Artificial
Intelligence for
Business

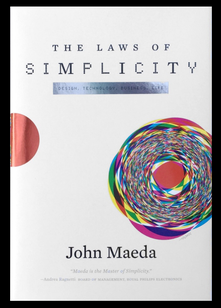
Low Code/No Code
+
Github Copilot

https://github.com/iportilla/lowcode

Knowledge makes everything simpler

Apple limits internal use of AI-powered tools like ChatGPT and GitHub Copilot

Bank of America, Citi, Deutsche Bank, Goldman Sachs, Wells Fargo, JPMorgan, Walmart and Verizon have also restricted access to ChatGPT.



http://lawsofsimplicity.com/

- Intros
- ChatGPT 101
- Business Examples
- GitHub Copilot

Intros

Educator, author and keynote speaker, Recognized for my innovative work in data science, robotics and artificial intelligence

https://www.linkedin.com/in/ivanportilla/

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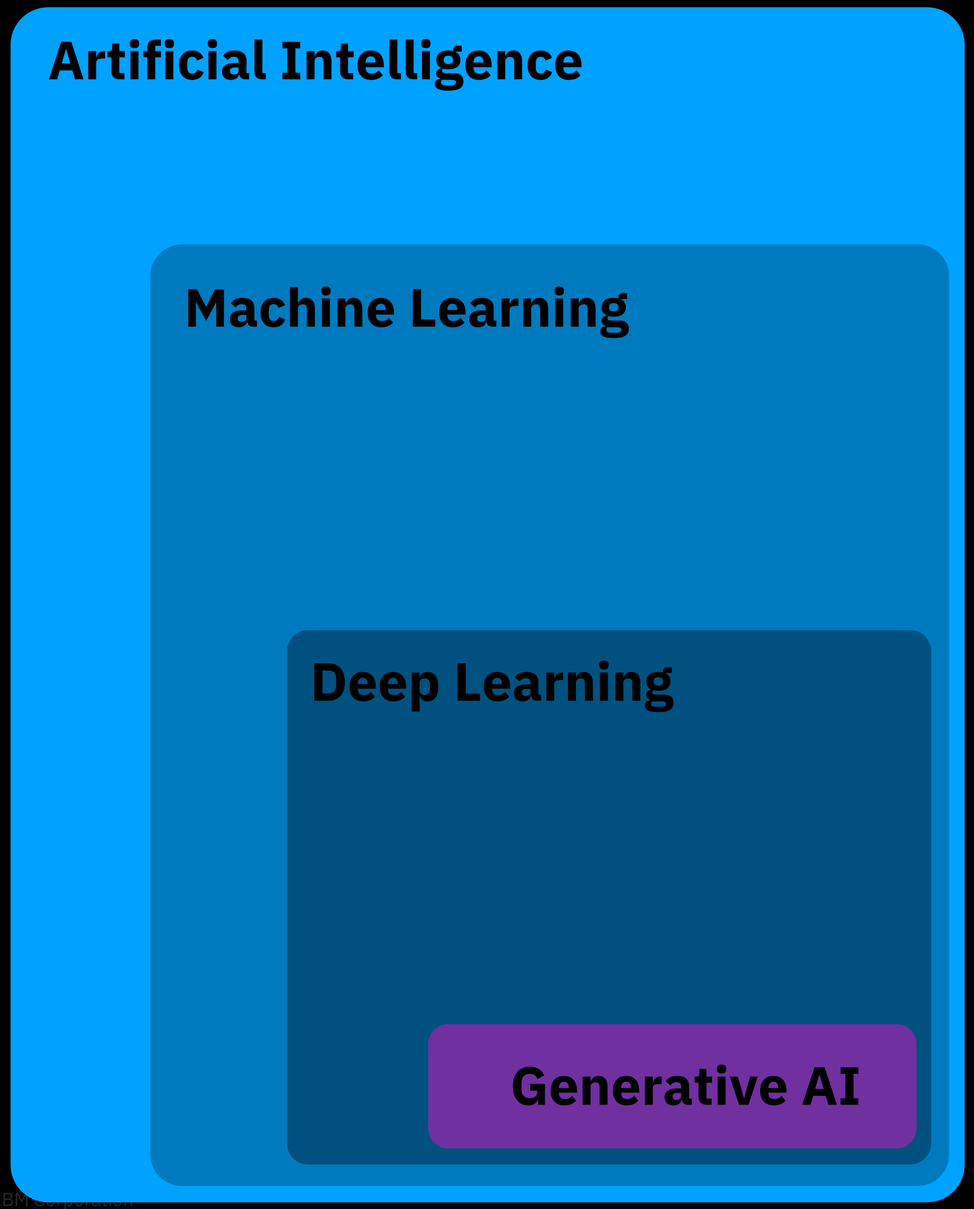


1956

Artificial Intelligence

Intelligence demonstrated by machines

1997

Machine Learning

Learn from data

2017

Deep Learning

Model after the human brain (Neural Networks)

2021

Generative AI

Create new written, visual, and auditory content

MSFT partnership with OpenAI

OpenAI

Ensure that artificial general intelligence (AGI) benefits humanity.

+

Microsoft

Empower every person and organization on the planet to achieve more

GPT-3

Generate and Understand Text

Codex

Generate and Understand Code

DALL·E

Generate images from text prompts

OpenAI Microsoft

Generative AI

GPT-3

Prompt:

Write a tagline for an ice cream shop.

Response:

We serve up smiles with every scoop!

Codex

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'
```

DALL·E

Prompt: A white Siamese cat

Response:

Foundation Models

Data

Text

Images

Speech

Structured Data

3d Signals

Training

Foundation Model

Transformer Model

Adaptation

Tasks

Question and Answering

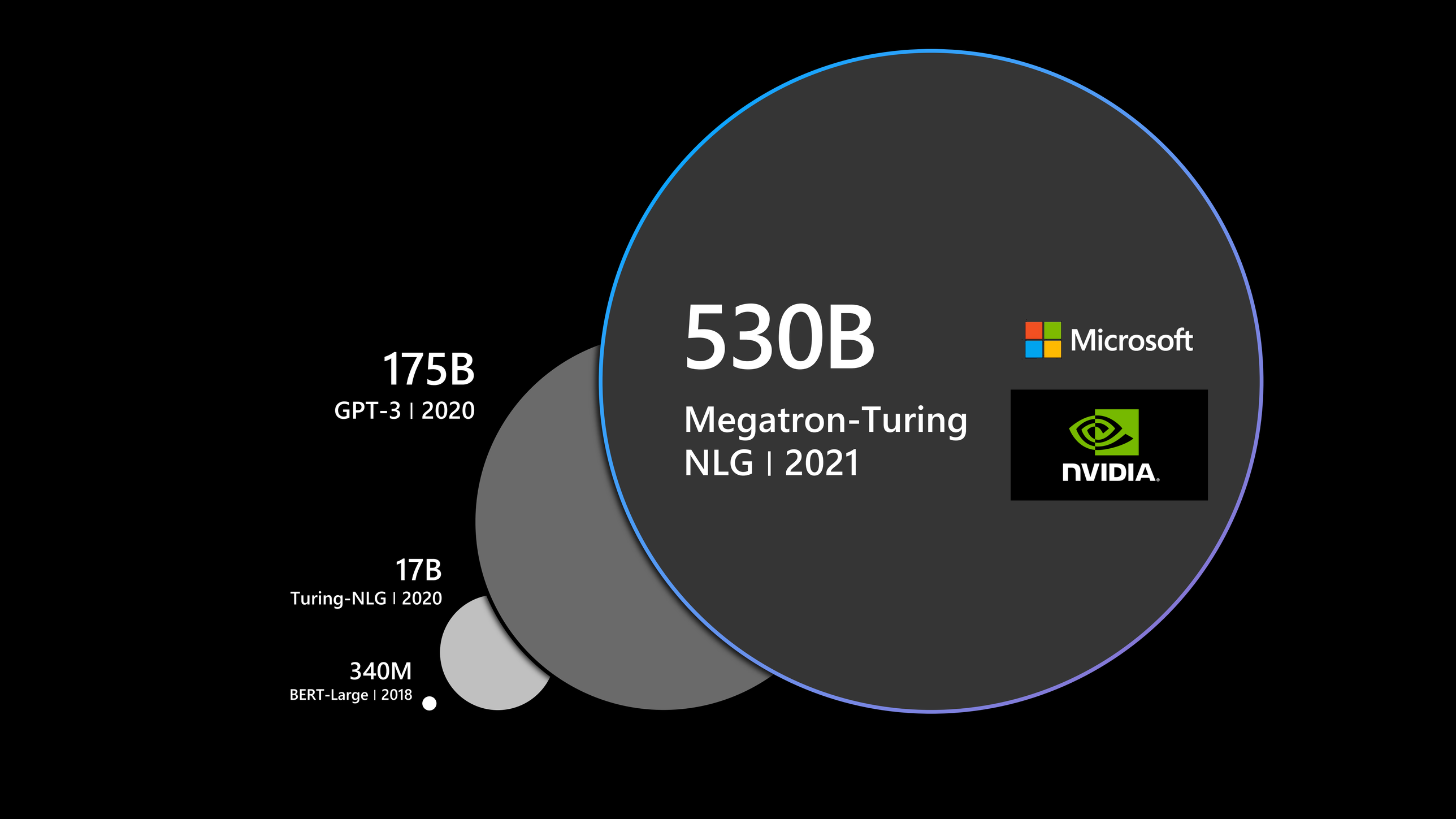
Sentiment Analysis

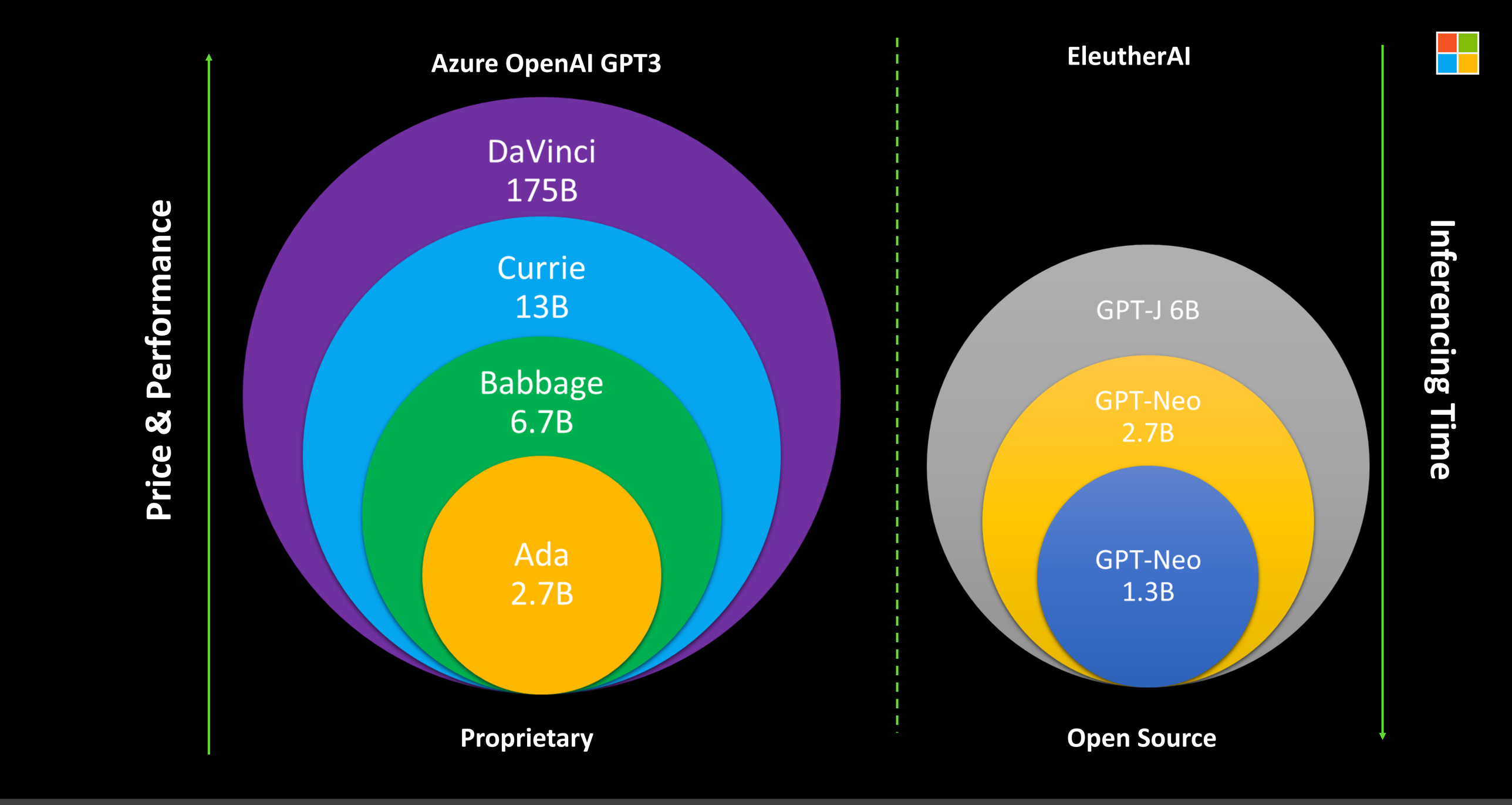
Information Extraction

Image Captioning

Object Recognition

Instruction Follow


530B
Megatron-Turing
NLG | 2021
Microsoft
NVIDIA
175B
GPT-3 | 2020
17B
Turing-NLG | 2020
340M
BERT-Large | 2018



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Text Classification

Named Entity Recognition (Zero-Shot)

Extract the name and mailing address from this email:

Dear Kaylee,
It was great to talk to you at the seminar. I thought Peter’s talk was quite good.
Thank you for the book. Here's my address 995 Regent Dr, Boulder, CO 80309
Best,
Marilú

Name: Marilú
Mailing Address: 995 Regent Dr, Boulder, CO 80309

Reason Over Unstructured Text

Question and Answering

On Monday, Microsoft launched an OpenAI service as part of its Azure cloud platform, offering businesses and start-ups the ability to incorporate models like ChatGPT into their own systems. The company has already been building AI tools into many of its consumer products, such as a DALL-E 2 feature in its Bing search engine that can create images based on a text prompt, and the Information reported recently that it's working to bring more of them to Microsoft Office as well.

What will Microsoft incorporate in its own systems?

Microsoft plans to incorporate AI tools into its own systems, such as a DALL-E 2 feature in its Bing search engine that can create images based on a text prompt, and the Information reported recently that it's working to bring more of them to Microsoft Office as well

Summarization

Extractive vs Abstractive

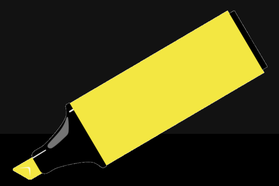
Extractive

Select parts of the original text to form a summary

- Easier
- Restrictive (no paraphrasing)

Peter and Elizabeth took a taxi to **attend** the night **party** in the **city**. While in the party, **Elizabeth** collapsed and was **rushed** to the **hospital**.

Peter and Elizabeth attend party city. Elizabeth rushed hospital



Abstractive (Semantic)

Generates new text using natural language generation techniques

- More difficult
- More flexible (more human)

> **Peter and Elizabeth took a taxi to attend the night party in the city. While in the party, Elizabeth collapsed and was rushed to the hospital.**

Elizabeth was hospitalized after attending a party with Peter.

Prompt Insert

Only DaVinci-002+

Before

These are agenda topics for a customer presentation.

1. Introduction to GPT3
[insert]
10. Conclusion

After

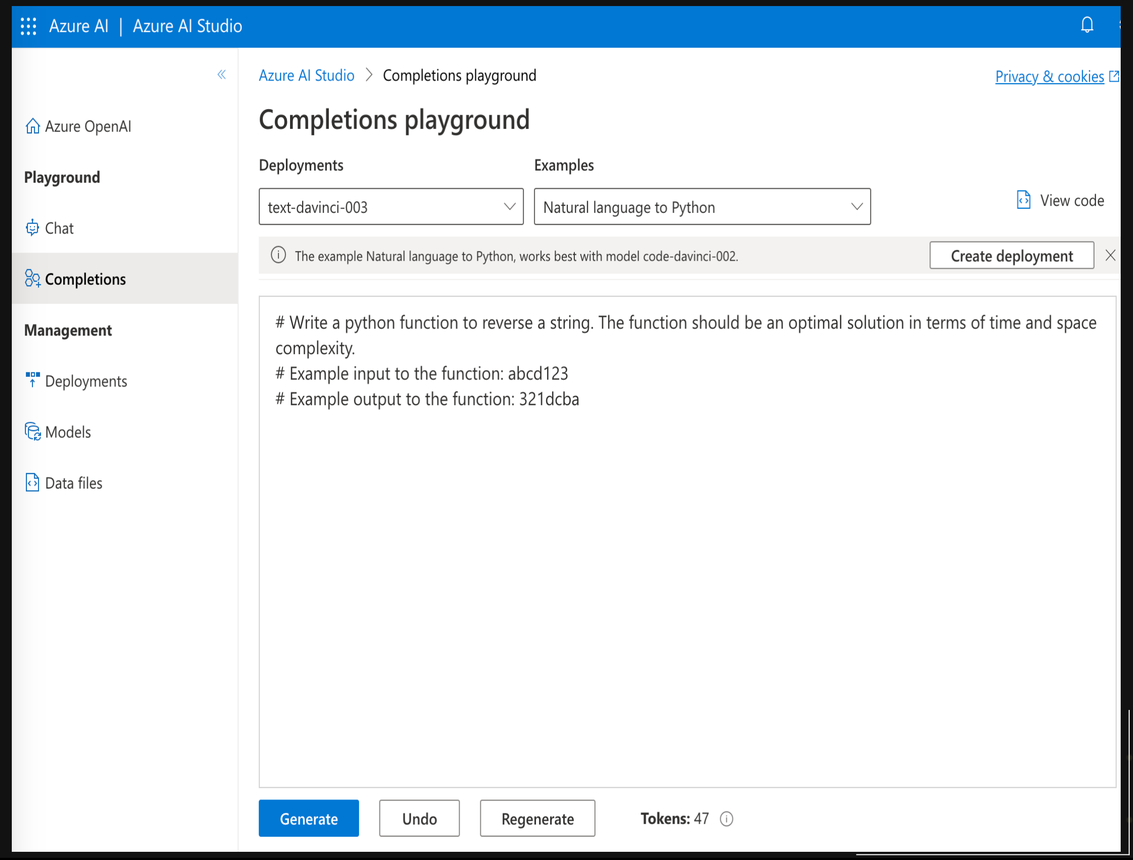
These are agenda topics for a customer presentation.

1. Introduction to GPT3
2. Overview of GPT3 Features
3. Benefits of GPT3
4. GPT3 Use Cases
5. GPT3 Pricing
6. GPT3 Security
7. GPT3 Support
8. GPT3 Integration
9. Q&A Session
10. Conclusion

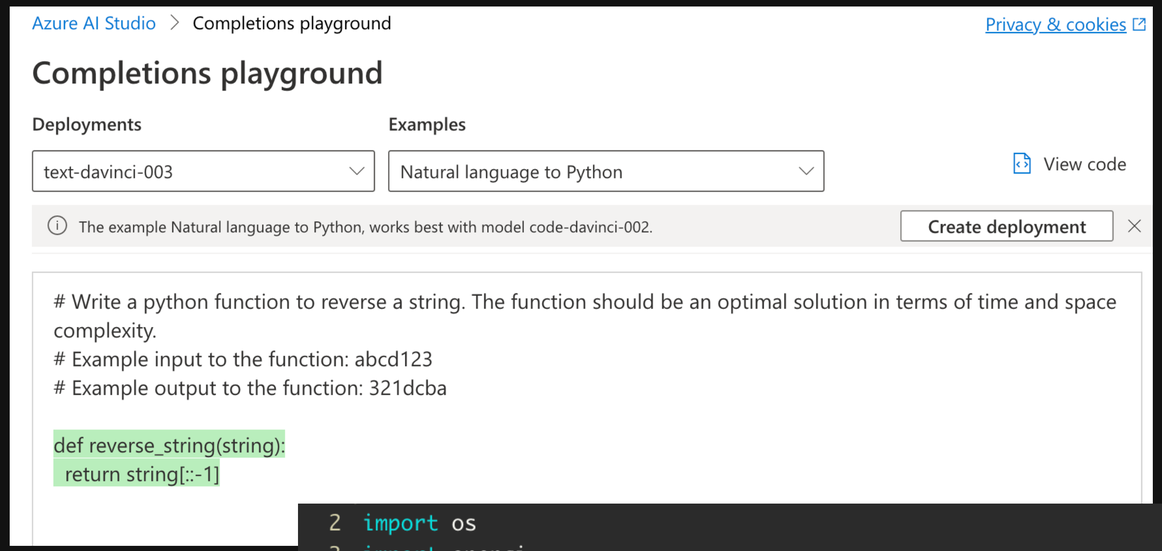
Completions playground

Only DaVinci-002+

Before



After




```
import os
import openai
openai.api_type = "azure"
openai.api_base = "https://k12-ai-openai.openai.azure.com/"
openai.api_version = "2022-12-01"
openai.api_key = os.getenv("OPENAI_API_KEY")

response = openai.Completion.create(
  engine="text-davinci-003",
  prompt="# Write a python function to reverse a string. The function should be an optimal solution in terms of time and space complexity.\n# Example input to the function: abcd123\n# Example output to the function: 321dcba\n\ndef reverse_string(string):\n return string[::-1]",
```

Media Example

News Analyses & Article Creations

News Broadcast (Global Warming)

Azure Speech Transcription

Azure OpenAI Text Completion

Search
SEO
Virtual Agent
Analytics
Reporting
Knowledge Mining

Content Analysis

Topic Classification

Global warming, Deforestation,
Carbon footprint

Entity Extraction

Organizations: IPCC, UNFCCC, Green Peace
Geography: Canada, USA

Key Word Extraction

Human activities, fossil fuels,
earth atmosphere

Question and Answer

What is the Intergovernmental Panel on Climate Change (IPCC)?
The IPCC is an international organization that studies climate change and the effectiveness …

Content Creation

Ideation
Productivity
Personalization
Accessibility
A/B Testing

Video summarization

The article discusses about global warming and its effects on the Earth's atmosphere, wildlife, and human communities. It states that the primary cause of global warming is ….

News article generation (or blogs, social media)

Global warming is the gradual increase in the overall temperature of the Earth's atmosphere, primarily caused …

Script Generation

Act 1: The show opens with a shot of a beautiful coastal town
Act 2: As the town struggles to cope with the crisis …

Personalized Content generation (or Advertising)

Simon, as someone passionate about global warming, you are aware of the urgent threat it poses to our planet …

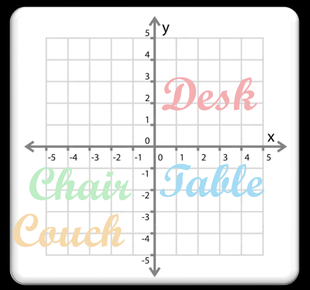
Retail Example

Similarity Search

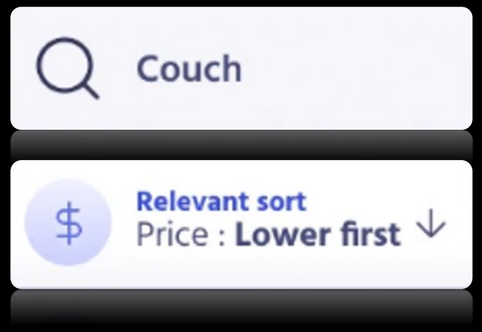
Product Embeddings

Customer Product Database

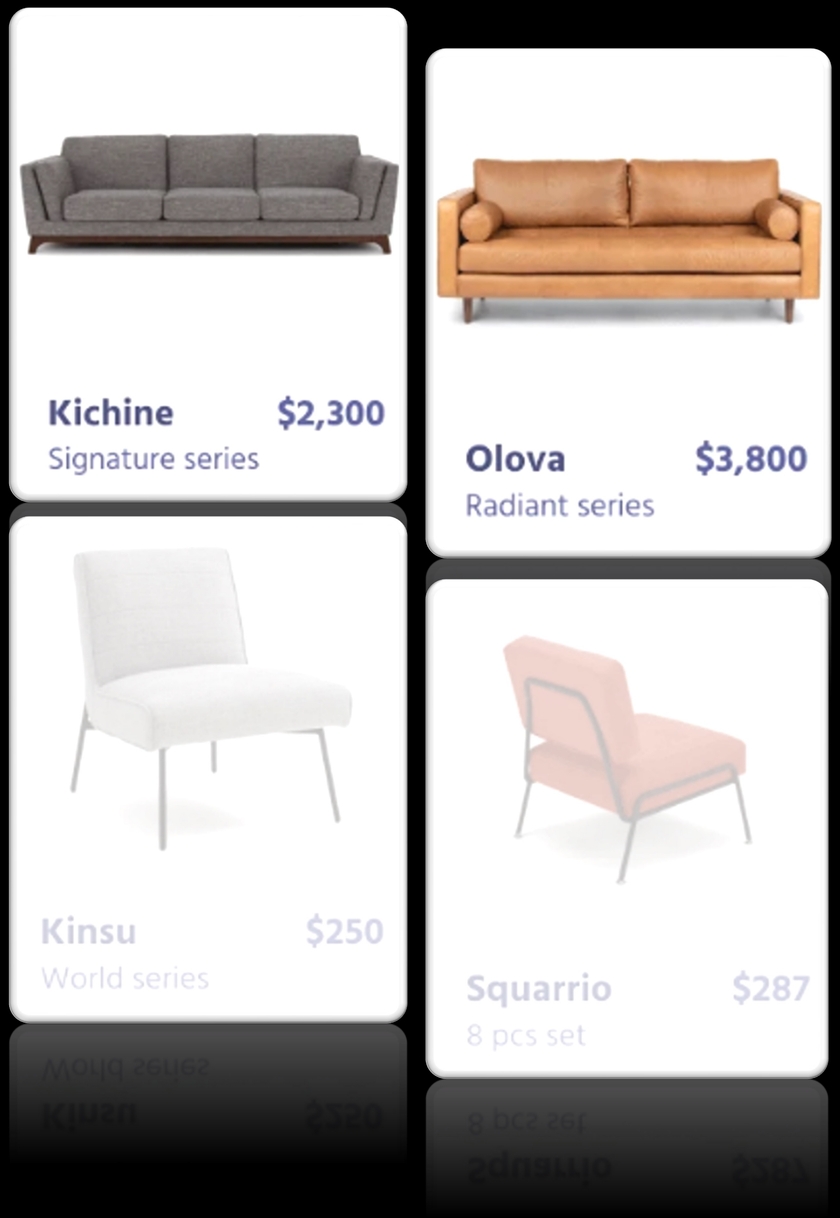
Azure OpenAI Embeddings



Embeddings Space



Similarity Search



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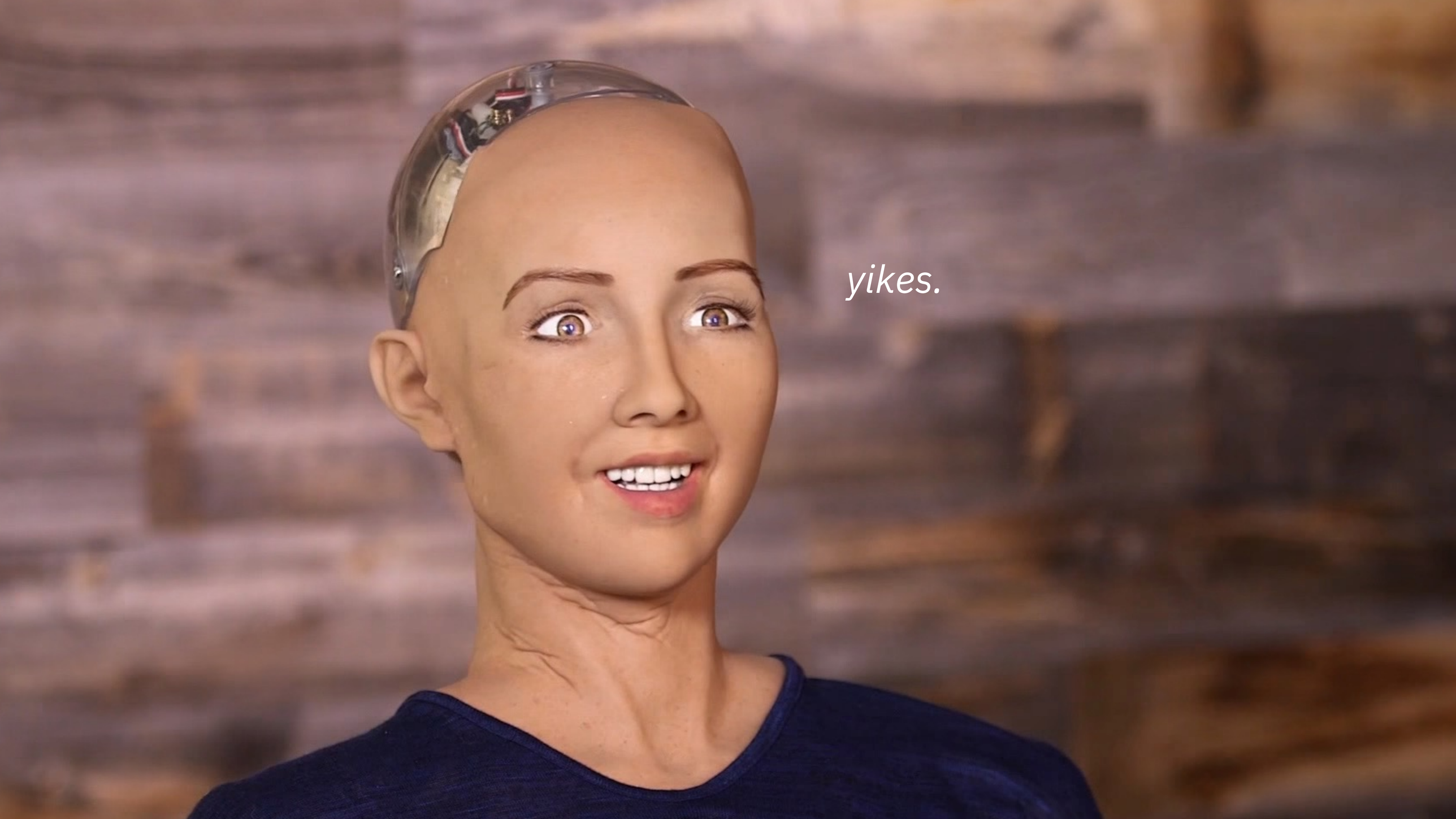
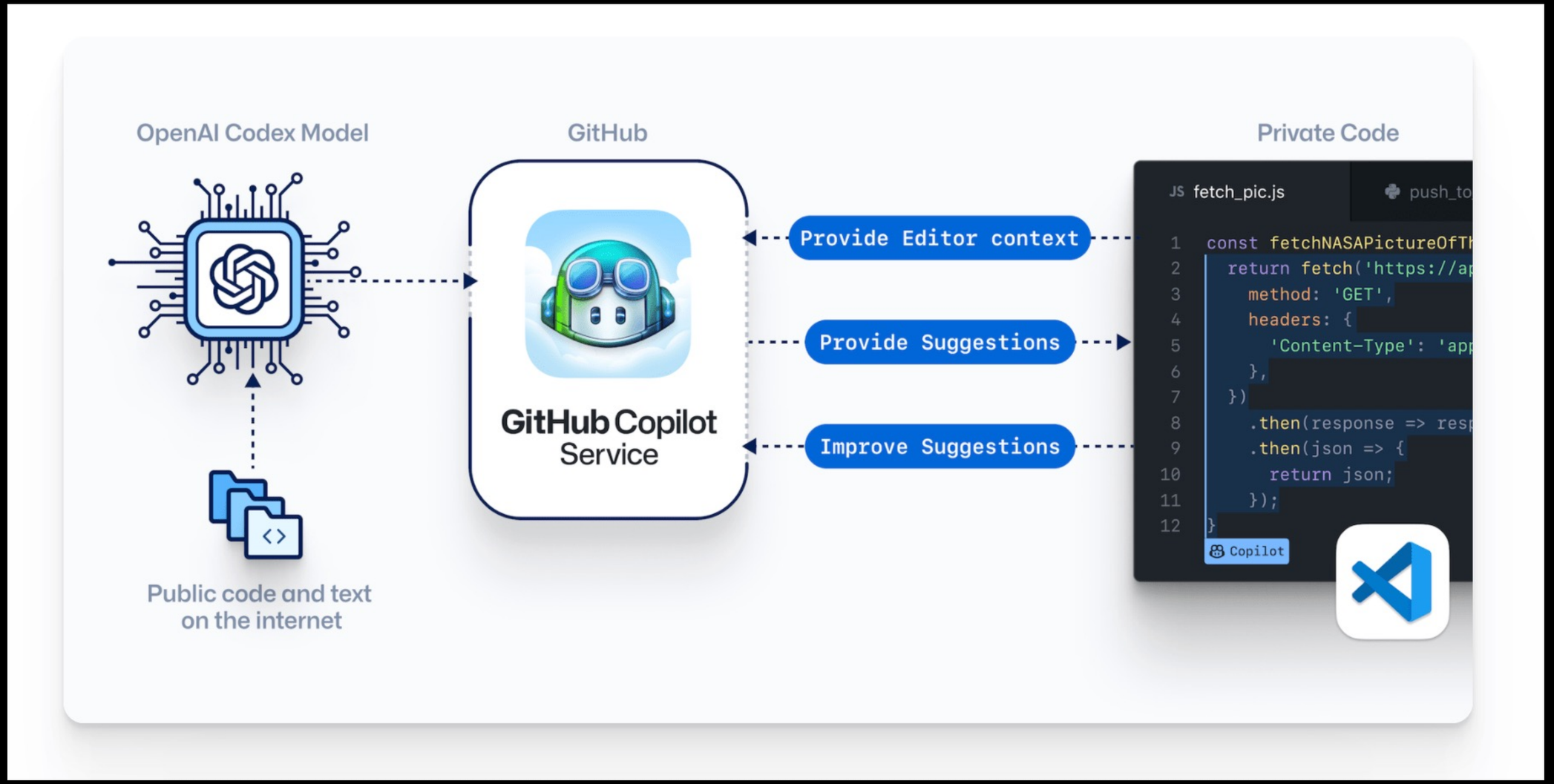

yikes.

Artificial Intelligence for Business

GitHub Copilot



https://nira.com/github-copilot/

GitHub Copilot

An AI-powered coding assistant

Uses ML models for code suggestions & completions

Integrates with most code editors

Copilot Key Features

- Intelligent Code Suggestions
- Code Completions
- Natural Language Support
- Programming Language Support

https://docs.github.com/en/copilot/quickstart

How does it work?

- Built on OpenAI's Codex, a powerful LLM trained on diverse code repositories.
- Analyzes the code context, comments, & other inputs to generate relevant code suggestions.
- Learns from user feedback and continuously improves over time.

https://docs.github.com/en/copilot/quickstart

Use Cases & Benefits

- Collaboration
- Learning Tool
- Efficiency and Productivity
- Code Quality

https://docs.github.com/en/copilot/quickstart

Concerns & Challenges

- Intellectual Property: Copilot suggests code based on the patterns it has learned
- Bias and Security: GitHub and OpenAI are working to address potential biases and security concerns through rigorous testing and user feedback.

https://docs.github.com/en/copilot/quickstart

Getting Started

- ✓ Installation
- ✓ Demonstration
- ✓ Useful Shortcuts

https://docs.github.com/en/copilot/quickstart

Tips & Best Practices

- Set Expectations: Critically evaluate and understand the code suggestions.
- User Feedback: Provide feedback to GitHub and OpenAI
- Continuous Learning: Explore and experiment with Copilot to fully leverage its potential

https://docs.github.com/en/copilot/quickstart

Exercise

Thank you

portilla@gmail.com

https://github.com/jiportilla/giveback/

Backup

Azure AI

Applications

Microsoft 365

Microsoft Dynamics 365

Partner Solutions

Application Platform

AI Builder

Power BI

Power Apps

Power Automate

Power Virtual Agents

Business Users

Scenario-Based Services

Applied AI Services

Bot Service

Cognitive Search

Form Recognizer

Video Indexer

Metrics Advisor

Immersive Reader

Customizable AI Models

Cognitive Services

Vision

Speech

Language

Decision

OpenAI Service

Developers & Data Scientists

ML Platform

Azure Machine Learning

Traditional model development

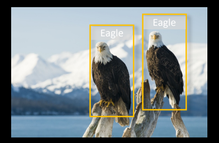
High cost & slow deployment - Each service is trained disjointly

DEPLOYMENTS

- Tagging Services
- Spatial Analysis Services
- Accessibility Services
- Spatial Presenter
- Azure Search, Video Indexer

TASKS

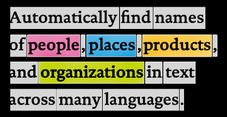
Classification



Object Detection


Object Tracking

Action Recognition



Entities


Topics

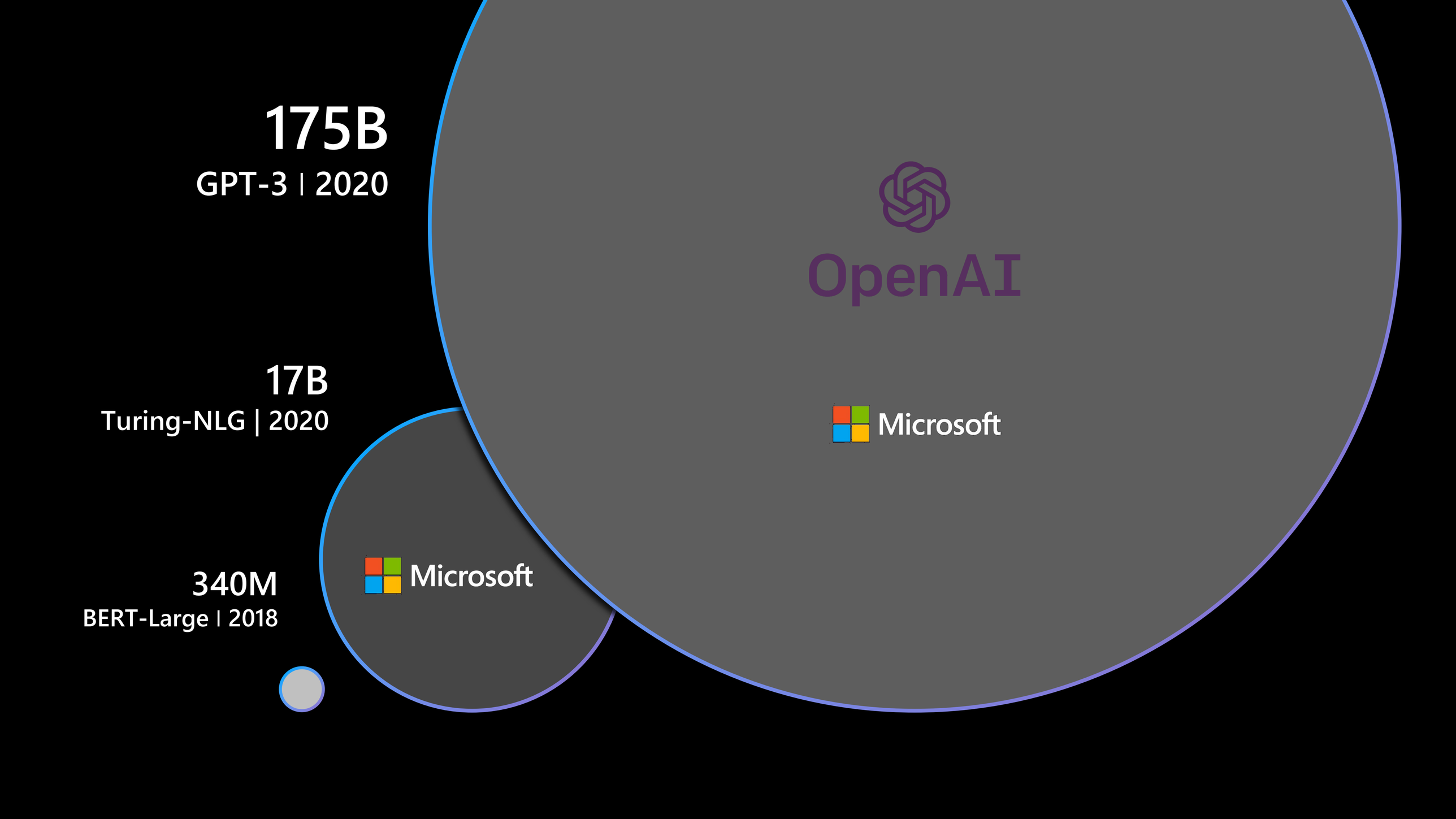

Sentiments

INDIVIDAL MODEL (DISJOINTLY)

- Classification Model
- Detection Model
- Tracking Model
- Action Model
- Entity Recognition
- Topic Classification
- Sentiment Analysis

TRAINING DATA (w/ ANNOTATION)

- Tagging data
- Detection data
- Tracking data
- Action data
- Entity data
- Topic data
- Sentiment data


175B
GPT-3 | 2020
OpenAI
17B
Turing-NLG | 2020
Microsoft
340M
BERT-Large | 2018
Microsoft