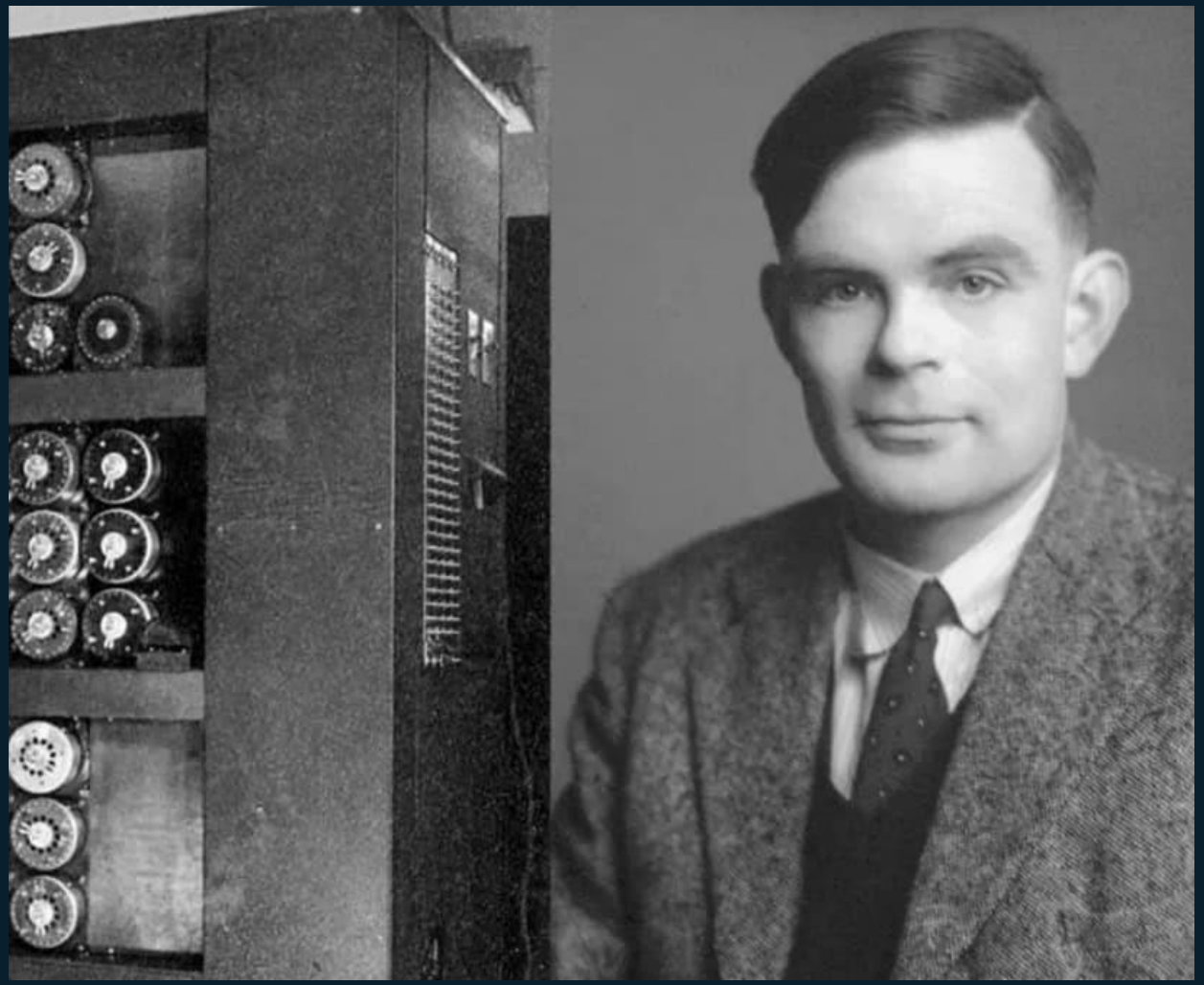
Microsoft

Product Development and Design with Artificial Intelligence

Elena González-Blanco García

21 March 2024

Alan Turing | 1912 - 1954 “Turing Test”



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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—COMPUTING MACHINERY AND INTELLIGENCE

BY A. M. TURING

1. *The Imitation Game.*

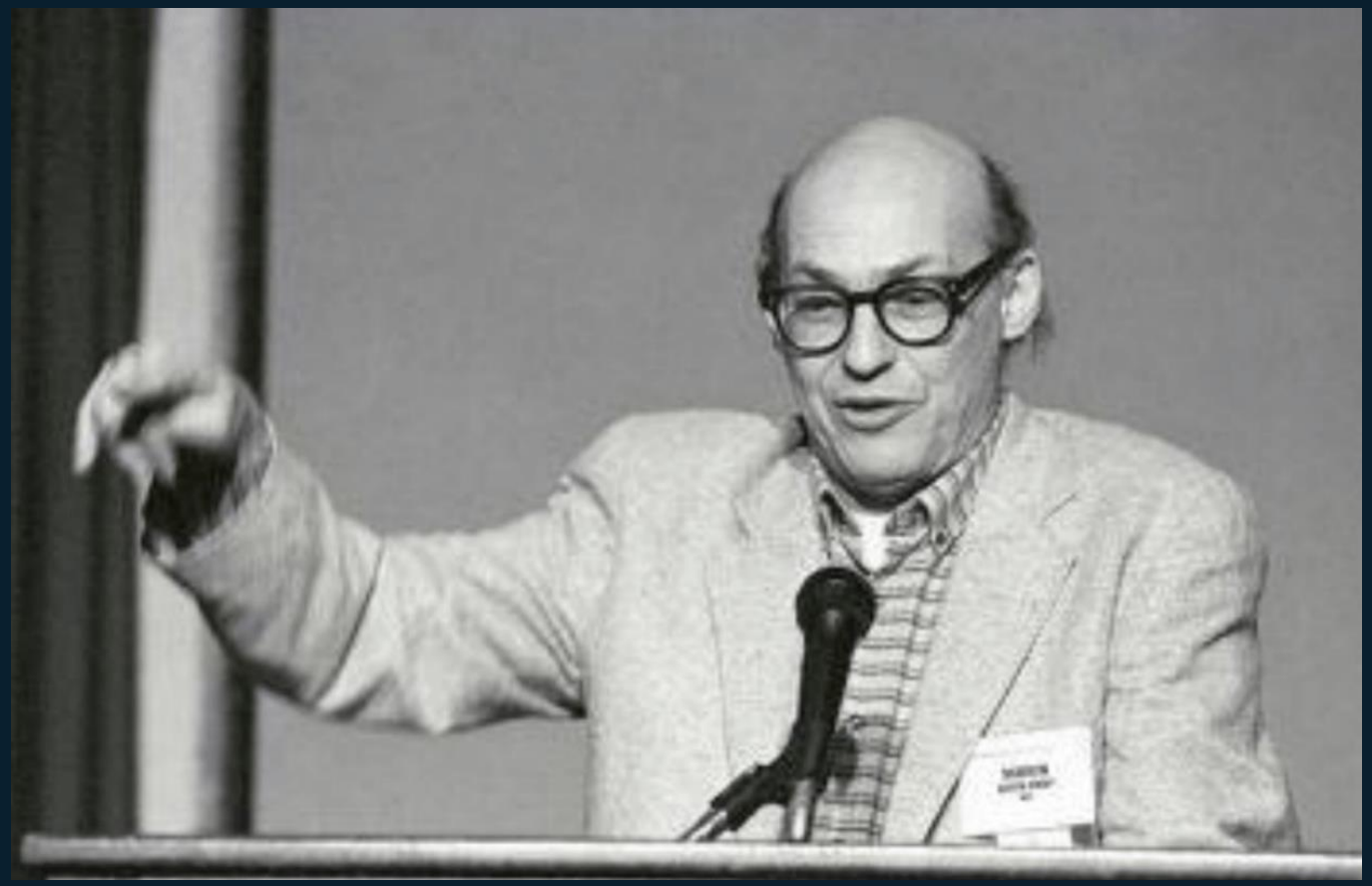
I PROPOSE to consider the question, ‘Can machines think?’ This should begin with definitions of the meaning of the terms ‘machine’ and ‘think’. The definitions might be framed so as to reflect so far as possible the normal use of the words, but this attitude is dangerous. If the meaning of the words ‘machine’ and ‘think’ are to be found by examining how they are commonly used it is difficult to escape the conclusion that the meaning and the answer to the question, ‘Can machines think?’ is to be sought in a statistical survey such as a Gallup poll. But this is absurd. Instead of attempting such a definition I shall replace the question by another, which is closely related to it and is expressed in relatively unambiguous words.

The new form of the problem can be described in terms of a game which we call the ‘imitation game’. It is played with three people, a man (A), a woman (B), and an interrogator (C) who may be of either sex. The interrogator stays in a room apart from the other two. The object of the game for the interrogator is to determine which of the other two is the man and which is the woman. He knows them by labels X and Y, and at the end of the game he says either ‘X is A and Y is B’ or ‘X is B and Y is A’. The interrogator is allowed to put questions to A and B thus:

C: Will X please tell me the length of his or her hair?

Now suppose X is actually A, then A must answer. It is A's

Marvin Minsky | 1927 - 2016



- Co-founder of the MIT AI Laboratory
- “AI brain"-convinced that machines could think like humans
- Foundational research for the creation of artificial neural networks.
- Advisor to Stanley Kubrick's “A Space Odyssey”, 2001

Most relevant milestones

AI Origins

1950-60

First algorithms
Mixture of Experts (MoE)
NLP Fundamentals
Beginnings of Machine Learning

Statistics and trained models

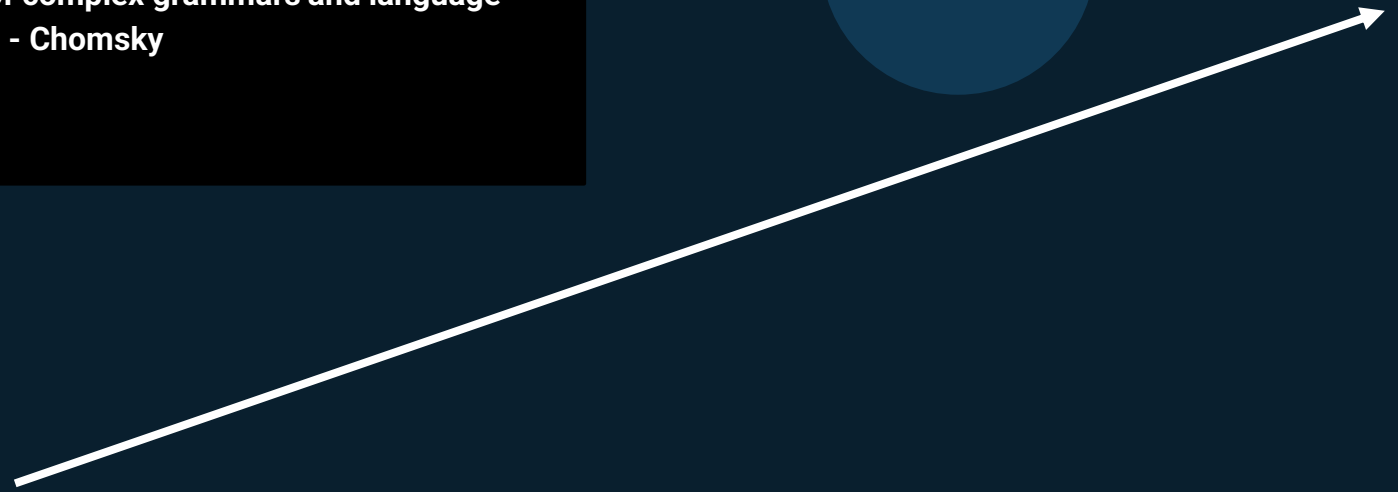
1980-99

Probabilistic algorithms
Training with data
Inclusion of complex grammars and language generation - Chomsky

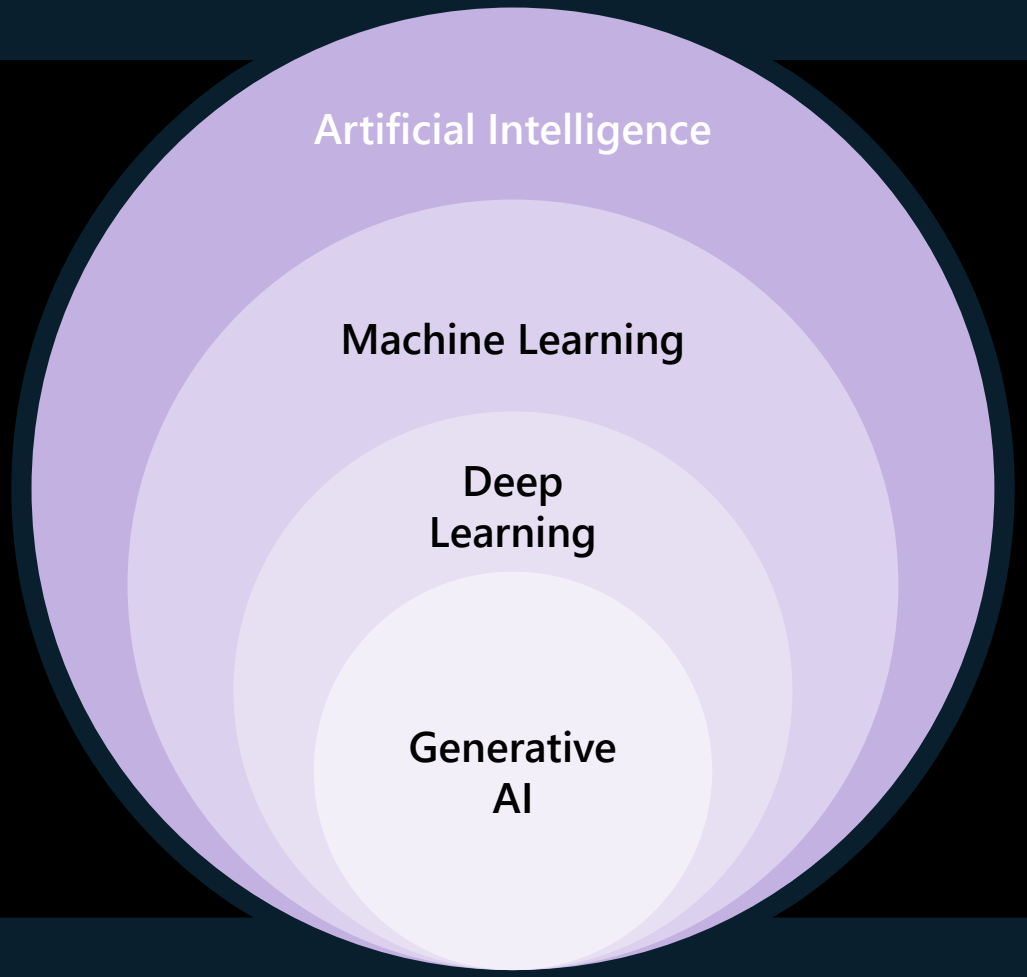
Neural networks, ML, DL

2010-Hoy

Neural Networks and Deep Learning
Unsupervised Learning
NLP combined with DL - Neural Machine Translation



The journey continues with generative AI



1956 Artificial Intelligence

1997 Machine Learning

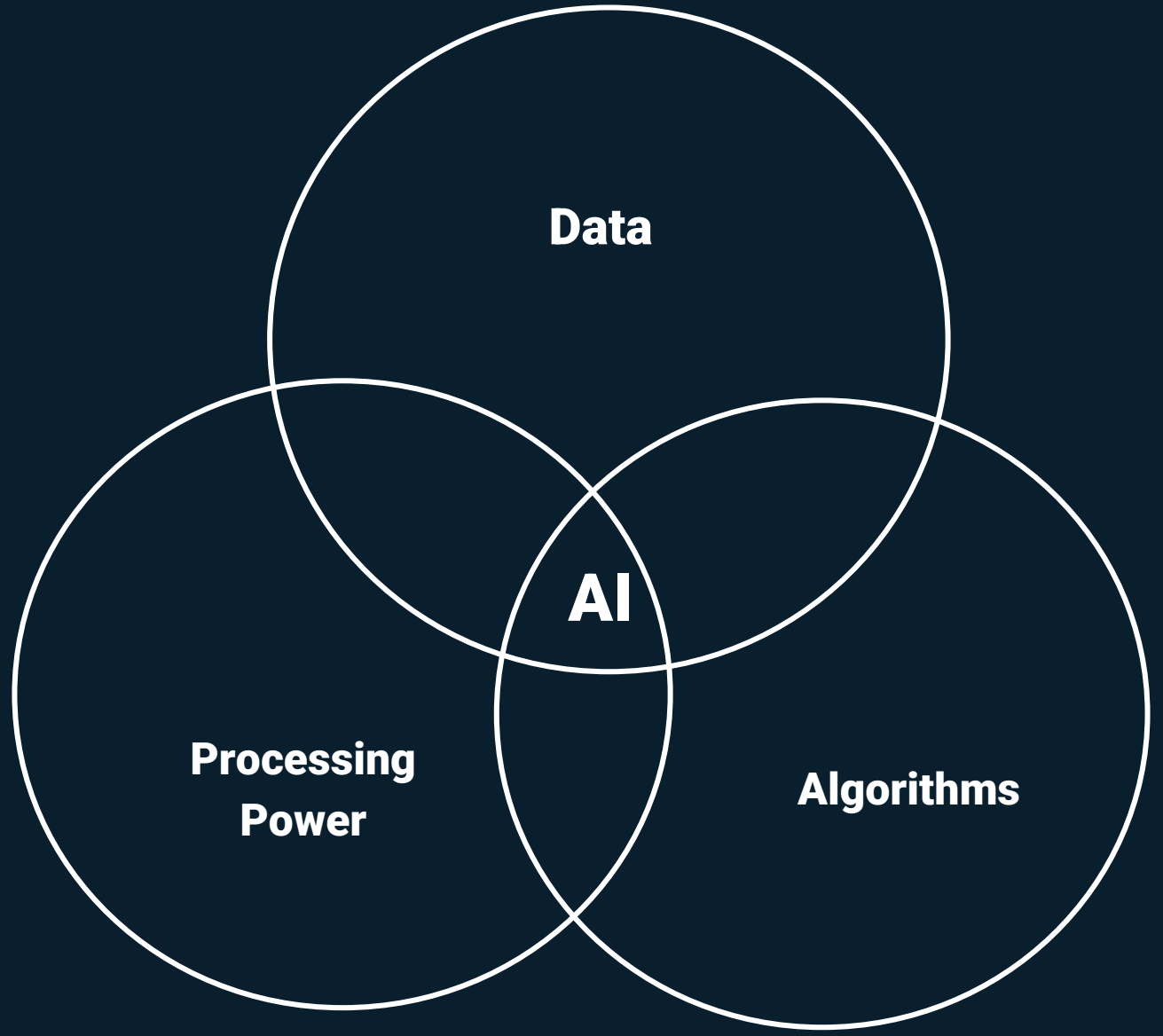
2012 Deep Learning

2021 Generative AI

Research Breakthroughs

2016	**Object recognition** *Human parity*
2017	**Speech recognition** *Human parity*
2018	**Machine reading comprehension** *Human parity*
2018	**Machine translation** *Human parity*
2019	**Conversational QnA** *Human parity*
2020	**Image captioning** *Human parity*
2021	**Natural Language Understanding** *Human parity*
2021	**Commonsense Question Answering** *Human parity*
2022	**ChatGPT**
2023	**GPT-4**

The time for AI has arrived



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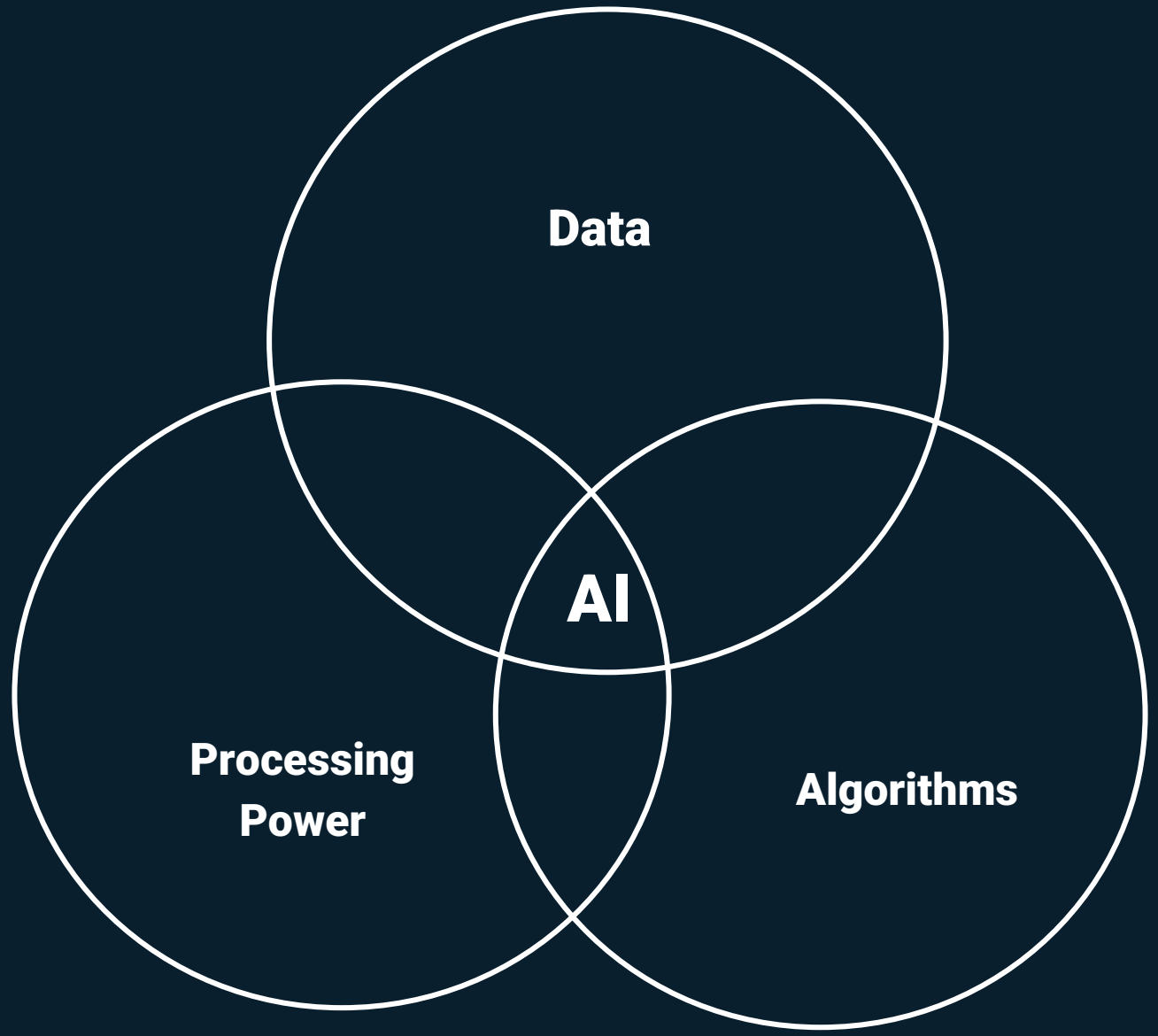

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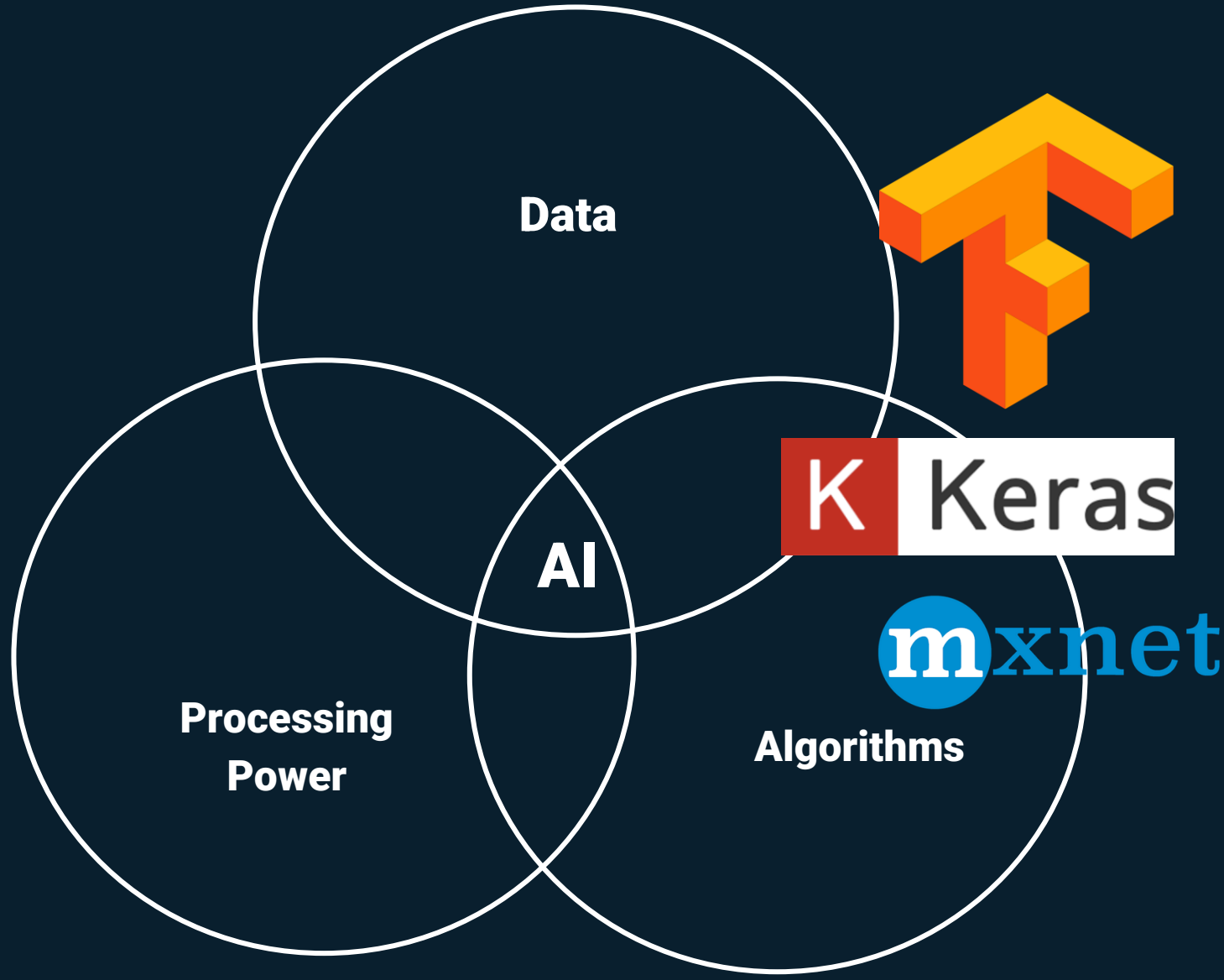


How do machines learn to speak?

How do machines learn to speak?

Juancomiounamanzana

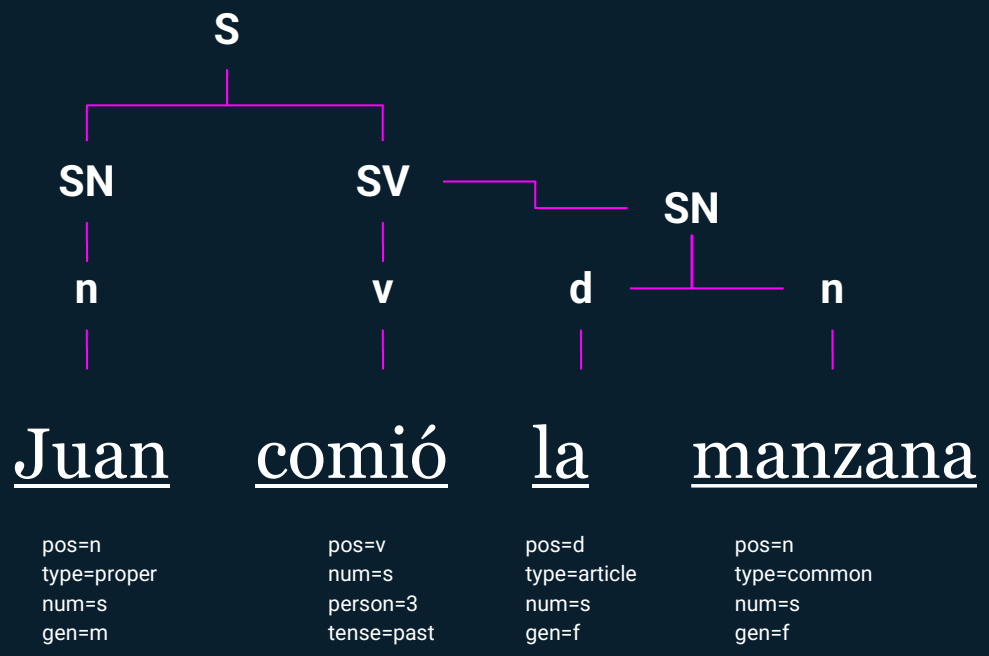
How do machines learn to speak?

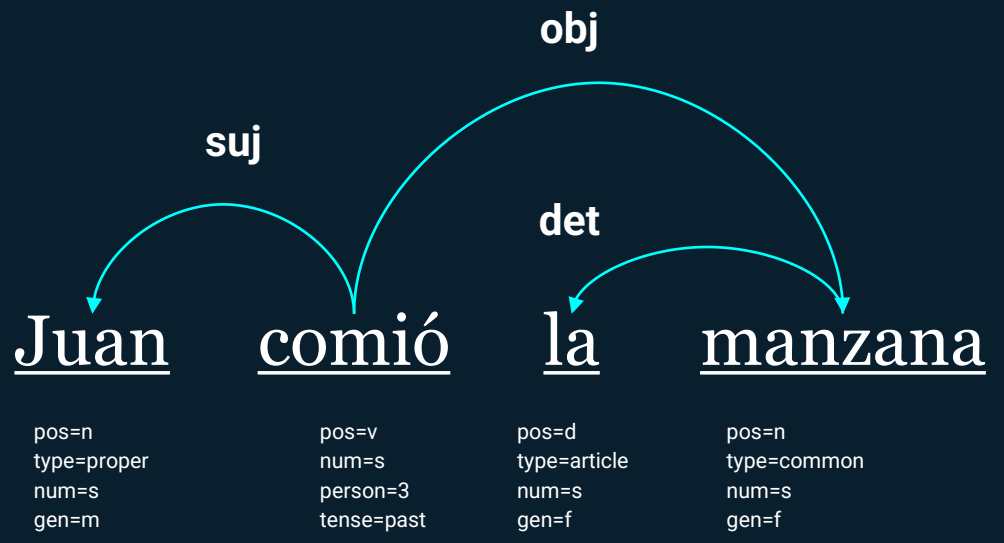
Juan comió una manzana

How do machines learn to speak?

Juan	comió	la	manzana
pos=n type=proper num=s gen=m	pos=v num=s person=3 tense=past	pos=d type=article num=s gen=f	pos=n type=common num=s gen=f

How do machines learn to speak?





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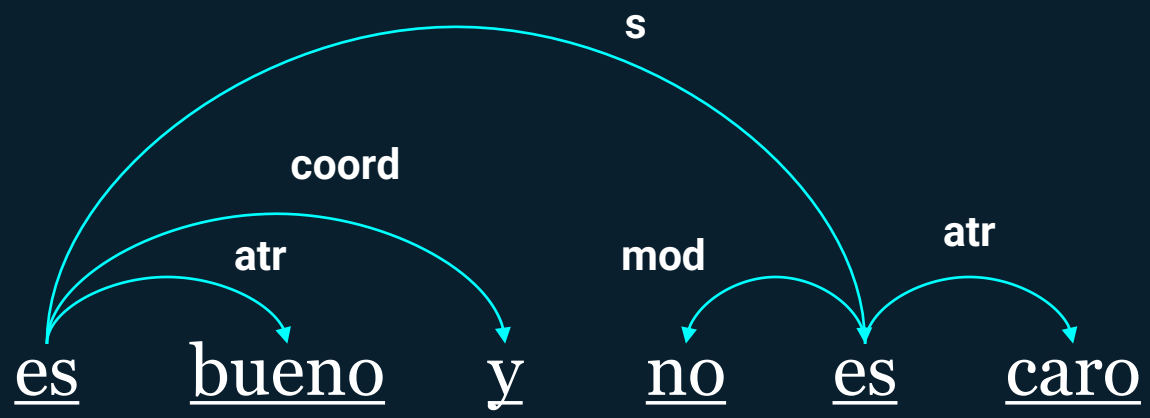

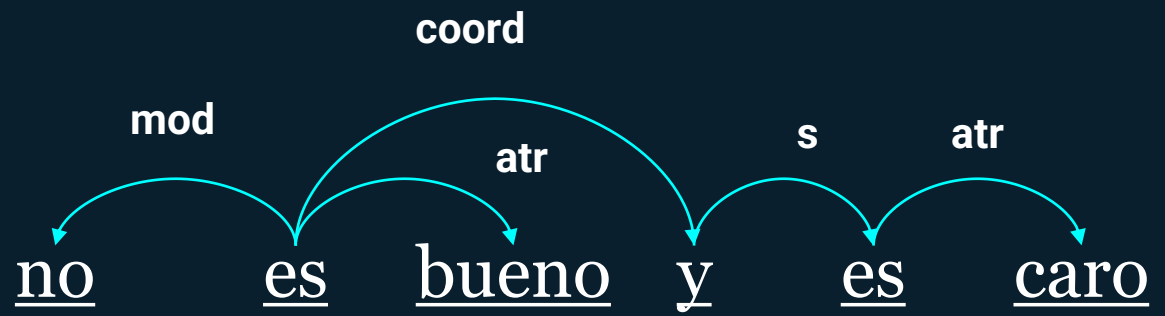

How do we teach all this to a computer?

Levels of language

Phonetics, Phonology	Morphology	Syntax	Semantics	Pragmatics
All sounds, System sounds	Forms and Words	Clauses and sentences	Meanings of various kinds	Language use

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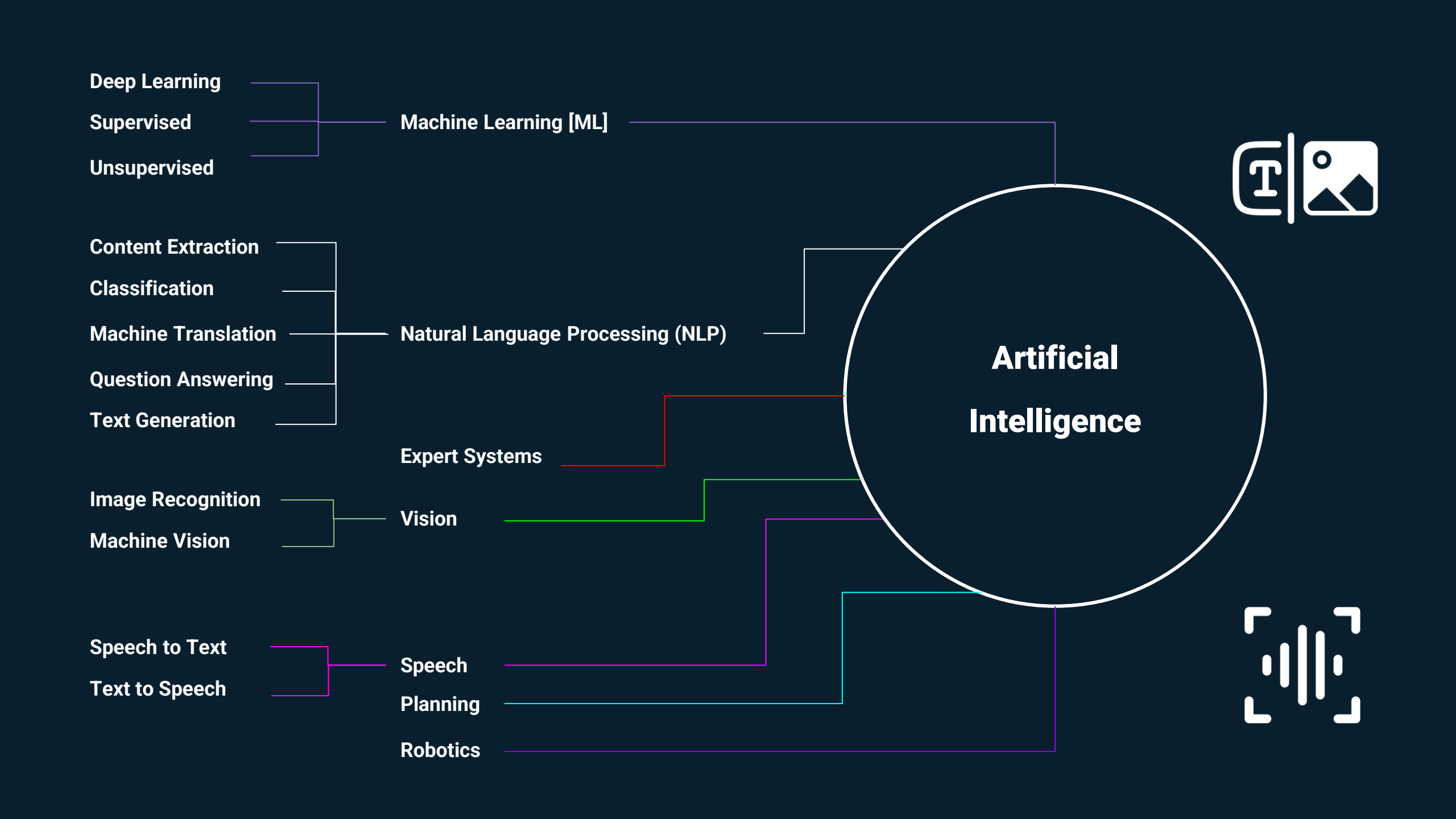
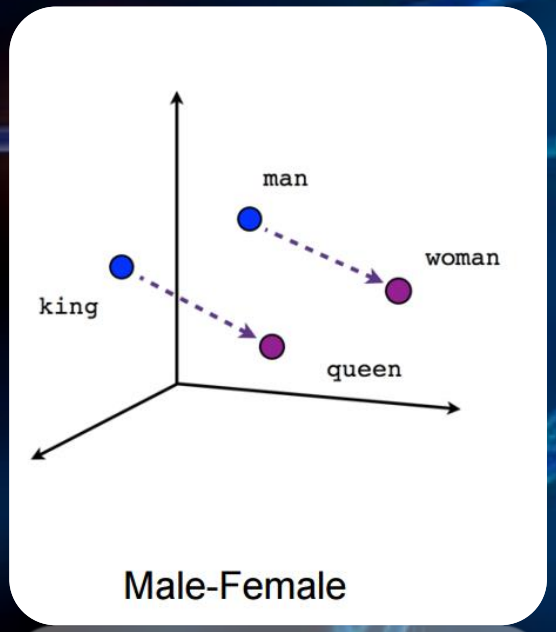
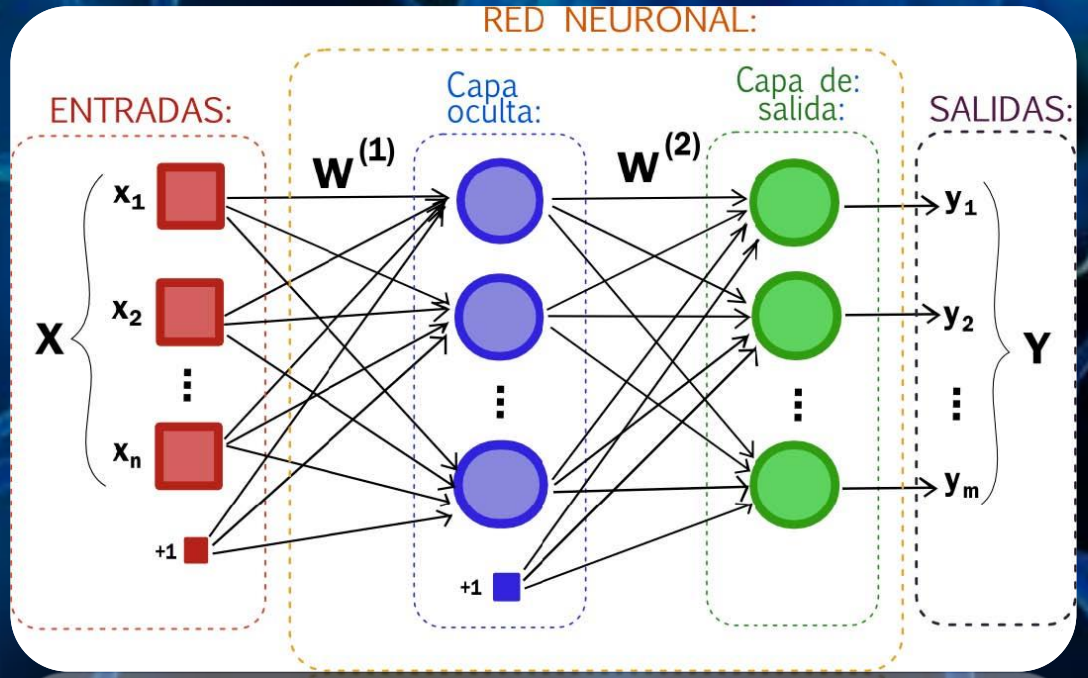
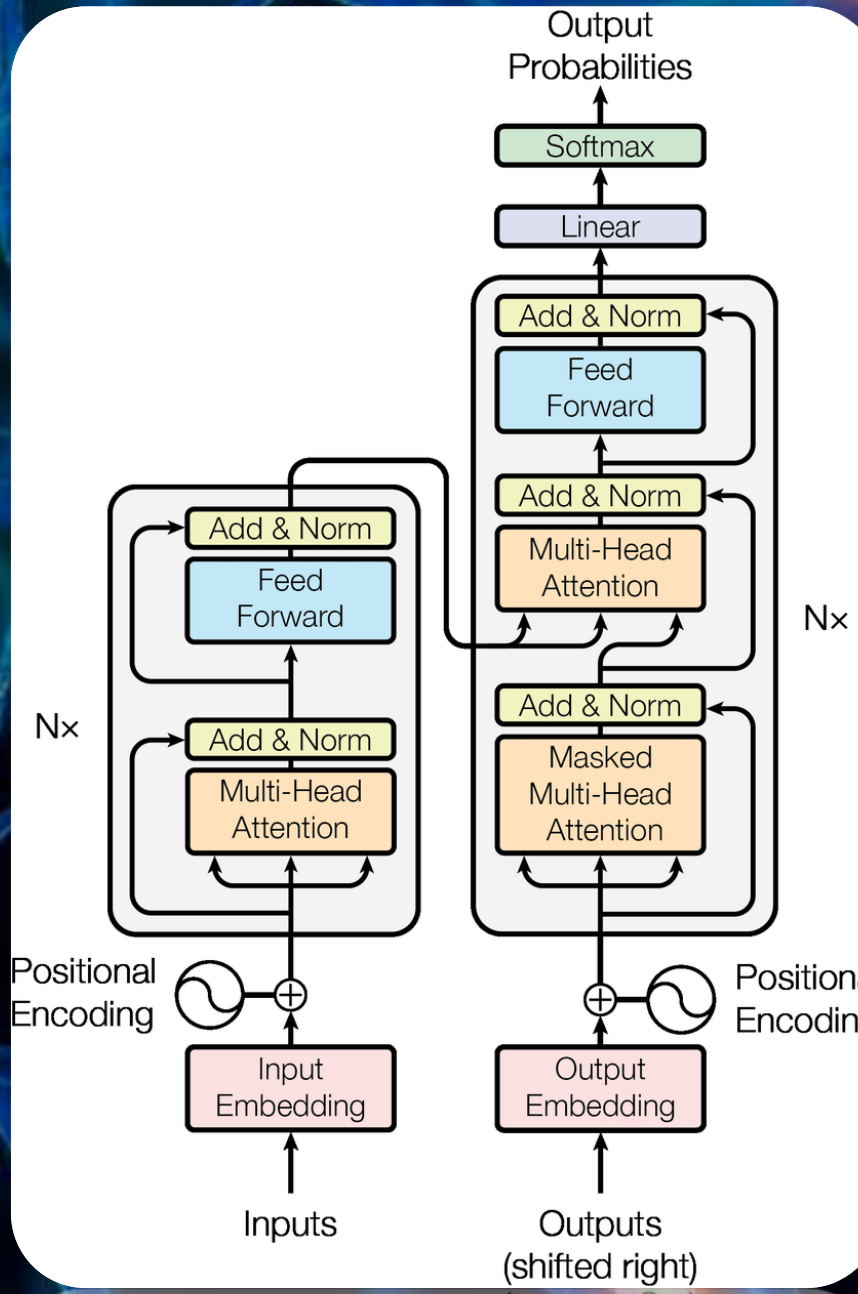
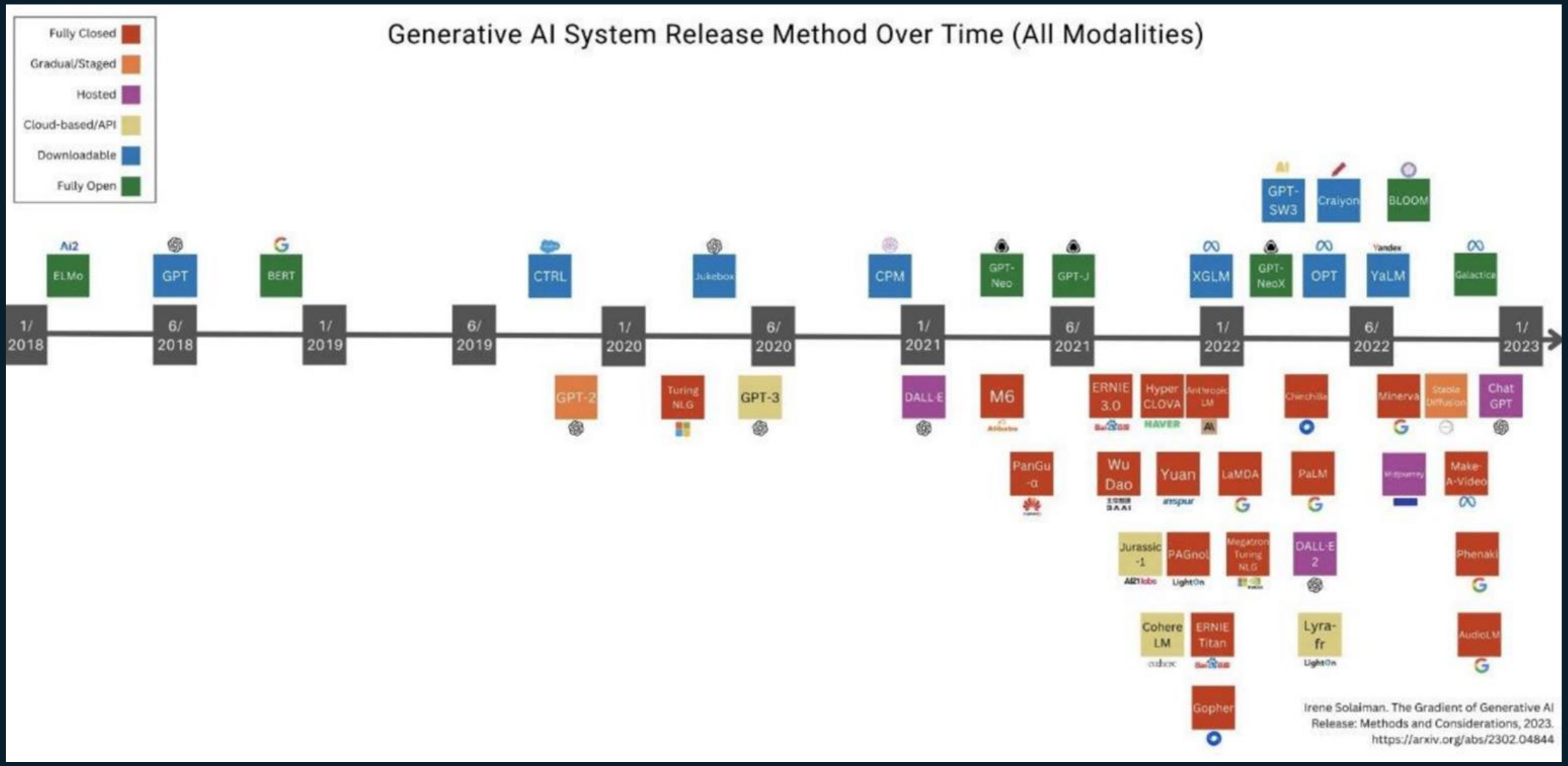

Deep Learning
Supervised
Unsupervised
Machine Learning [ML]
Content Extraction
Classification
Machine Translation
Question Answering
Text Generation
Natural Language Processing (NLP)
Expert Systems
Image Recognition
Machine Vision
Vision
Speech to Text
Text to Speech
Speech
Planning
Robotics
Artificial Intelligence

How does AI work?

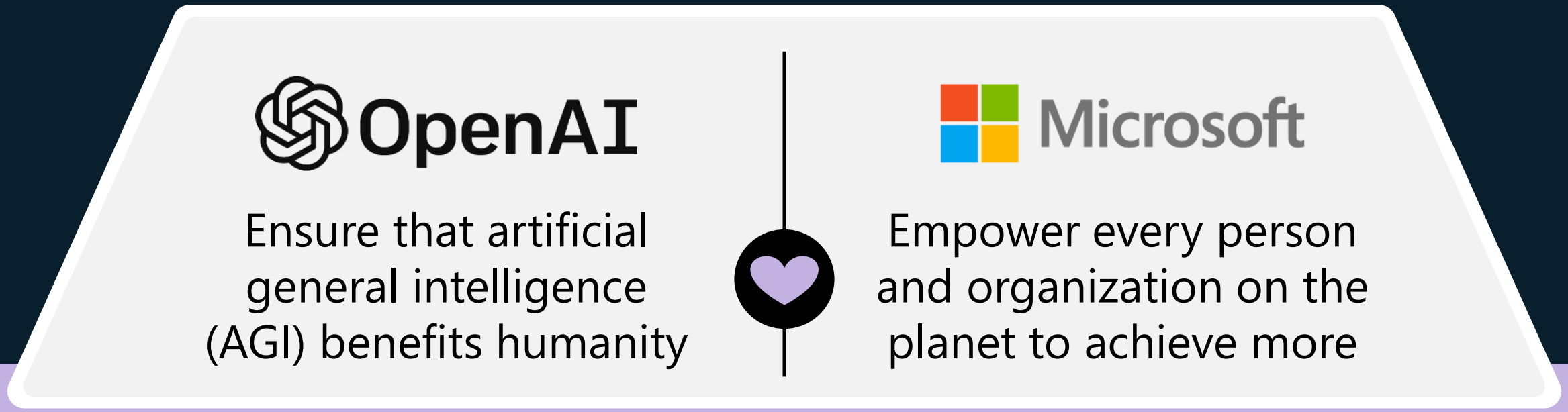







Generative AI System Release Method Over Time (All Modalities)
Fully Closed
Gradual/Staged
Hosted
Cloud-based/API
Downloadable
Fully Open
1/ 2018
6/ 2018
1/ 2019
6/ 2019
1/ 2020
6/ 2020
1/ 2021
6/ 2021
1/ 2022
6/ 2022
1/ 2023
ELMo
GPT
BERT
CTRL
Jukebox
CPM
GPT-Neo
GPT-J
XGLM
GPT-NeoX
OPT
YaLM
Galactica
GPT-SW3
Craiyon
BLOOM
GPT-2
Turing NLG
GPT-3
DALL-E
M6
ERNIE 3.0
Hyper CLOVA
Anthropic LM
Chinchilla
Minerva
Stable Diffusion
Chat GPT
PanGu -α
Wu Dao
Yuan
LaMDA
PaLM
Make-A-Video
Jurassic -1
PAGnol
Megatron Turing NLG
DALL-E 2
Phenaki
Cohere LM
ERNIE Titan
Lyra-fr
AudioLM
Gopher
Irene Solaiman. The Gradient of Generative AI Release: Methods and Considerations, 2023. https://arxiv.org/abs/2302.04844

Microsoft and OpenAI partnership



Azure OpenAI Service – as of February 20, 2023

GPT-4, 4-Turbo and 3.5-Turbo	GPT-4 Vision	Babbage and Davinci	DALL·E 3	Whisper
Language	Multi-Modal	Fine Tuning	Images	Transcription & Translation

On Your Data | Azure AI Studio | Assistants

What can we do with AI to transform Brand Management

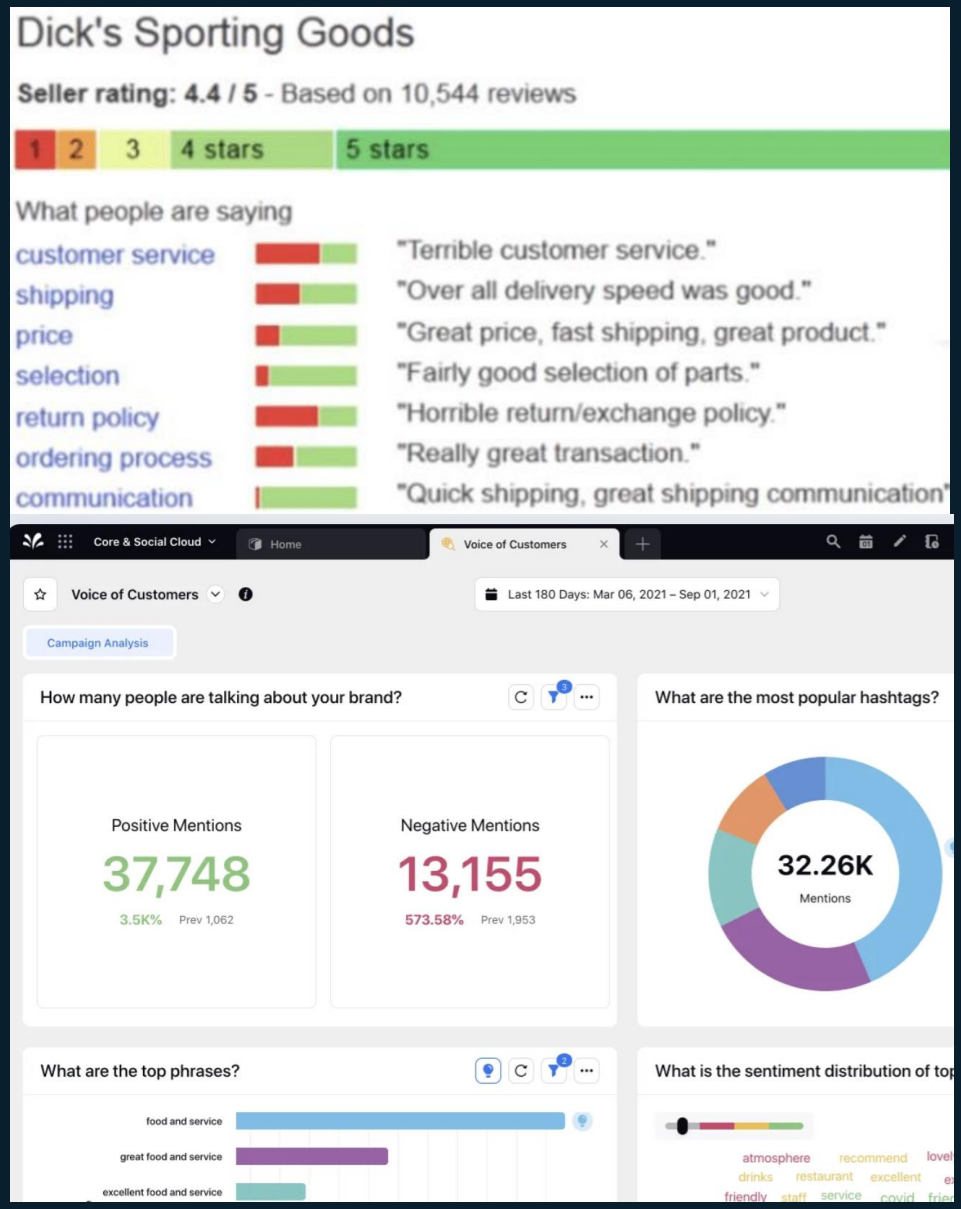
Analytics:
Reputation analysis, social media listening, customer segmentation

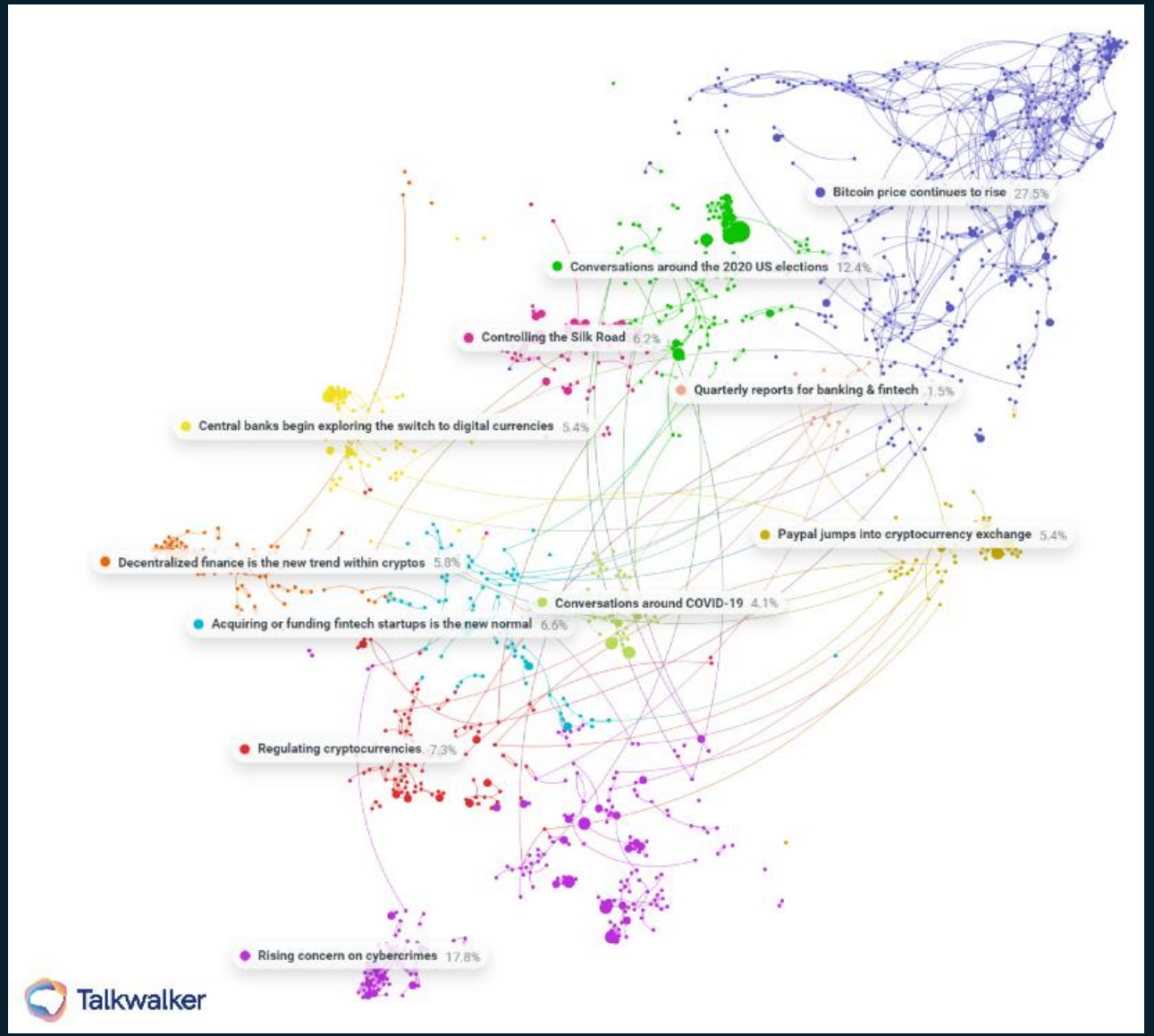
Generation:
voice, image, text, videos, logos

Customer experience:
NPS, chatbots, targeted campaigns, personalization, automation, semantic search, recommendations

Other fun ideas

Analytics and Social Media monitoring





Content Generation

Hi, Ai

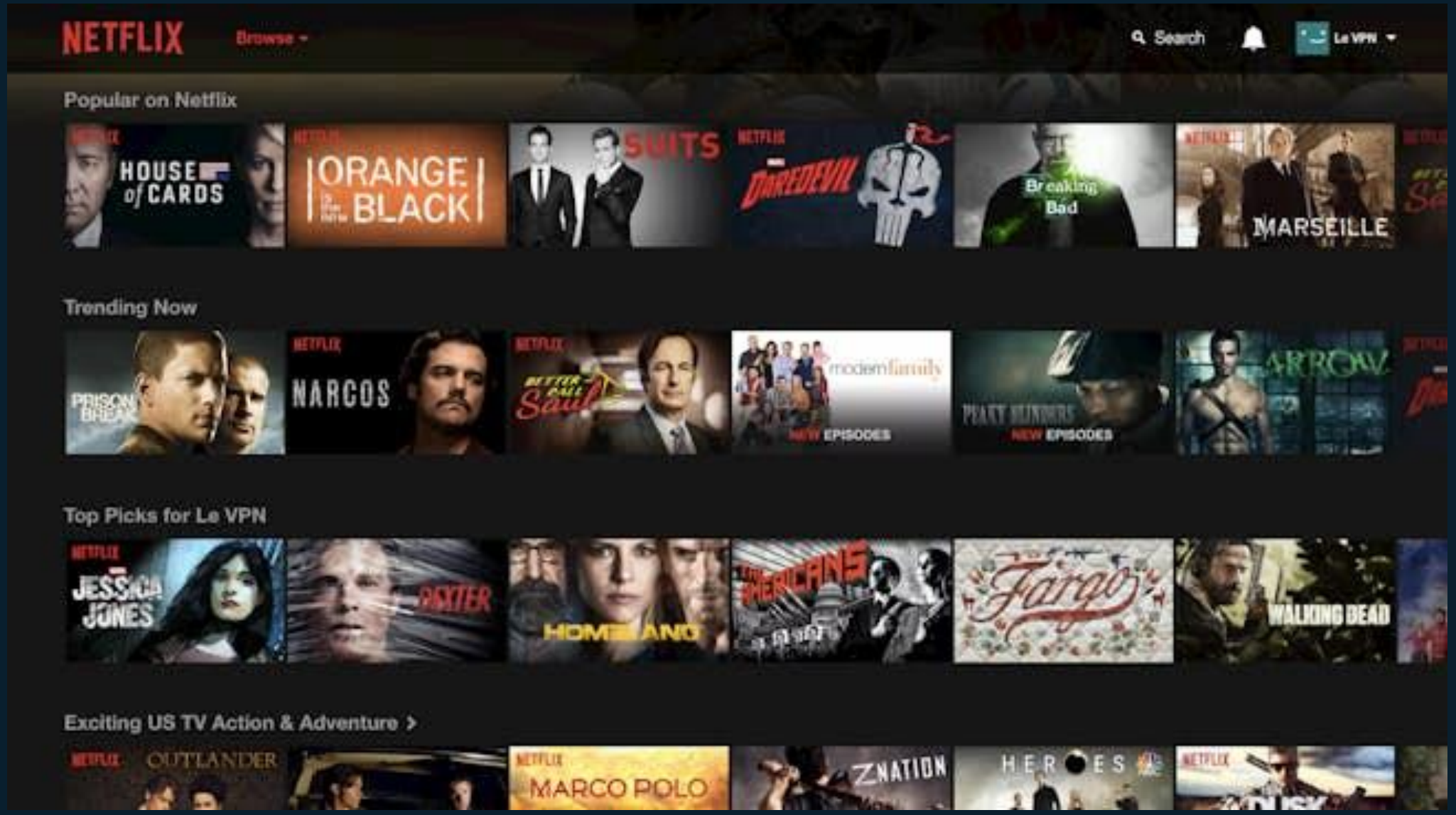
Hello! How can I assist you today?

What a perfect fried chicken suppose to be?

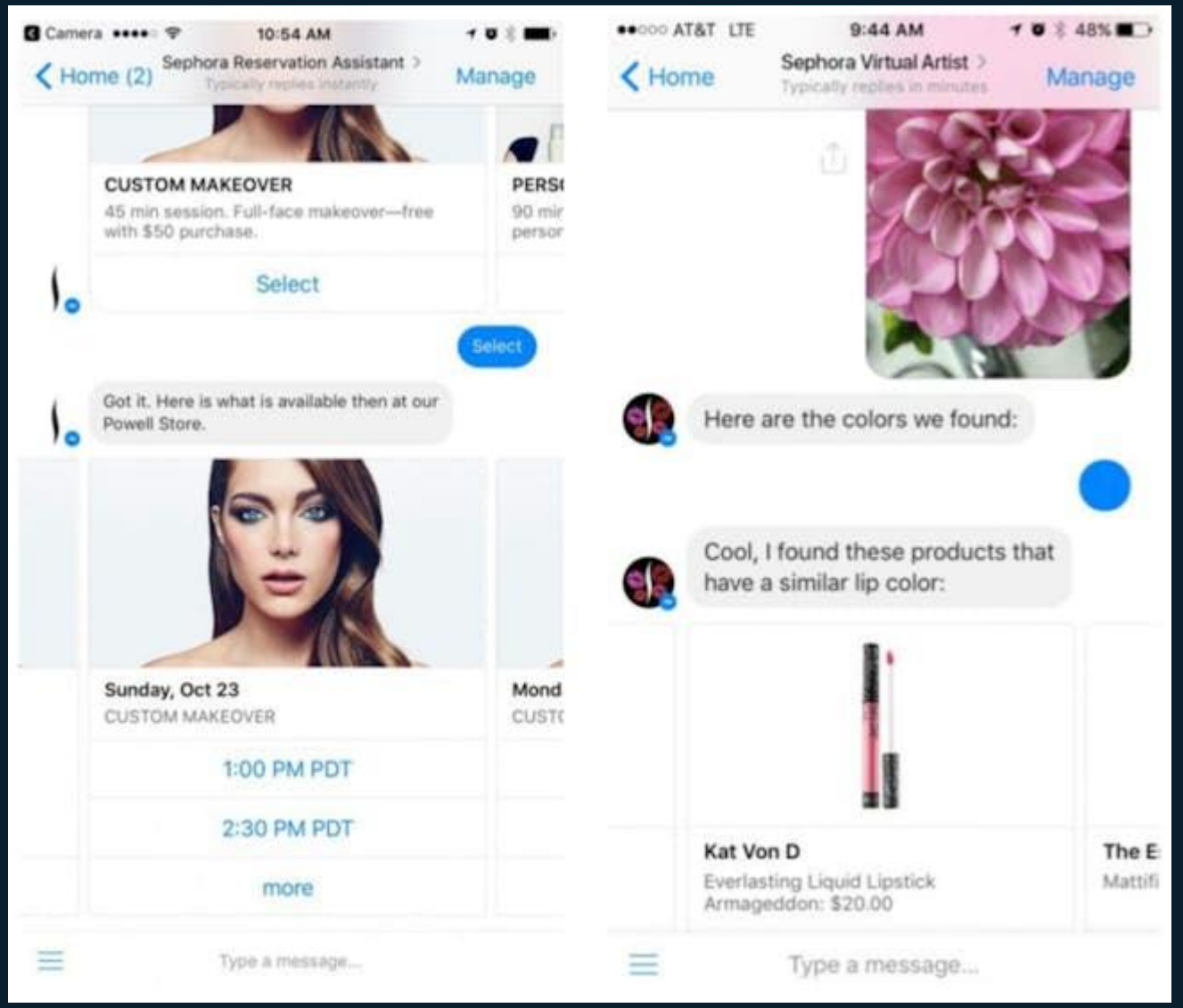
A perfect fried chicken is crispy on the outside, juicy and tender on the inside, and well-seasoned with a balanced blend of spices. The coating should be crunchy and not too thick, while the meat should be cooked through evenly

Improving the customer experience: personalization

Improving the customer experience: customized recommendations (Netflix)

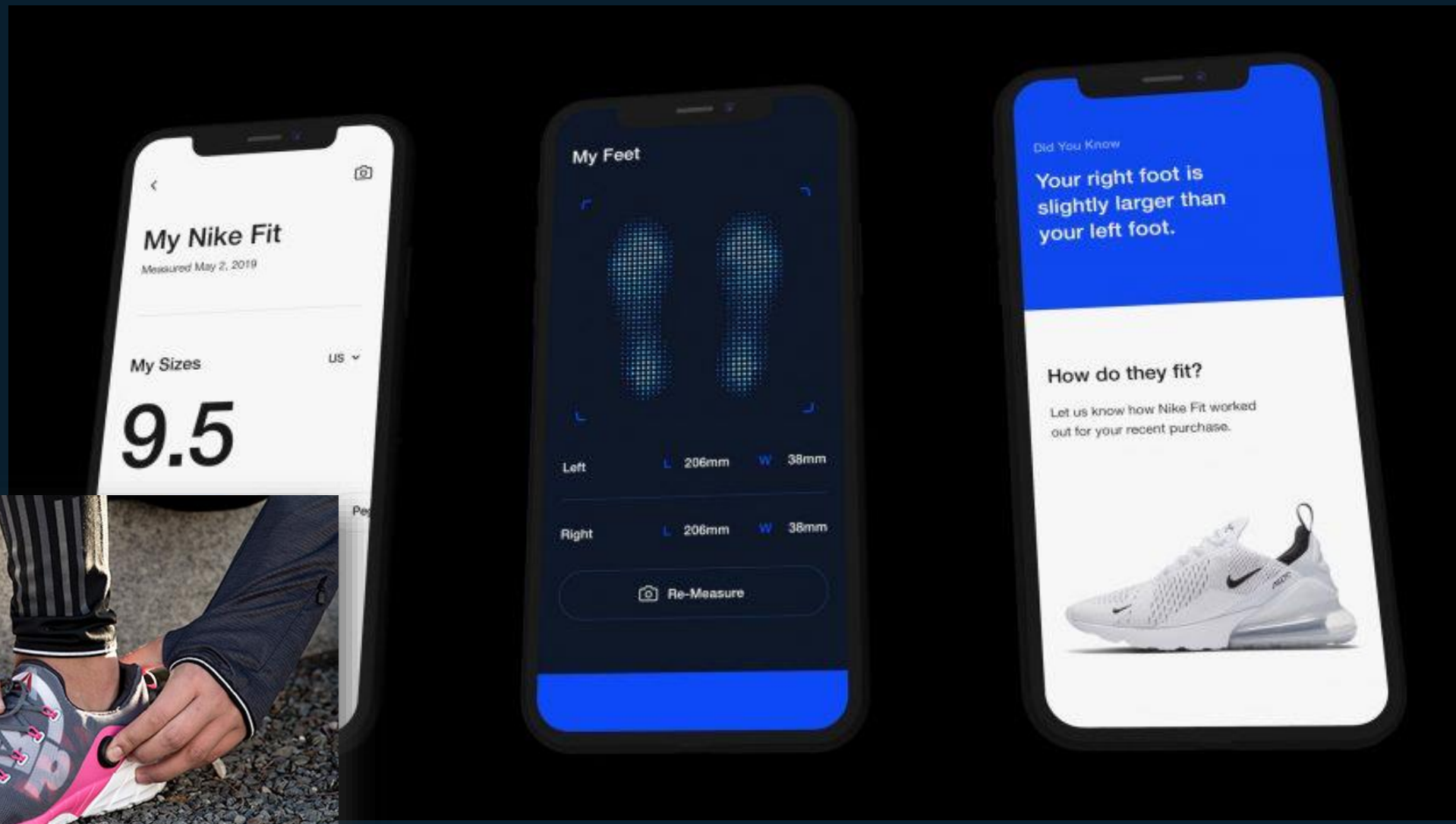


Improving the customer experience: AI-powered chatbots (Sephora)



Innovate with AI (L’Oréal)

Innovation with AI transforming their products (Reebok and Nike)




“Will robots inherit the earth?
Yes, but they will be our children”.
Marvin Minsky, Scientific Amercian
(OCtober 1994)

Microsoft

Thank You

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Will AI kill
creativity?