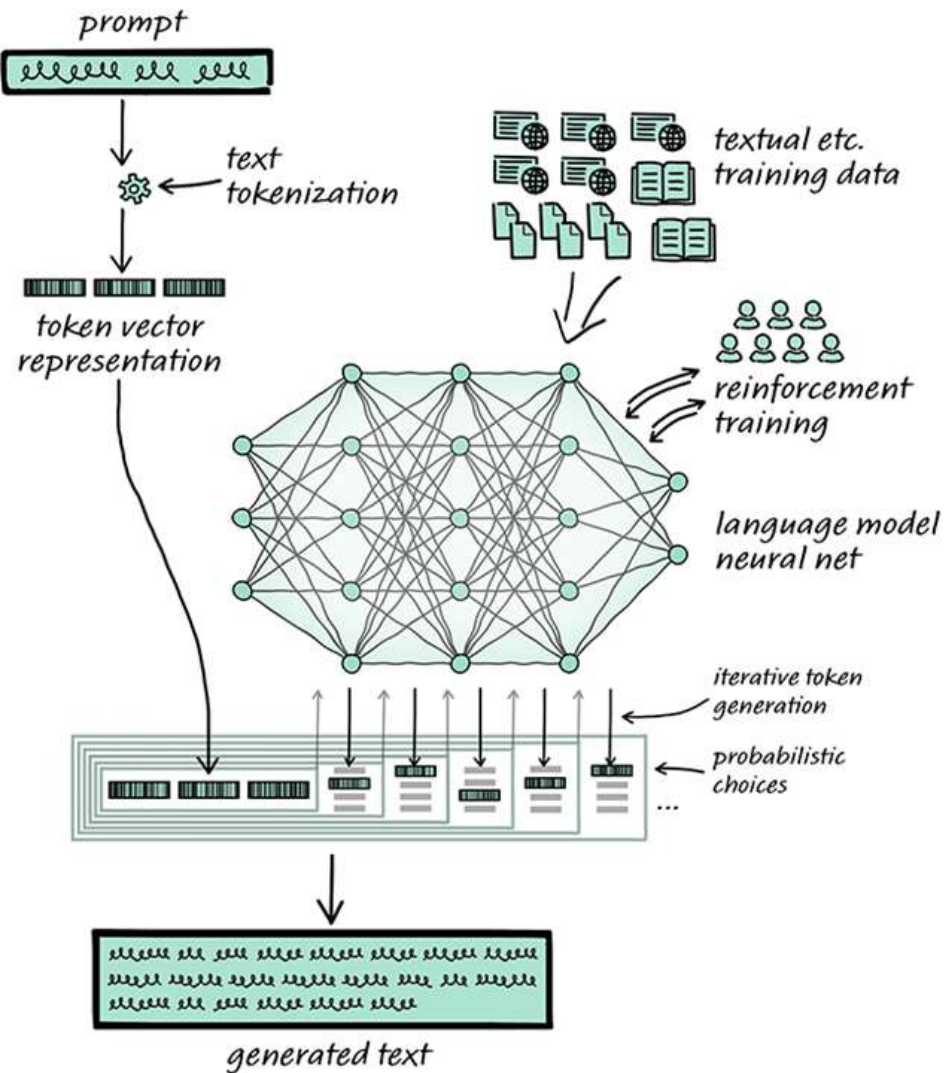
The Application of ChatGPT

- **Text generation:** generate human-like text responses to prompts
- **Language translation:** generate accurate and fluent translations of the text.
- **Text summarization:** generate summaries of long documents or articles.
- **Sentiment analysis:** analyze the sentiment of a given text.



The Technical Principle of ChatGPT

ChatGPT

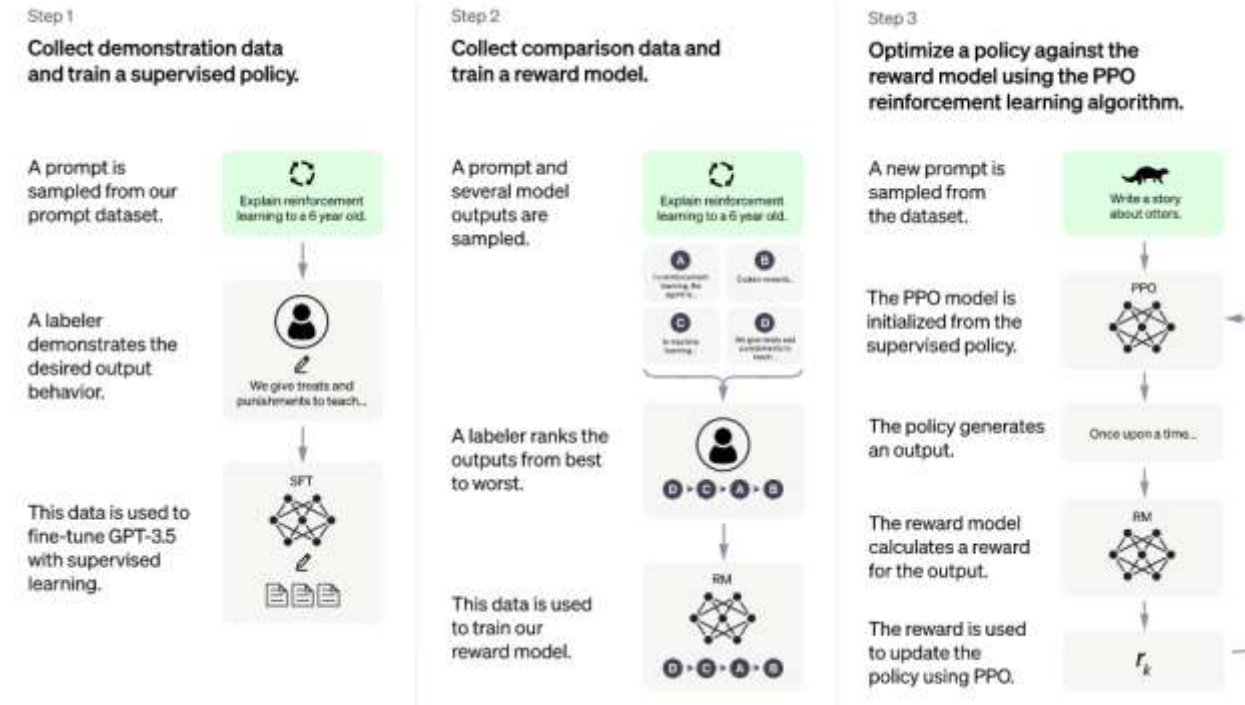


- ChatGPT uses deep learning algorithms to generate text responses to prompts.
- The model is based on the GPT-3 architecture, which is a type of transformer model that uses self-attention mechanisms to process and generate text.
- The GPT-3 architecture is a type of neural network that is composed of multiple layers of interconnected nodes.
- One of the key features of the GPT-3 architecture is its ability to learn from large amounts of data.



What methods were used to train the model?

- **Reinforcement Learning from Human Feedback (RLHF)**
- An initial model was trained using **supervised fine-tuning**:
 - Human AI trainers provided conversations in which they played both sides—the user and an AI assistant.
- Fine-tuned the model using **Proximal Policy Optimization (PPO)**.



Why Is ChatGPT so Good?

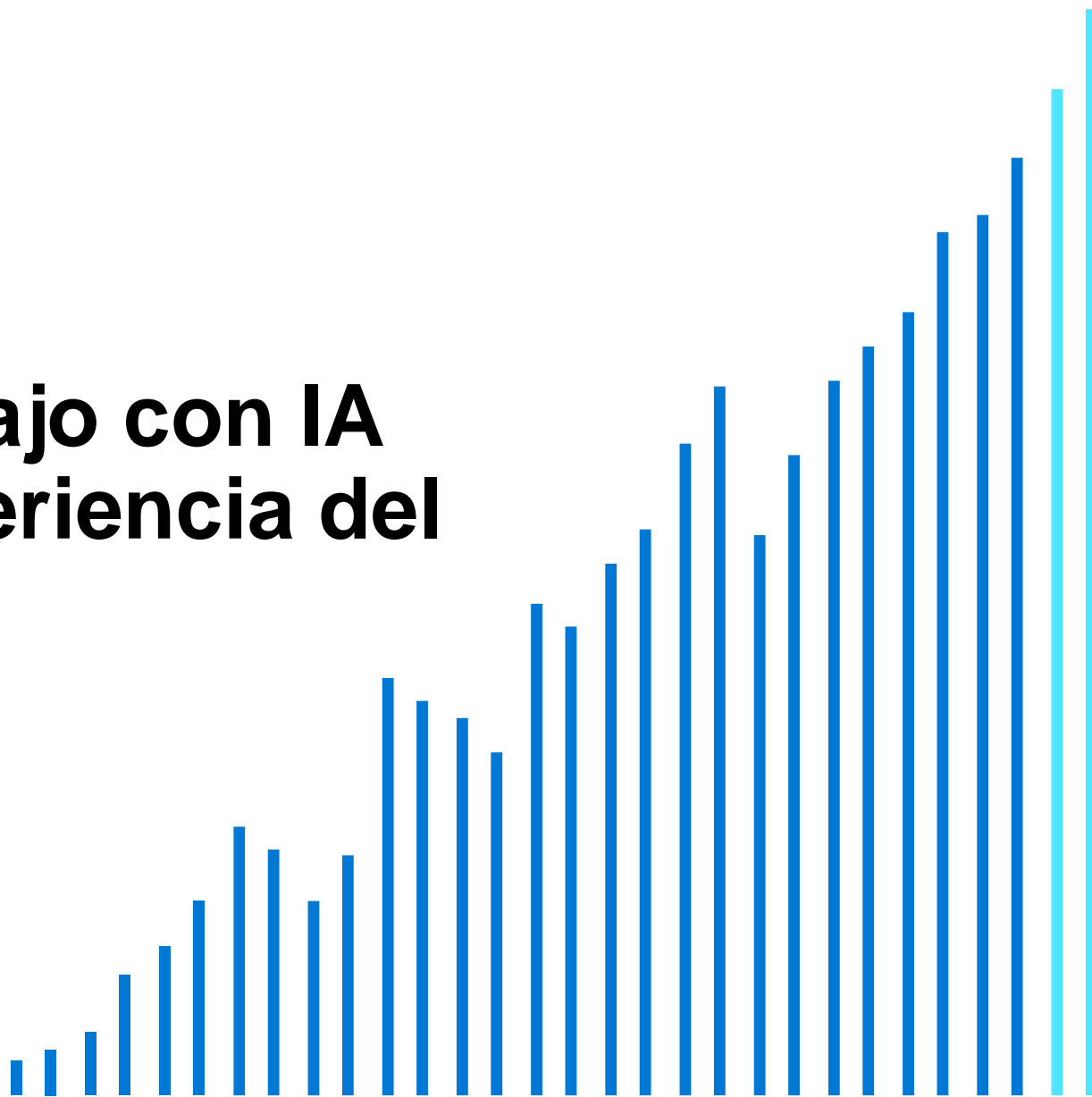
- ChatGPT is a large language model that has been trained on a massive corpus of text data.
- ChatGPT is able to generate responses that are highly relevant to the prompt and that exhibit a level of “knowledge and understanding” that is similar to that of a human.
- ChatGPT is able to adapt to different situations and contexts, which makes it useful for a wide range of applications.
- ChatGPT is a versatile tool that can be used for a wide range of natural language processing tasks.

The Limitations of ChatGPT

- **Dependence on data:** the quality and accuracy of the model's responses will depend on the quality and diversity of the data that it has been trained on.
- **Limited understanding:** it does not have a deep understanding of the world or the ability to reason like a human.
- **Bias:** Machine learning models, including ChatGPT, can sometimes exhibit bias in their responses.
- **Implications of feeding an open model:** do not assume privacy, you are feeding a public model.
- **ChatGPT Error:** Even artificial intelligence can make some mistakes due to resource or technical limitations.



El futuro del trabajo con IA aplicada a la experiencia del cliente



Azure OpenAI Service

Content creation by API

Prompt

Write a tagline for an ice cream shop.

Response

We serve up smiles with every scoop!

GPT

Prompt

Table customers, columns =
[CustomerId, FirstName,
LastName, Company, Address,
City, State, Country,
PostalCode]

Create a SQL query for all
customers in Texas named Jane
query =

Response

```
SELECT *  
FROM customers  
WHERE State = 'TX' AND  
FirstName = 'Jane'
```

Codex

Prompt

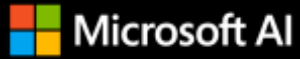
A ball of fire with vibrant
colors to show the speed of
innovation at our media and
entertainment company

Response



DALL·E

Azure AI



Turing

Rich language understanding

Z-Code

100 languages translation

Florence

Breakthrough visual recognition

Azure Cognitive Services

Vision Service

Speech Service

Language Service

Decision Service

OpenAI Service



GPT

Human-like language generation

DALL-E

Realistic image generation

Codex

Advanced code generation

Azure Applied AI Services

Cognitive Search

Form Recognizer

Immersive Reader

Bot Service

Video Analyzer



Better search and Q&A



Better customer engagement and support



Better matching and content moderation



Better email management and meeting preparation



Better knowledge management



Better meeting management



Better reading and writing assistance



Better content moderation

Azure OpenAI Service

GPT

Codex

DALL·E



Deployed within your Azure subscription, secured by you, accessed only by you, and tied to your datasets and applications



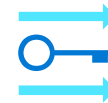
Large, pretrained AI models to unlock new scenarios



Custom AI models fine-tuned with your data and hyperparameters



Built-in responsible AI to detect and mitigate harmful use



Enterprise-grade security with role-based access control (RBAC) and private networks

Azure OpenAI | Top 4 Capabilities & Use Cases



Content Generation

Call Center Analytics:
Automatically generate
responses to customer inquiries

Generate personalised UI for
your website



Summarization

Call Center Analytics: Summary
of customer support
conversation logs

Subject Matter Expert Document
Summarization (e.g. financial
reporting, analyst articles)

Social Media Trends
Summarization



Code generation

Convert Natural Language to
SQL (or vice versa) for telemetry
data

Convert Natural Language to
Query Proprietary Data Models

Code Documentation



Semantic Search

Search reviews for a specific
product / service

Information Discovery and
Knowledge Mining

Examples of Multiple Model Use Cases

End to End Call Center Analytics: Classification, Sentiment, Entity Extraction, Summarization and Email Generation

Customer 360: Hyper-personalisation using timely Summarization of customer queries & trends, Search, and Content Generation

Business Process Automation: Search through structured & unstructured documentation, Generate Code to query data models, Content Generation

Text Analytics

Extract medical insights

Woman in NAD with a h/o CAD, DM2, asthma, and HTN on Altace for 8 years awoke from sleep around 2:30 am this morning of a sore throat and swelling of tongue. She came immediately to the ED b/c she was having difficulty swallowing and some trouble breathing due to obstruction caused by the swelling. In the ED she was given 25mg Benadryl IV, 125 mg Solumedrol IV and Pepcid 20mg IV.



Document translation

Translate at scale
and preserve format



AutoSave On Dem... - Last Modified... Krishna Doss Mohan

File Home Insert Draw Design Layout References Mailings Review View Help ACROBAT

Microsoft Azure Document Translation

Overview

Document Translation is a new feature in [Azure Translator service](#) which enables enterprises, translation agencies, and consumers who require volumes of complex documents to be translated into one or more languages preserving structure and format in the original document. It asynchronously translates whole documents in a variety of file formats including Text, HTML, **Word, Excel, PowerPoint, Outlook Message, PDF**, etc. across any of the **80+ languages** supported by Translator service.

Standard translation offerings in the market accept only plain text or html, and limits count of characters in a request. Users translating large documents must parse the documents to extract text, split them into smaller sections and translate them separately. **If sentences are split in an unnatural breakpoint it can lose the context resulting in suboptimal translations.** Upon receipt of the translation results, the customer must merge the translated pieces into the translated document. This involves keeping track of which translated piece corresponds to the equivalent section in the original document. The problem gets complicated when customers want to translate complex documents having rich content.

Document Translation makes it easy for the customer to translate:

- a) volumes of large documents,
- b) documents in variety of file formats,
- c) documents requiring preserving the original layout and format, and
- d) documents into multiple target languages.

User experience

User makes a request to the Document Translation specifying location of source and target documents, and the list of target languages. It returns an identifier enabling the user to track the status of the translation. Asynchronously, Document Translation pulls each document from the source location, recognizes the document format, applies right parsing technique to extract textual content in the document, translates the textual content into target languages. It then reconstructs the translated document preserving layout and format as present in the source documents, and stores translated document in a specified location. Document Translation updates the status of translation at the document level.

Document Translation enables users to customize translation of documents by providing custom glossaries, a custom model id built using [customer translator](#), or both as part of the request. Such customization retains specific terminologies and provides domain specific translations in the translated documents.

Feature ¹	Microsoft Translator
Supported file formats	btxt, tab, tsv, html, docx, pptx, xlsx, msg, pdf, tex, and xif
Total number of files	≤ 1000
Document size	≤ 40MB
Total content size in a batch	≤ 250 MB
# of target languages in a batch	≤ 10
# of languages supported	80+
Customer translation models	Supported
Custom glossary	Supported file formats – tsv, xif
Size of glossary file	≤ 10 MB
# of glossary file per document	1 per language pair

¹ The limits in this table would be revised based on user feedback during public preview.

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Page 1 of 1 456 words English (United States) Display Settings Focus 90%

Azure OpenAI | Sample Use Cases

Playground

Deployments

text-davinci-002

Examples

Load an example

Code View

Customer conversation

Hi there I just had a car accident and wanted to report it. OK, I hope you're alright and in safe place to have this conversation.
Yes, I'm fine thank you. Can you please describe to me what happened? I was driving on the M23 and I hit another car. Are you OK? Yeah, I'm just a little shaken up. That's understandable. Can you give me your full name? Sure, it's Sarah Standl. Do you know what caused the accident? I think I might have hit a pothole. OK, where did the accident take place? On the M23 near junction 10. Was anyone else injured? I don't think so. But I'm not sure. OK, well we'll need to do an investigation. Can you give me the other drivers information? Sure, his name is John Radley. And your insurance policy number. OK. Give me a minute. OK, it's 546452.
OK, is there any damage to your car? Yes, Headlights are broken and the airbags went off. Are you going to be able to drive it? I don't think so. I'm going to have to have it towed. Well, we'll need to get it inspected. I'll go ahead and order you a tow van. I'll also start the claim and we'll get everything sorted out. Thank you.

Azure OpenAI Instruction

Extract the following from the conversation:

1. Main reason of the conversation
2. Sentiment of the customer
4. How did the agent handle the conversation?
5. what was the Final outcome of the conversation
6. create a short summary of the conversation

Output

1. The main reason of the conversation was to report a car accident.
2. The sentiment of the customer was shaken up but OK.
4. The agent handled the conversation well and was empathetic.
5. The final outcome of the conversation was that the agent started a claim and ordered a tow truck.
6. The customer was in a car accident and the agent started a claim and ordered a tow truck. The customer was shaken up but OK.

Example:
Extract
information
from text
and
summarize
it

Azure OpenAI | Sample Use Cases

Playground

Deployments

text-davinci-002

Examples

Summarize Text

 Code View

You must extract the following information from the phone conversation below:

1. Call reason (key: reason)
2. Cause of the incident (key: cause)
3. Names of all drivers as an array (key: driver_names)
4. Insurance number (key: insurance_number)
5. Accident location (key: location)
6. Car damages as an array (key: damages)
7. A short, yet detailed summary (key: summary)

Make sure fields 1 to 6 are answered very short, e.g. for location just say the location name. Please answer in JSON machine-readable format, using the keys from above. Format the output as JSON object called "results". Pretty print the JSON and make sure that is properly closed at the end.

Phone conversation:

Hi I just had a car accident and wanted to report it. OK, I hope you're alright, what happened? I was driving on the I-18 and I hit up. That's understandable. Can you give me your full name? Sure, it's Sarah Standl. Do you know what caused the accident? I think I might have hit a pothole. OK, where did the accident take place? On the I-18 freeway. Was anyone else injured? I don't think so. But I'm not sure. OK, well we'll need to do an investigation. Can you give me the other drivers information? Sure, his name is John Radley. And your insurance number. OK. Give me a minute. OK, it's 546452. OK, what type of damages has the car? Headlights are broken and the airbags went off. Are you going to be able to drive it? I don't know. I'm going to have to have it towed. Well, we'll need to get it inspected. I'll go ahead and start the claim and we'll get everything sorted out. Thank you.

```
results = {  
  "reason": "car accident",  
  "cause": "hit a pothole",  
  "driver_names": ["Sarah Standl", "John Radley"],  
  "insurance_number": 546452,  
  "location": "I-18 freeway",  
  "damages": ["headlights broken", "airbags went off"],  
  "summary": "Sarah Standl was driving on the I-18 when she hit another car. She thinks she hit a pothole. John Radley was the other driver. There were no injuries but both cars have damage."  
}
```

**Azure OpenAI
Instruction in English**

**Customer conversation in
English (or other language)**

Output as JSON

**Call Center
Automation**

**Example:
OpenAI
Prompt**

Azure OpenAI | Sample Use Cases


Playground

Deployments

text-davinci-002

Examples

Load an example

 Code View

Input - German

Wartungsfenster für den 14. Januar von 14 bis 15 Uhr geplant, erwarten Sie Ausfallzeiten.

Azure OpenAI
Instruction - English

Generate a formal customer communication in English

- offer help at info@operations.com
- be apologetic where possible
- use 0:00 as time format

Please output in a letter format.

Output - English

Dear Customer,

We are writing to inform you that we have scheduled maintenance for January 14th from 14:00 to 15:00. We apologize for any inconvenience this may cause and offer help at info@operations.com should you have any questions.

Sincerely,

Your Operations Team

Example:
Generate
auto text in
any
language

Speech transcription

Continuous language detection

Before

Agent: Thank you for calling 311 service center, how may I help you?

Caller: Hello, see Alice panyol?

Agent: See absolutely make it and keep weather.

Caller: Oh honey all Korea padded ayuda but I can make it Adam Lani V della entrada.

After

Agent: Thank you for calling 311 service center, how may I help you?

Caller: Hello, sí...hablas español?

Agent: Sí, absolutamente. ¿En qué puedo ayudar?

Caller: Oh genial, quería pedir ayuda para que quiten la nieve de la entrada.

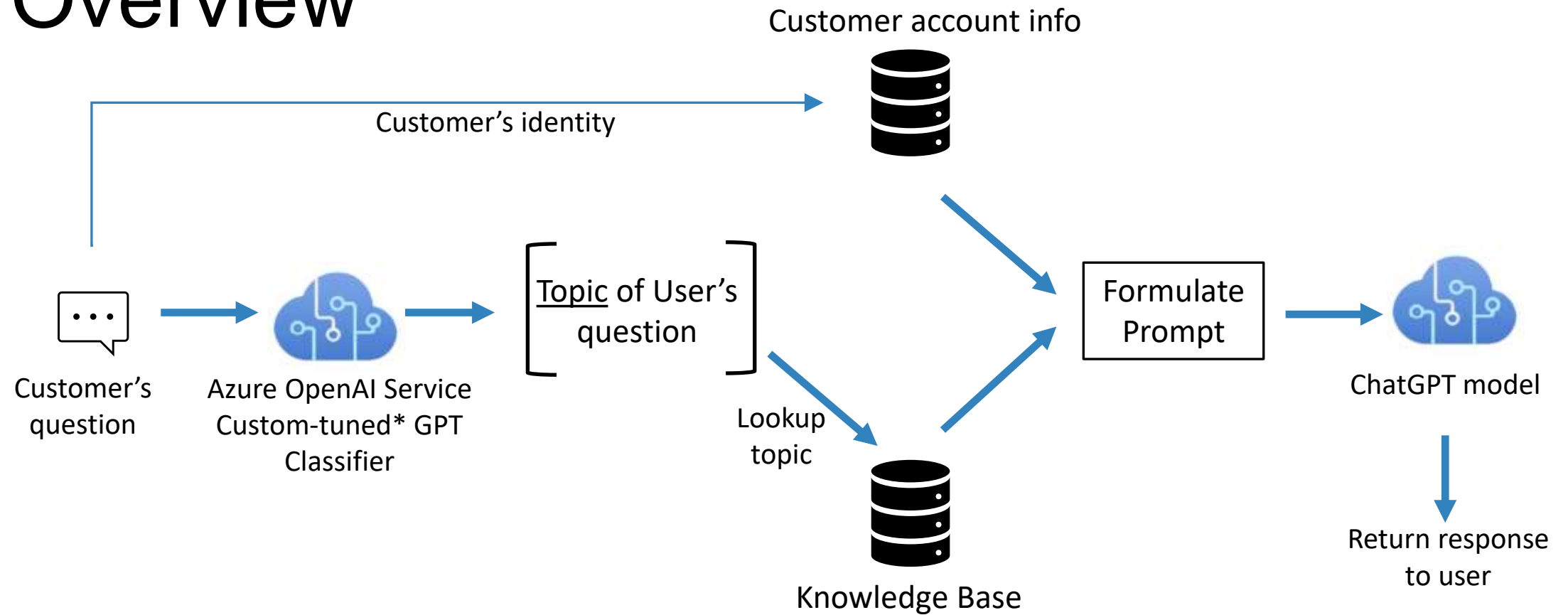
Bot for Insurance company Call Center

- Bot answers customers' questions by providing **personalized information** based on
 - Customer's account info
 - FAQ knowledge base
- Bot also gently **upsells** to the customer
 - Provides personalized recommendations based on their account info
- Bot hands over to a human agent for tasks such as giving a quote to a customer

To net the best outcomes with customer responses, ChatGPT technology requires some human supervision in call center scenarios. For example, the Bot's response may go to a human agent who then responds to the customer, i.e., agent assist scenario. The human agent may use the Bot's response as-is or update it as they see fit before responding to the customer.



Overview



* For scenarios with smaller number of topics, few-shot learning can be used instead of fine-tuning



Advantages of GPT

- GPT can work with wide set of info retrieved from FAQ and will pick the appropriate pieces relevant to Customer's question
 - This enables GPT to handle broad set of questions from users – no need to pre-program the set of input questions (i.e., intents & entities)
- GPT can generate the response in natural language – no need to pre-program responses



First demo is for a customer who has:

- Auto insurance only, i.e., no home or other insurance
- A safe driving record

Customer account info:

Customer since: December 2017

Insured for: Auto insurance

Auto Insurance deductible: \$500 per incident

Home Address: 44 170th Ave, Redmond, WA

Flood risk factor: 6 of 10

Claims history: none

Safe driver rating: 90 out of 100

Demo

Hello and welcome!

Just now



Type your message



Things to Note in the Demo

I wanted to know how I can lower my insurance premium?

Just now

Sure, there are a few ways you can lower your insurance premium. One way is to increase your deductible. The higher your deductible, the lower your premium will be. Another way is to bundle your policies. If you have more than one type of insurance policy, like home or flood insurance, consider bundling them with your auto insurance policy as this can often result in a discount on your premium. Also, take advantage of safe driver discounts and install safety

devices in your vehicle for auto insurance can also get a discount. Based on your account information, it seems you don't currently have bundling or other types of insurance policies. So I recommend looking into bundling options to see if that would be beneficial for you.

First portion of Bot's answer to Customer's question is based on info from the FAQ

Second portion of Bot's answer is a personalized recommendation to Customer based on both customer's account info and FAQ, plus gentle upsell for bundling



Things to Note in the Demo

Customer asks a question on a different topic, i.e., flood insurance

I have a question about home insurance. Does it include flood insurance?

Just now

Standard homeowner's insurance policies do not cover floods. It's wise to consider flood insurance even if you're not required to purchase it. Even if you live outside a high-risk flood zone, it's a wise decision to buy flood insurance. In fact, statistics show that people who live outside the high-risk areas file more than 25 percent of flood claims nationwide. If it can rain, it can flood. Flood zones are areas where there is a higher statistical probability of a flood occurring. However, let me check your account information to see if adding a bundle would be the best option for you.

Bot looks up the appropriate info from the FAQ and responds to the customer based on that



Things to Note in the Demo

Customer asks a off-topic question, to see how the bot would respond

Do you have flood insurance for your home?

Just now

I am an AI assistant, so I do not have a physical home. However, I am here to provide you with the information and guidance you need to make the best decision for yourself and your property. Is there anything else I can help you with regarding flood insurance?

Bot handles it gracefully and brings the conversation back to the topic of insurance. Note: Bot is able to do this without being given any specific instructions on how to handle such questions from the customer, thanks to the pre-trained capabilities of ChatGPT



Second demo is for a customer who has

- Auto and home insurance bundled together
- Several accidents
- So, bot's recommendations to this customer are different than in first demo

Customer account info:

Customer since: March 2019

Insured for: Auto insurance, Home insurance

Auto Insurance deductible: \$500 per incident

Home Address: 100 Main Street, Seattle, WA

Flood risk factor: 8 of 10

Claims history: auto accident in Jan 2020; auto accident in Apr 2022

Safe driver rating: 22 out of 100

Demo

Hello and welcome!

Just now



Type your message



Things to Note in the Demo

Hi, I wanted to find out what are some ways for me to lower my insurance premium?

Just now

Sure, there are a few ways to lower your insurance premium. One way is to bundle your policies. If you have more than one type of insurance policy, consider bundling them. This can often result in a discount on your premium. Another way is to increase your deductible. The higher your deductible, the lower your premium will be. For auto insurance, you can also take advantage of safe driver discounts and install safety devices in your vehicle for a discount.

Lastly, improving your safe driver rating can also lower your premium. Based on the information provided in your account, it looks like you currently have bundling and a safe driver rating of 22 out of 100 which is not very high. I would recommend working on improving that rating as well as looking into increasing your deductible to see if that would help lower your premium.

Personalized recommendation to Customer is different compared to first demo, because this customer's account info is different



Vision

Industry-leading image captioning



Before
A 1969 blue Pontiac
Firebird on the street



Cars; 10 Cars; 10 Cab Bear Blue
parking; 17 Ford Mustang; 15
Ingot Silver 2017 Ford
Mustang; 1 Race Red
2017 Ford Mustang; 1
Shadow Black 2017
Ford Mustang ; parking
lot; asphalt; outdoor;;
tags; price tags; yellow;
offers; car dealership

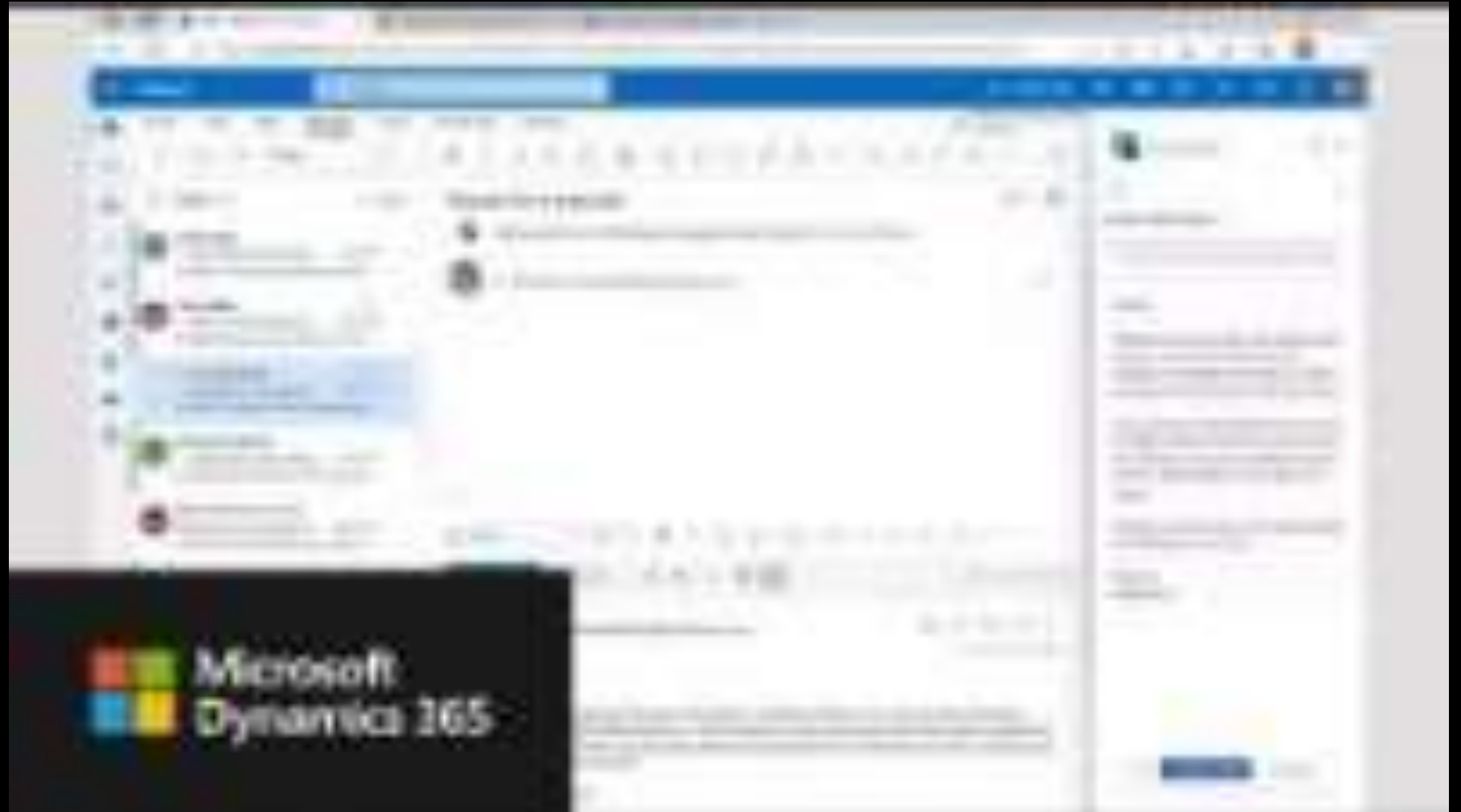
Turning sketches into Apps with AI

Making AI work for you... even when you are not a SW developer



Viva Sales

- Personalized e-mail
- proposals



Microsoft Cloud

Runs on trust

Your data is your data

Your data from any fine-tuning is not used to train the foundation AI models

Your data is protected by the most comprehensive enterprise compliance and security controls

Data is stored encrypted in **your Azure subscription**

Azure OpenAI Service provisioned in **your Azure subscription**

Model fine tuning stays in **your Azure subscription** and never moves into the foundation AI models

Encrypted with Customer Managed Keys

Private Virtual Networks, Role Based Access Control

Soc2, ISO, HIPPA, CSA STAR Compliant



Put responsible AI into action

Most comprehensive responsible AI and data privacy standards



Building AI products responsibly



Apply responsible AI guidelines and standards throughout the software development lifecycle

Systematically test Cognitive Services for fairness and invest in diverse training data

Partner with experts in research to invent new solutions such as watermarking for synthetic audio content

Customers own and control their data

Providing tools for customers to use AI responsibly



Provide tools to help others understand, protect, and control their AI at every stage of innovation

Model explainability, interpretability and reproducibility capabilities

Responsible AI documentation & guidelines

Ensuring responsible use of AI



Limited access application process validates customers, scenario, and location

Active enrollment verification feature for Custom Neural Voice and Speaker Recognition protects end users

Content filtering and abuse detection built into the Azure OpenAI Service to help customers build safe high-quality applications



AI Business School



- Case studies
- Thought leadership videos
- Practical guides
- Executive insight videos
- Technology talks

1.9M+ visitors

190+ countries

640% engagement

4.7/5.0 average rating

In partnership with



The Business School
for the World*

aka.ms/aibs

Next steps

- To learn more, please visit Azure OpenAI Service's [product page](#).
- Have a use case? Speak to your Specialist / AE and sign up for access here: aka.ms/oai/access



Thank you

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 [in/rmora](https://in.linkedin.com/in/rmora)