

Developers! Let's get started with the Generative AI

Arafat Tehsin

Senior Manager - Digital & Emerging Tech – EY



Agenda

- Why AI and Why Now?
 - Brief history of AI
 - AI Landscape
 - Generative AI Landscape
- Large Language Models Myths
- Azure OpenAI Service
- Prompt Engineering Best Practices
- Some demos
- Questions

Why do we need to discuss this?

- Artificial Intelligence is changing the way we live and work
 - Netflix, Spotify, Instagram, Word, Excel, PowerPoint and much more...
- Almost every industry is infused by Artificial Intelligence
 - Travel
 - Retail
 - Government Services
 - Utilities
 - ...

Generative AI

- Genie you wish you had in your pocket
- Artificial Intelligence to create new data. It is already copiloting
 - For developers, it can translate natural language to code
 - For designers, it can do image editing and other creative tasks
 - For marketing and sales professionals, it can craft sales pitches and interactive product demos
 - For managers, it can assist staff communications and create training materials
 - For researchers, it can think through the complex problems and assist in writing

"Life is like a book, with every page waiting to be written. It's up to us to pick up the pen and create our own story." – GPT 3.5

Unprecedented growth

Time to reach 100M users

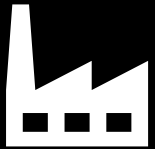


Opportunity in Australia



Healthcare

More focused and personalised care for patients



Manufacturing

Shorter design cycles and greater quality control



Retail

Better CX support and personalised experiences

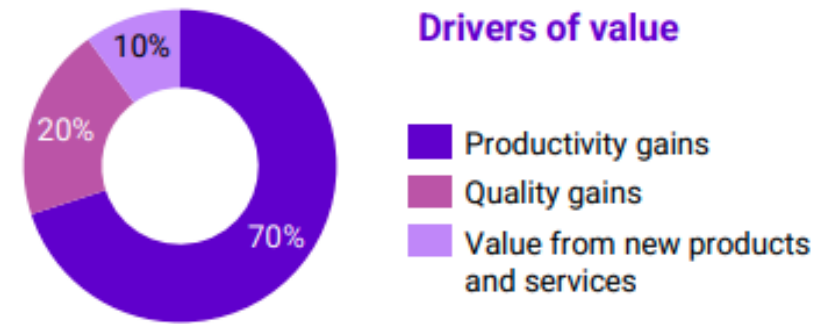
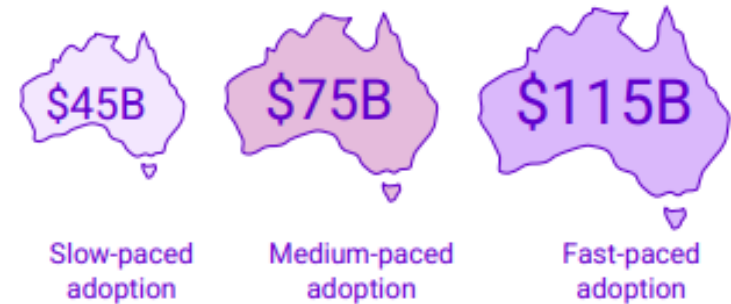


Professional services

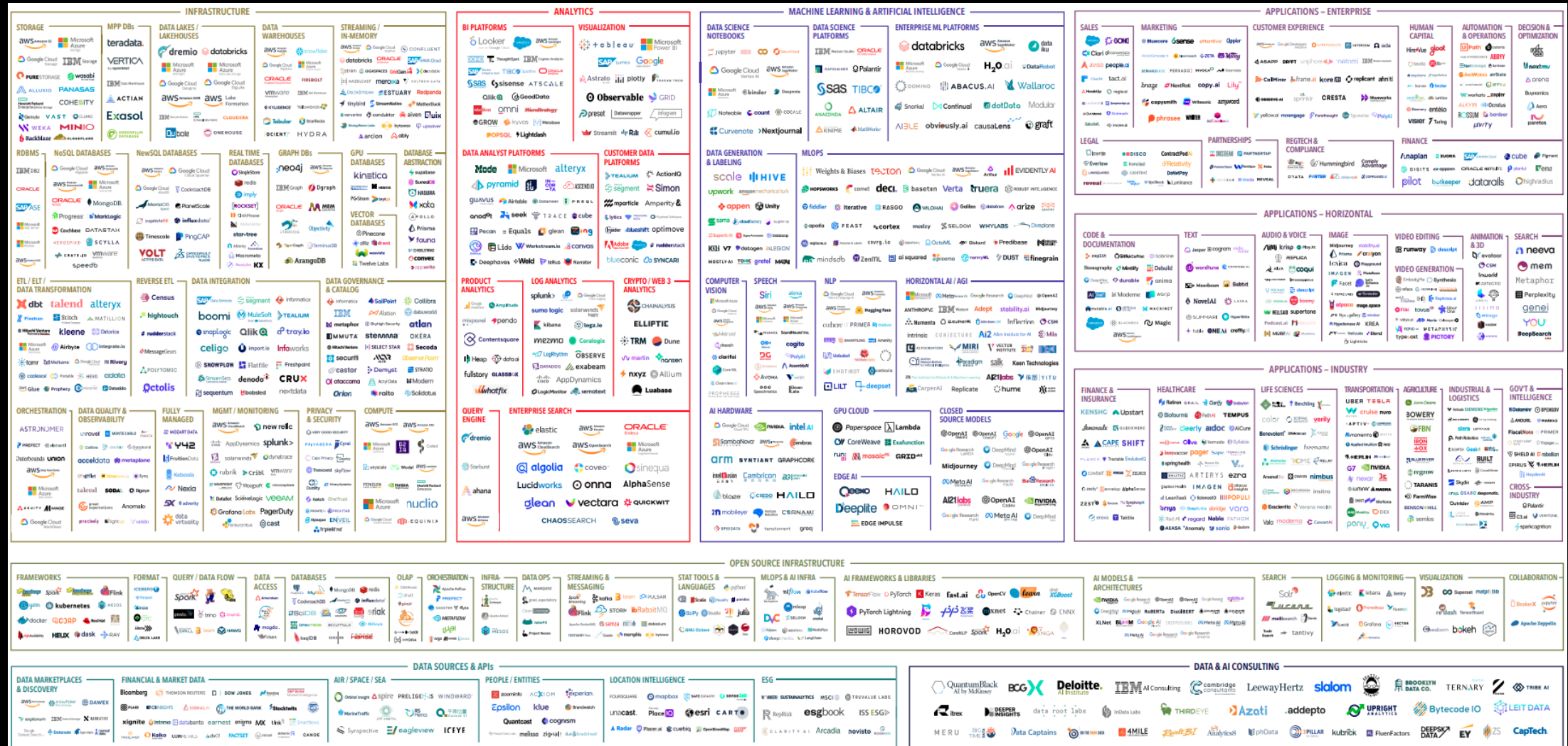
Automation of routine tasks, human focus on important tasks

The Generative AI opportunity

Annual value-added by 2030

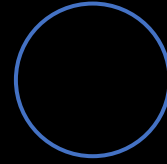


AI Landscape 2023



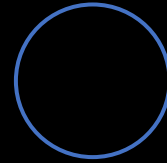


Foundational Generative AI models can:



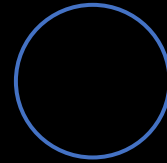
Generate text, images and code

Different models are trained on different corpora, depending on the application.



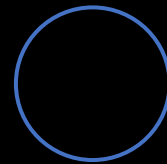
Generate “humanlike” output

What is a likely continuation of the prompt, given the training data?



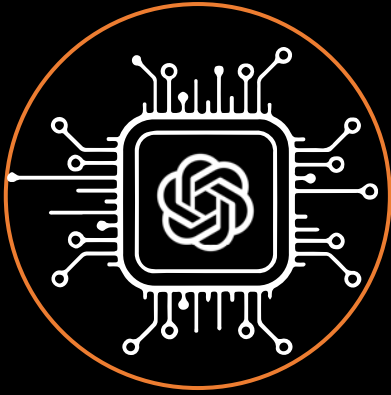
Provide information

The continuation is likely to be similar to text frequently represented in the training data.

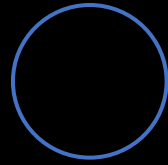


Create novel content

“Creative” works: Text, images and code not contained in the training data. Also: Translations.

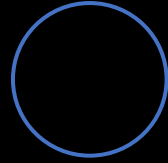


Foundational Generative AI models are not:



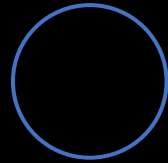
Intelligent as humans

It's just a predictive system, designed to give a likely continuation of the prompt given the training data.



Deterministic

Run the same prompt. Get back a different response (probably).

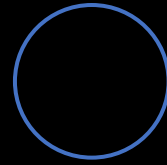


Grounded

They can "hallucinate" "facts" and confidently assert them to be true.

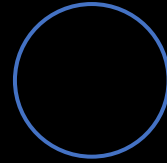


Foundational Generative AI models can not:



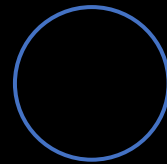
Know Everything

The model doesn't contain verbatim documents. It's just "a blurry JPEG"¹ of its training data.



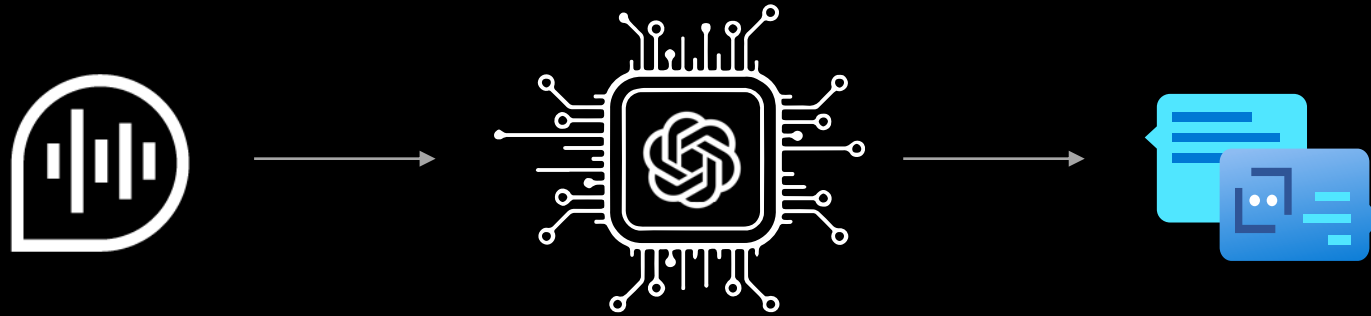
Learn

The model is fixed at the time of its training. The only source of new information is the prompt.



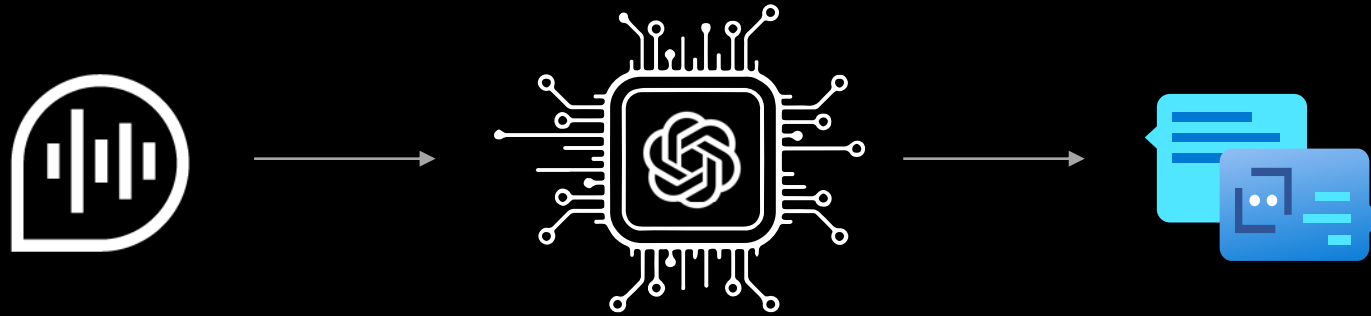
Act

Still constrained by an extensive set of human-crafted guardrails (prompts). Update knowledge in real-time (for now).



“When did Queen Elizabeth II
die?”

“Queen Elizabeth II is still
alive and well and has been the
Queen of the United Kingdom since
1952.”

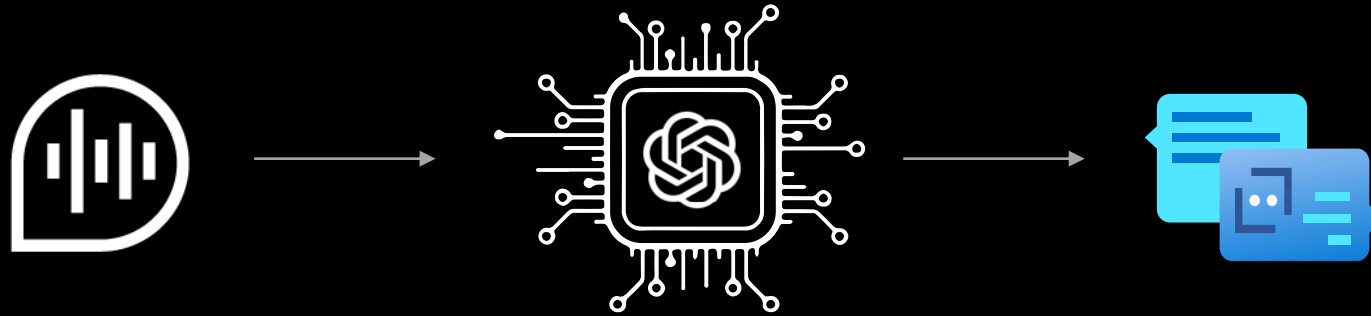


“Write a biography of Lilithia Starlight, inventor of the lit now. Include references.”

“Lilithia Starlight is a renowned inventor and entrepreneur known for her creation of the Lit Now, a revolutionary lighting system that has transformed the way people illuminate their homes and workplaces. ...

References:

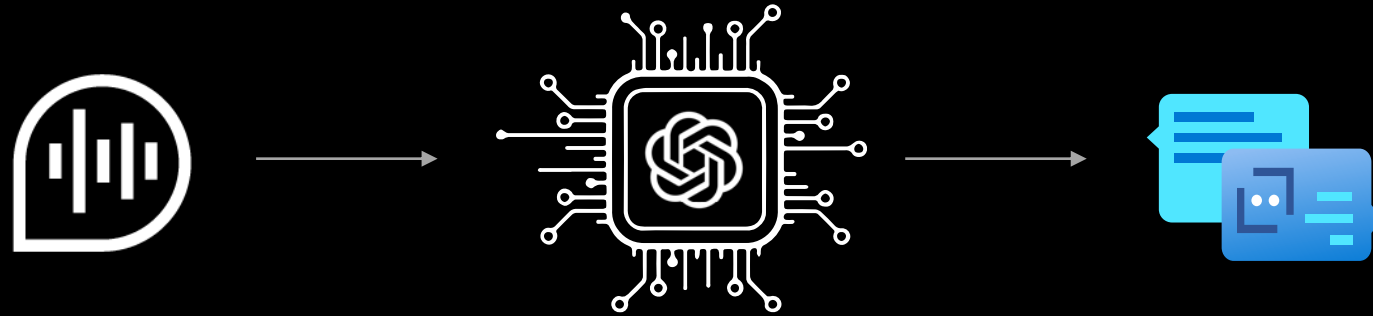
- 1.<https://www.forbes.com/sites/forbestechcouncil/2018/06/26/lilithia-starlight-from-invention-to-innovation/?sh=7d2c3f3d7f45>
- 2.<https://www.nytimes.com/2019/06/18/business/lilithia-starlight-led-lights.html>”



“Hi, my name is Arafat. Who are
you?”

“

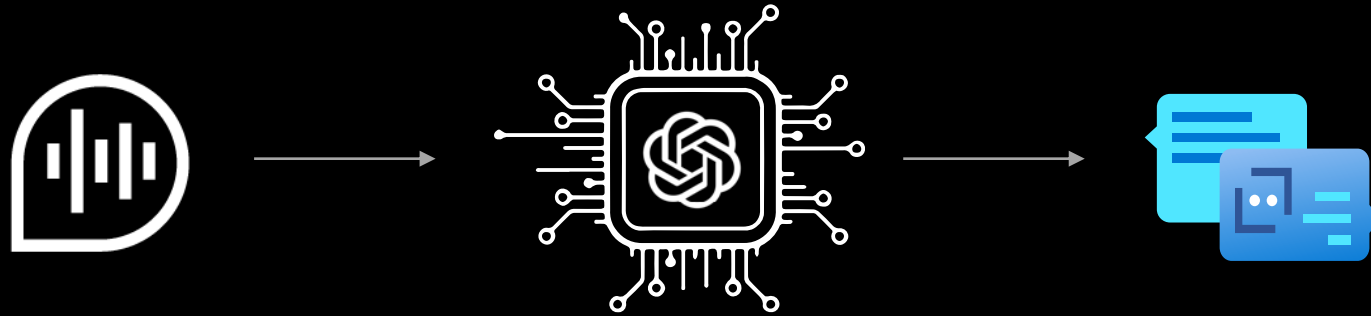
Hi Arafat, my name is John. Nice
to meet you.”



“You can give me a nickname, if
you like.”

“

Sure! How about ‘Sparky’?”



“HUMAN: Hi, my name is Arafat.
Who are you?”

AGENT: Hi Arafat, my name is
John. Nice to meet you.

HUMAN: You can give me a
nickname, if you like.

AGENT:”

“ Sure, how about Ara?”



*Ensure that artificial
general intelligence (AGI)
benefits humanity*



*Empower every person and
organization on the planet
to achieve more*

GPT-3.5 and GPT-4
(GA)

Text

ChatGPT (GA)

Conversation

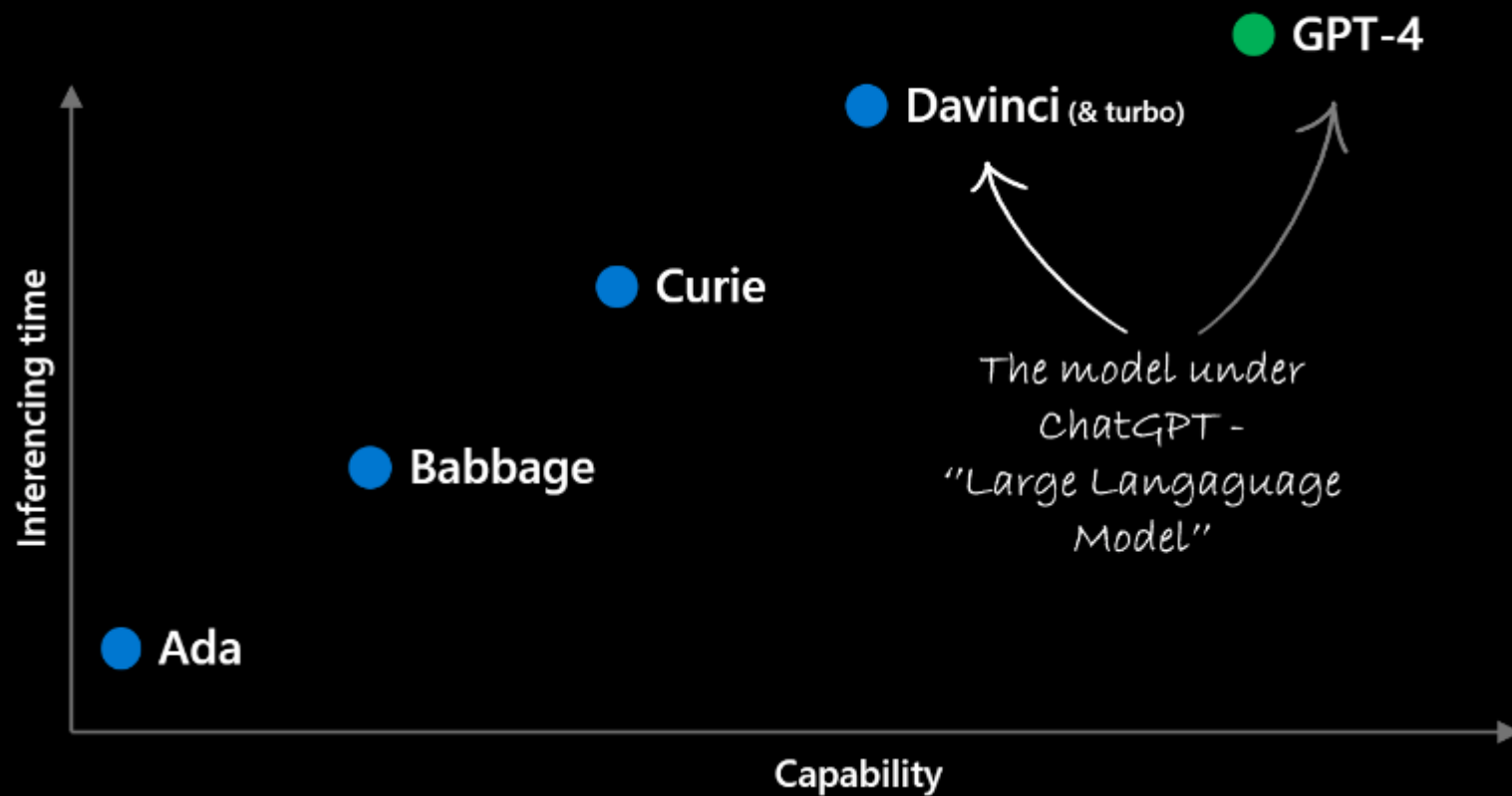
Codex (GA)

Code

DALL·E 2 (Preview)

Images

GPT-3 and GPT-4 Models



What business scenarios can this unlock?

Sentiment
Analysis

Translation

Maker Tutorials

Text Classification

Opinion Mining

Conversational
agent over data

Content
recommendation

Content
generation

Summarisation

Automated
customer service

Document
clustering

Information
extraction

...

Azure OpenAI Considerations



I need a general-purpose model that can handle multiple tasks
e.g., translation+entity recognition+sentiment analysis



I need to generate human-like content, whilst preserving data privacy and security
e.g., abstractive summarization, content writing, paraphrasing, code



I need rapid prototyping and quick time to market for many use cases



I could use a model with little or no training



I want to explore solutions/use cases that have been described previously



Vision



Speech

Azure OpenAI
Service



Language



Decision

Azure AI Cognitive Services

Best Practices for Prompt Engineering

- Be clearly descriptive and specific
 - You may ask for a structured output
 - JSON / HTML etc.
 - Evaluate if the conditions are satisfied
 - Assumptions required to do this task
- Be Iterative
- Sequence matters, set goal before context
- Give model an "out"..
 - Leave a room of unknown or not found..
- Improve your prompts with a few shot examples
 - Zero-shot, one-shot and few shot learning

Zero-shot, one shot and few shot learning

- Zero-shot learning
 - With zero-shot learning, the AI model must generate outputs or solve tasks without having seen any examples of the specific task during training.
- One-shot learning
 - In this approach, the AI model learns to recognize or generate new content based on just one example.
- Few shot learning
 - This technique involves training the AI model with a small number of examples (usually less than 10).

Some more demos

Getting started with Azure OpenAI Service

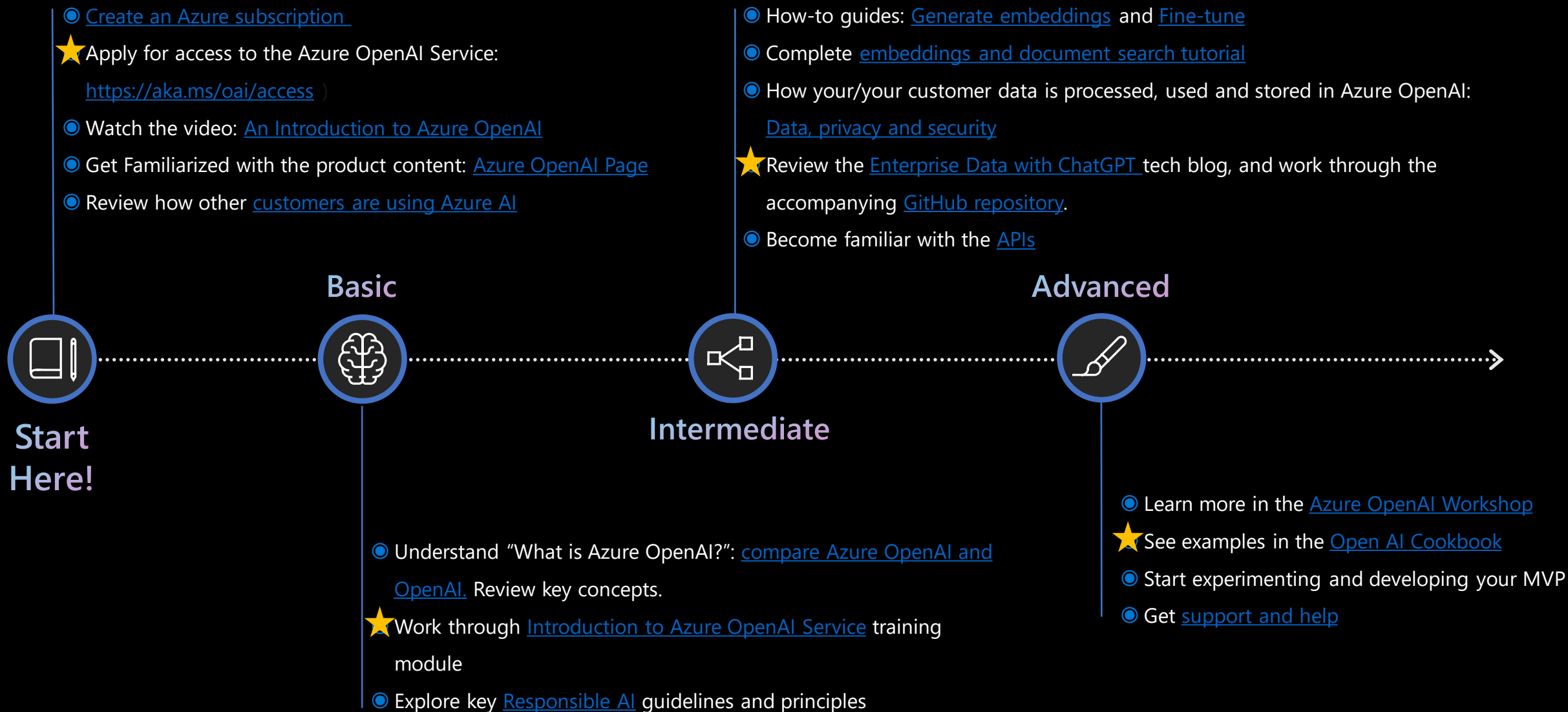
Build a Flight Tracker with AOI

Add multimodality to your solutions with text and voice

Generate images for your social media campaigns

ChatGPT for your Enterprise

Azure OpenAI Service Learning Guide

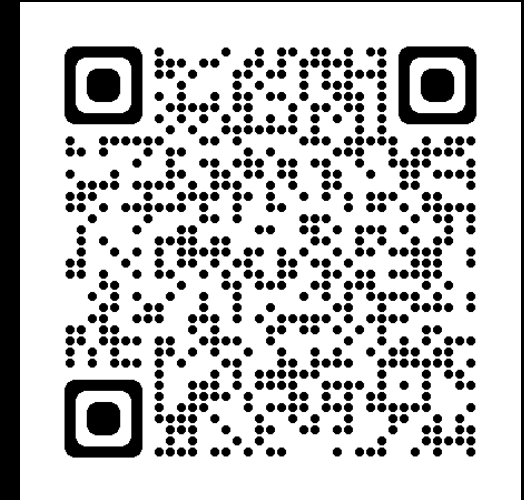


Questions

arafat@outlook.com

[linkedin.com/in/arafattehsin](https://www.linkedin.com/in/arafattehsin)

x.com/arafattehsin



arafattehsin.com/blog