



Data Tolosa 2023



Ajouter des capacités IA dans une plate-forme de données en 2023

Jean-Pierre Riehl

DATA TOLOSA 2023

Merci à nos sponsors



SRA Sud-Ouest



Conseil IT





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@djeepy1

<http://blog.djeepy1.net>

MVP Data Platform
Since 2008



French Data
Community **Leader**
Since 2011

GUSS



Club Power BI



**"AI is like teenage sex...
Everyone talks about it,
Nobody really knows how to do it,
Everyone thinks everyone else is doing it,
So everyone claims they are doing it."**

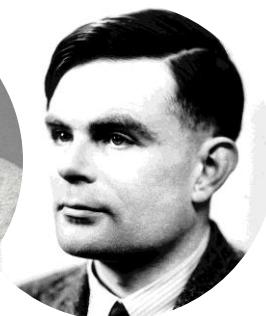
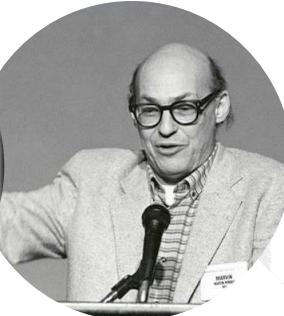
Trouvé sur Internet



Prédire

L'IA a 70 ans

Années 50, les pionniers John McCarthy, Marvin Minsky, Alan Turing posent les bases de l'intelligence artificielle



IA Symbolique

L'IA symbolique ou **IA forte** permet notamment de modéliser des idées abstraites, mais aussi d'éprouver une impression d'une réelle conscience, de « vrais sentiments », et « une compréhension de ses propres raisonnements ».

Source : Wikipedia



IA Connexionniste

L'IA connexionniste ou **IA faible** est une intelligence artificielle qui se concentre sur une tâche précise. Tous les systèmes actuellement existants sont considérés comme des intelligences artificielles faibles.

Source : Wikipedia



Skynet

VS



Paul le poulpe

Prédiction vs. Confiance

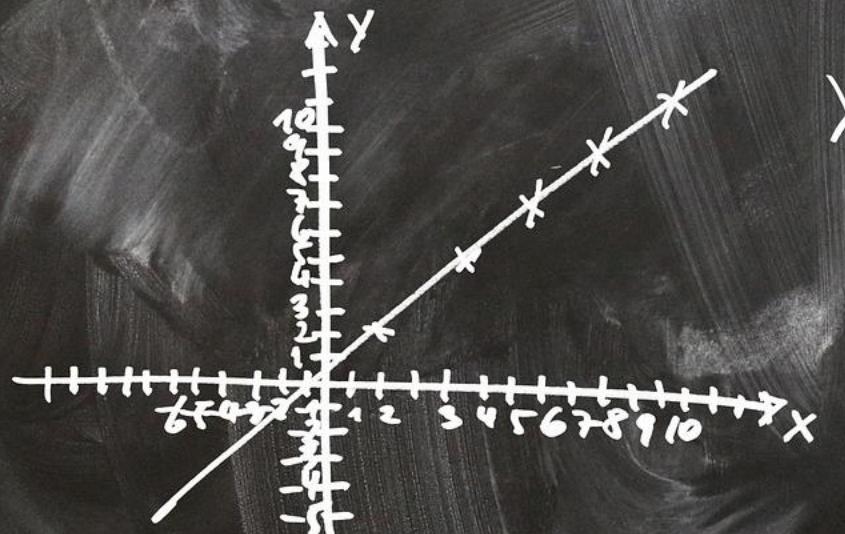


$$X_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

$$y_2 = f(x)$$

$$a = \frac{180}{\pi} \cdot x$$

$$X^2 + px + q = 0$$



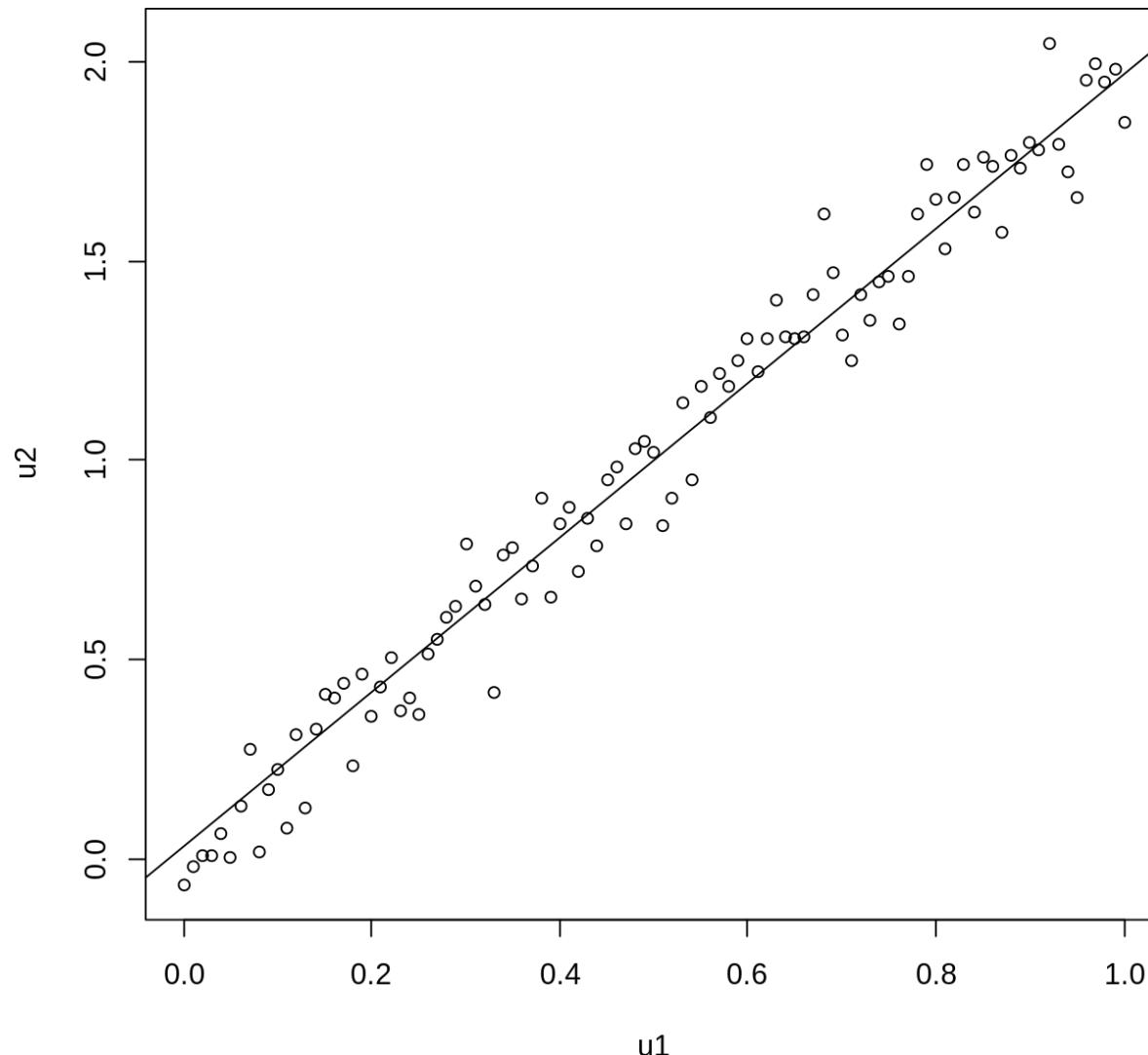
$$x = 6 - 2y$$

$$x + a = b$$

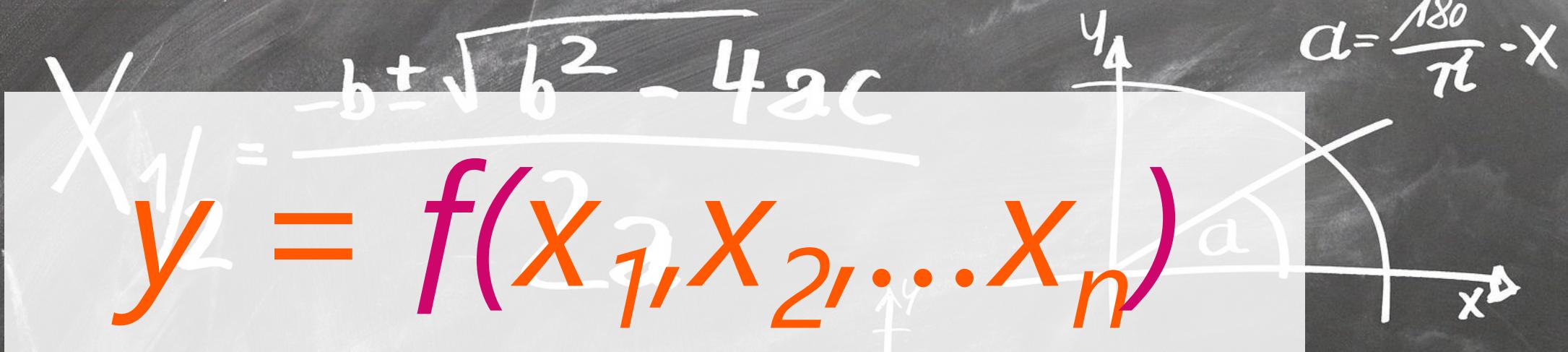
$$f(x) = \tan x$$

$$f(x) = \sin x$$

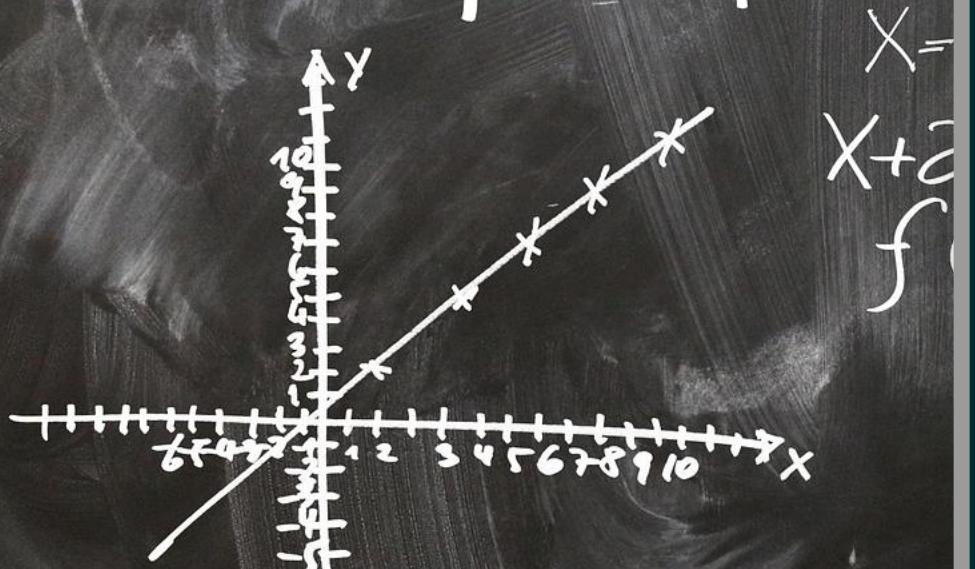
$$X_{1/2} = -\frac{p}{2} \pm \sqrt{\left(\frac{p}{2}\right)^2 - q}$$



Exemple:
Régression linéaire



$$X^2 + px + q = 0$$



VB

The Machine
Making sense of AI

OpenAI debuts gigantic GPT-3 language model with 175 billion parameters

Khari Johnson

@kharijohnson

May 29, 2020 8:34 AM



Image Pixabay



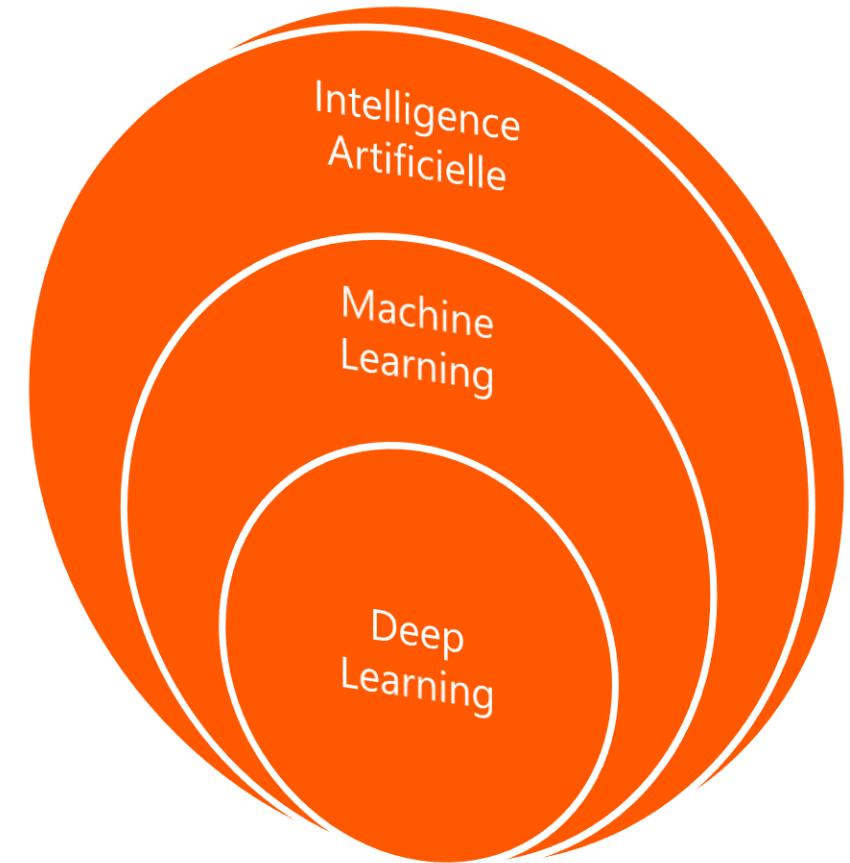
MACHINE
LEARNING



Définition du Machine Learning

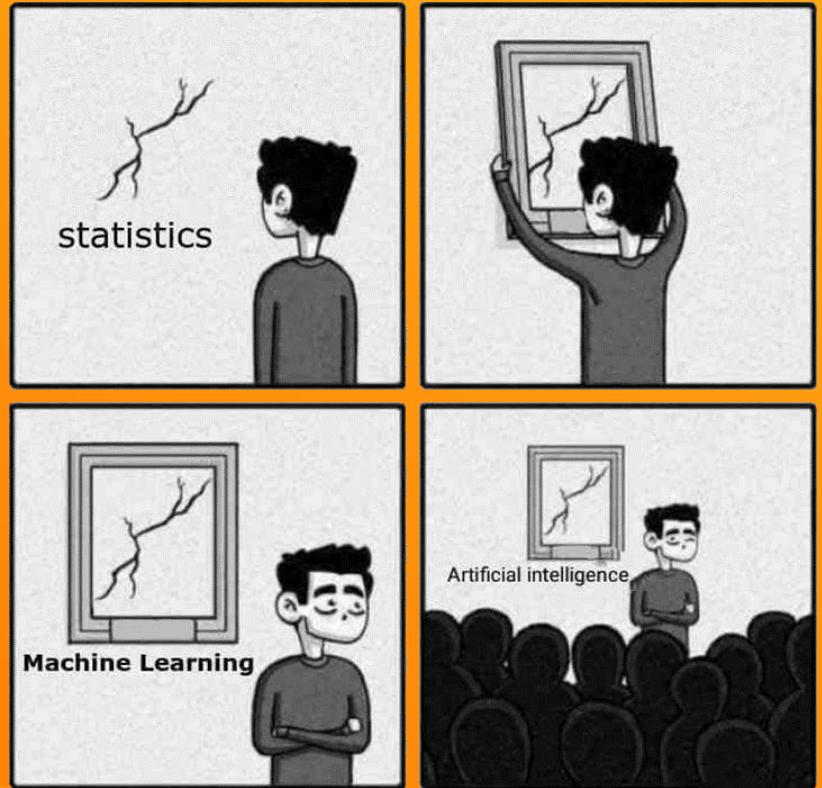
Le Machine Learning est une science qui permet de créer **automatiquement** des **modèles** à partir de **données d'exemples**.

Le Machine Learning englobe des disciplines différentes : **Transfer Learning, Reinforcement Learning, Deep Learning, GAN**, etc.



When you're fundraising, it's **AI**.
When you're hiring, it's **ML**.
When you're implementing, it's
logistic regression.

Anonymous on Twitter



A woman with long brown hair is seen from the side, working at a computer in a dark office environment. She is looking at a screen displaying code or data. In the background, another person is visible, and there are glowing blue data points floating in the air, suggesting a futuristic or analytical setting.

Pas de Data,
Pas d'IA ?

Les types de projets IA

Source : Microsoft - Livre blanc: Guide de survie de l'Intelligence Artificielle.



Solutions
“clé en main”

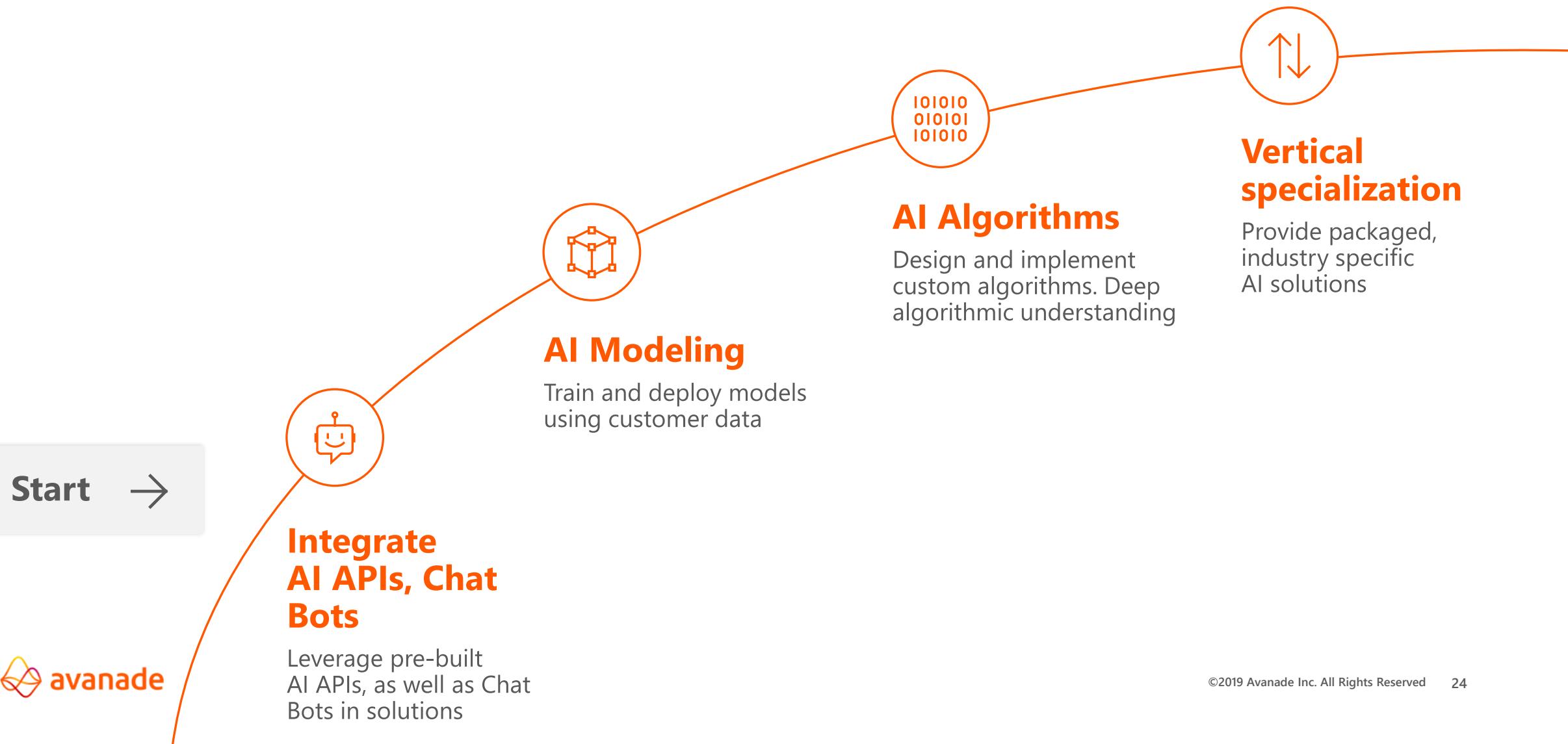


Algorithmes
Pré-packagés



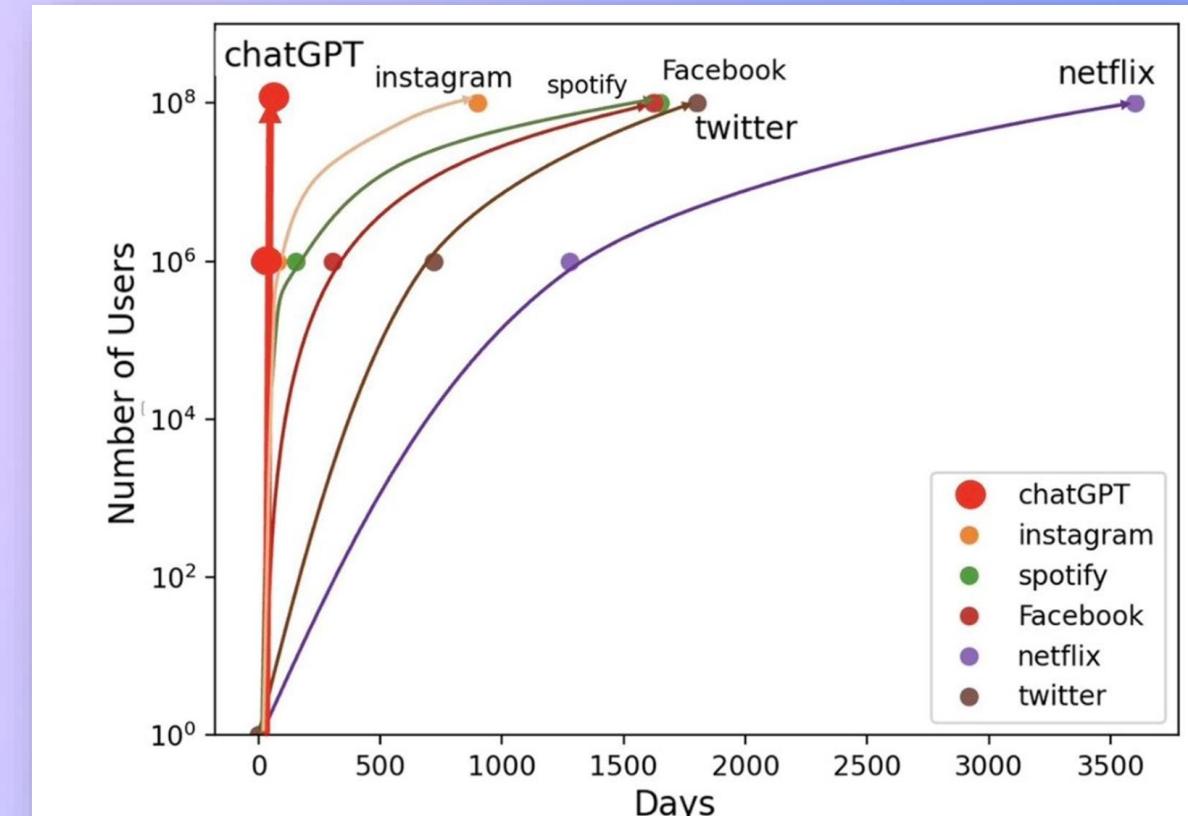
Développer son
modèle prédictif

Votre voyage dans l'IA



chatGPT :
100 millions
d'utilisateurs actifs en
1 mois

Source UBS



Source : Kyle Hailey

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



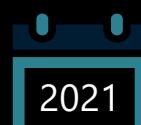
Machine Learning

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



Deep Learning

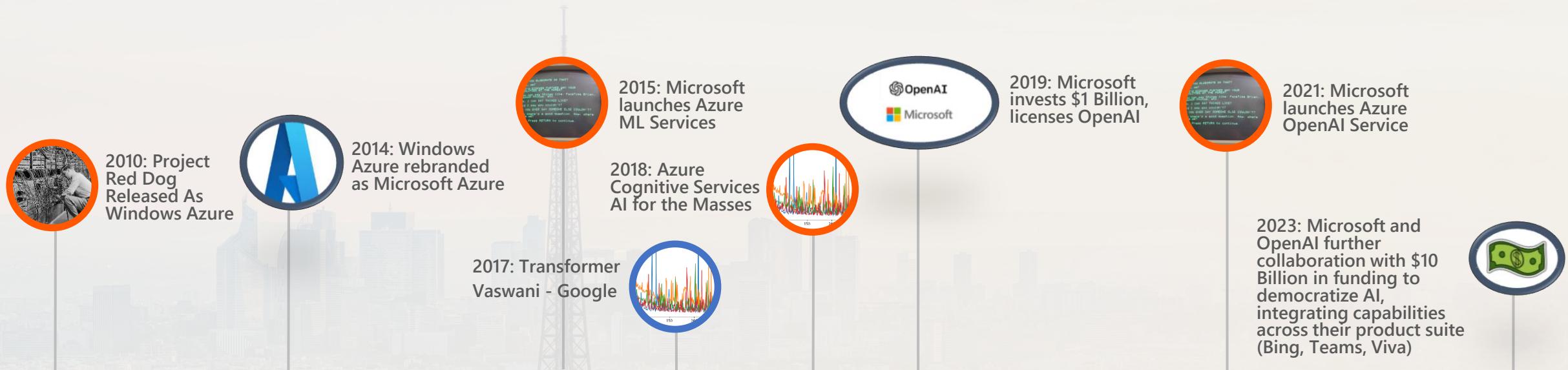
a machine learning technique in which layers of neural networks are used to process data and make decisions



Generative AI

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

History of Microsoft Azure and OpenAI



Key points:

- Réseaux de neurones
- Deep Learning
- Transformer
- Embeddings
- GPT
- LLM
- Tokens

2015: OpenAI is founded as an open-source, non-profit AI research laboratory



2019: OpenAI goes for-profit, opening up funding opportunities



2020: OpenAI Releases GPT-3 Generative Pre-Trained AI



2021: OpenAI Releases DALL-E generating pictures from words

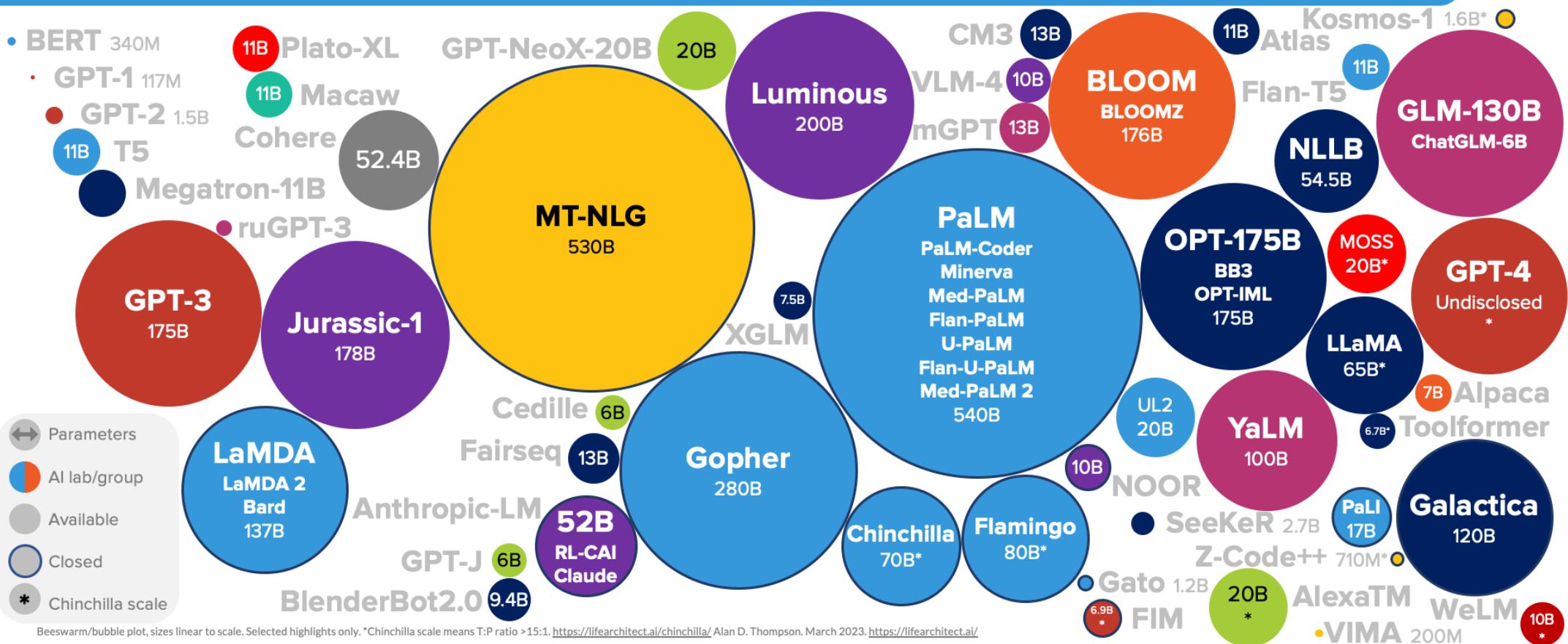


2022: OpenAI sets the world on fire with ChatGPT



Source : Avanade

LANGUAGE MODEL SIZES TO MAR/2023



« I think we have to view [GPT] as a - potentially surprising - scientific discovery: that somehow in a neural net like ChatGPT's it's possible to capture the essence of what human brains manage to do in generating language. »

Stephen Wolfram, PhD CalTech (1979), MacArthur Fellowship (1981)

Personnalisation des LLMs

Prompt
Engineering

Embeddings

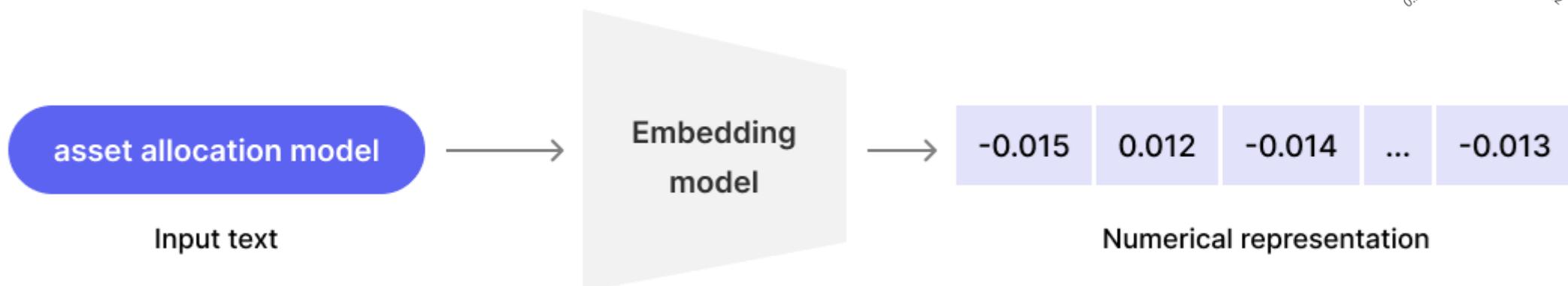
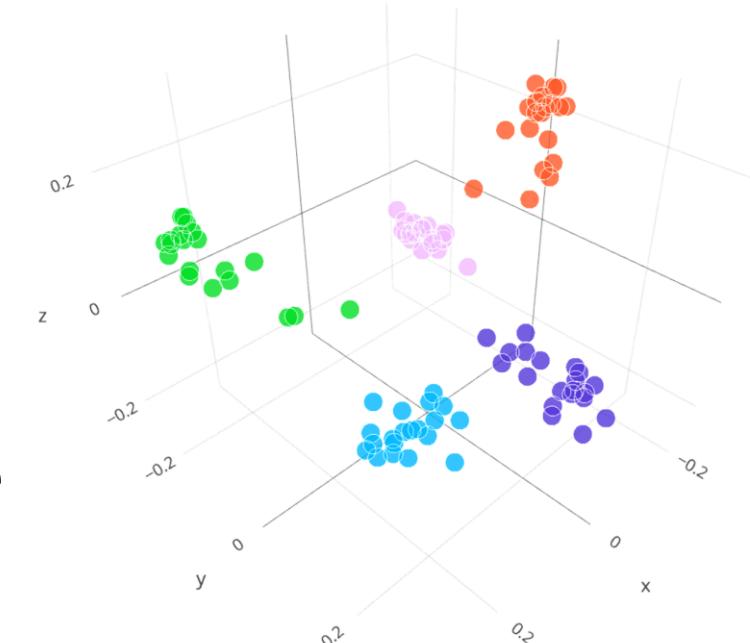
Fine-Tuning



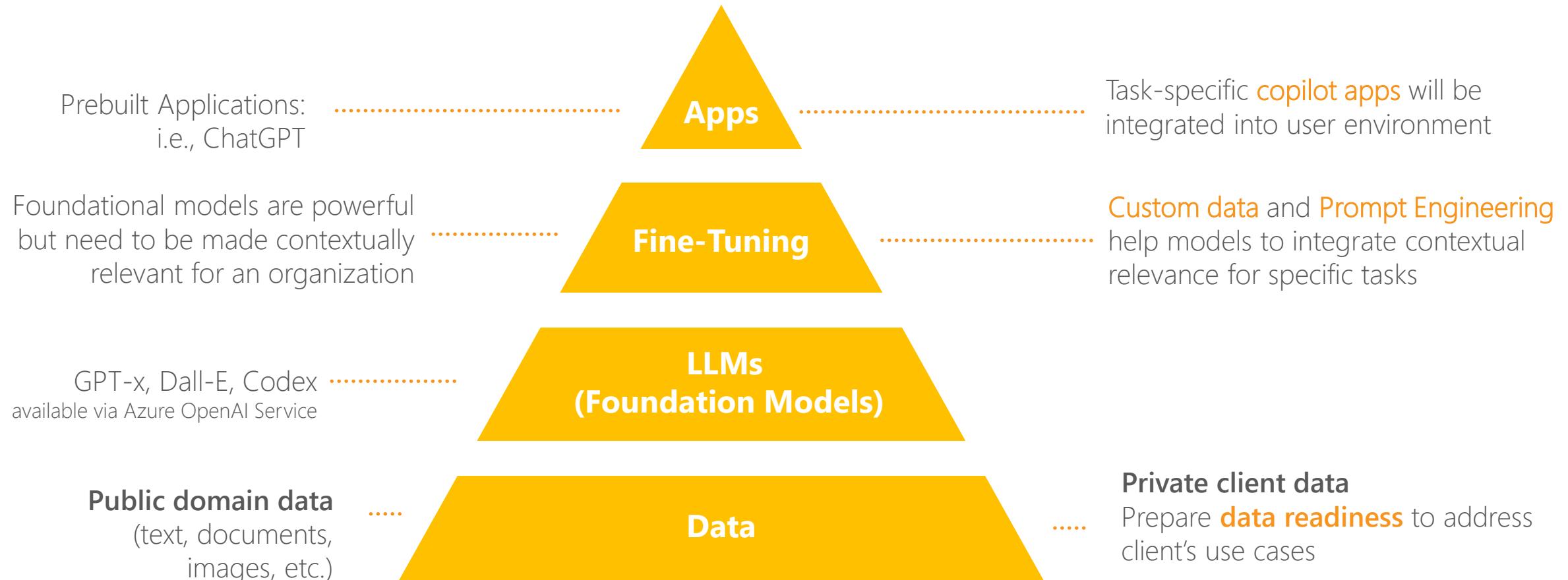
Embeddings

Les embeddings sont des **représentations vectorielles d'objets** qui sont utilisées pour capturer des **informations sémantiques** et des relations entre les objets.

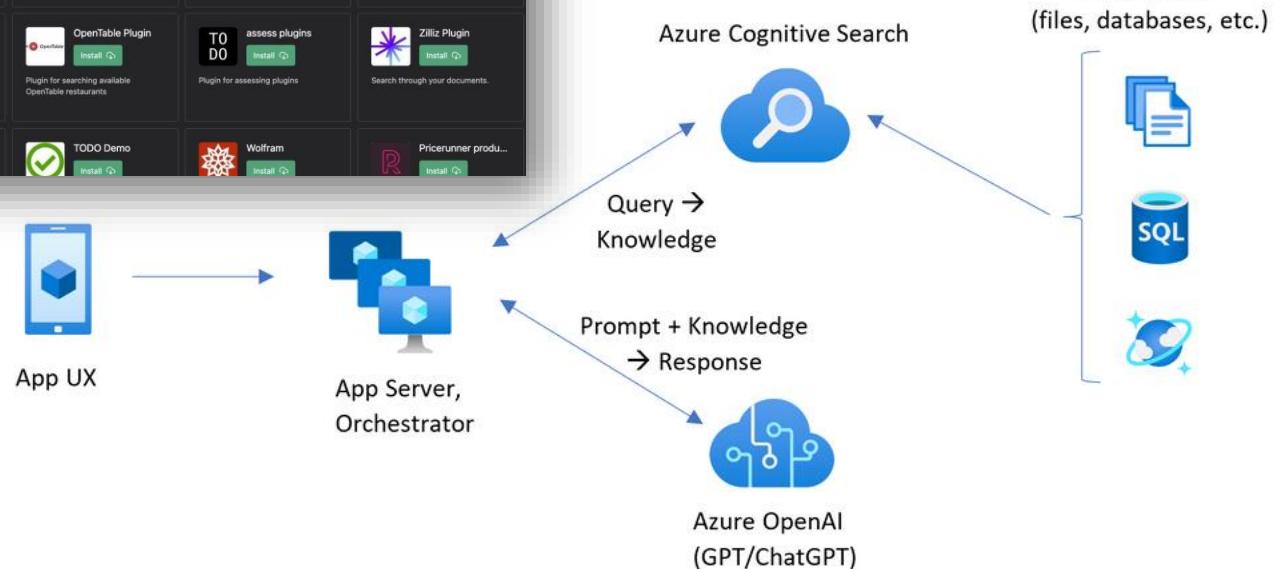
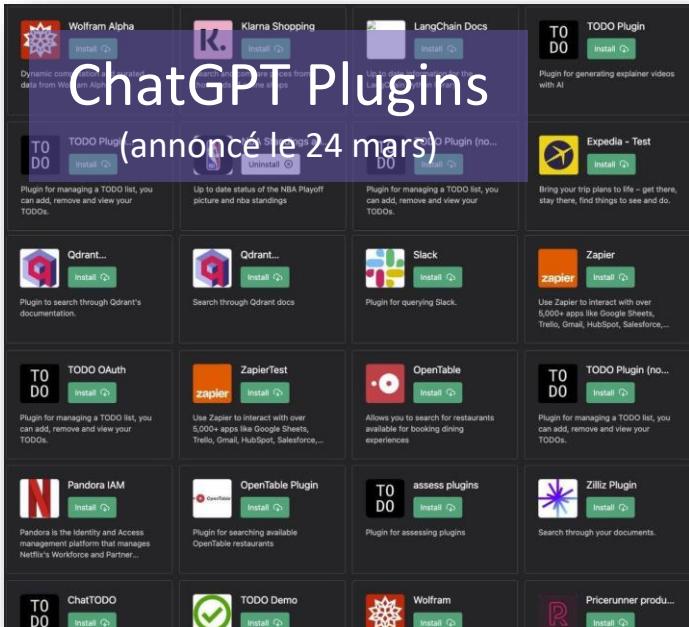
Les embeddings peuvent être utilisés pour des tâches telles que la classification, la prédiction et la détection de relations.



How to benefit from Generative AI



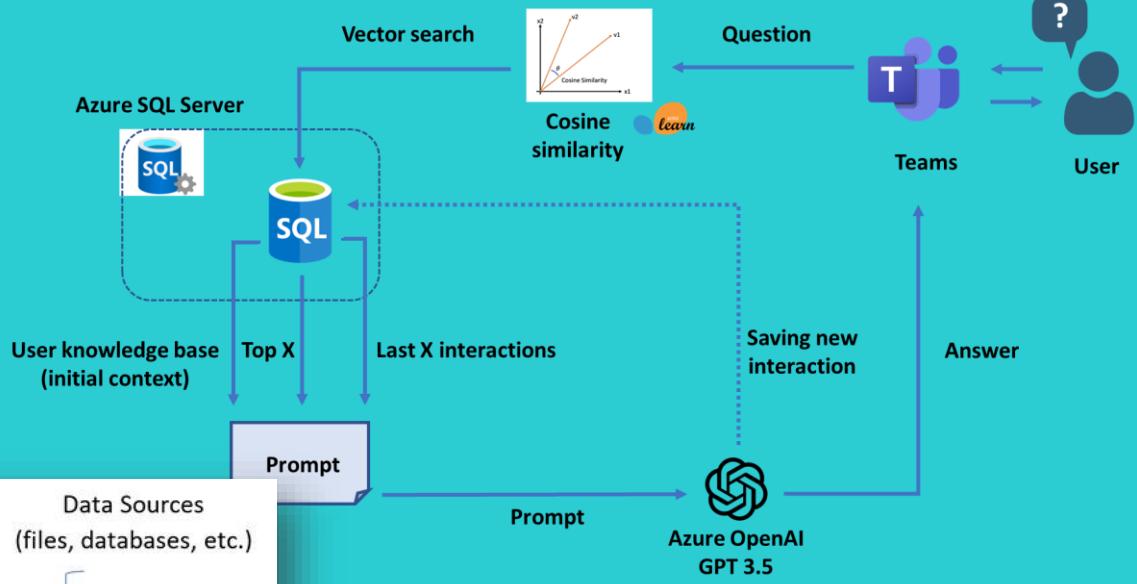
Exemples d'intégration



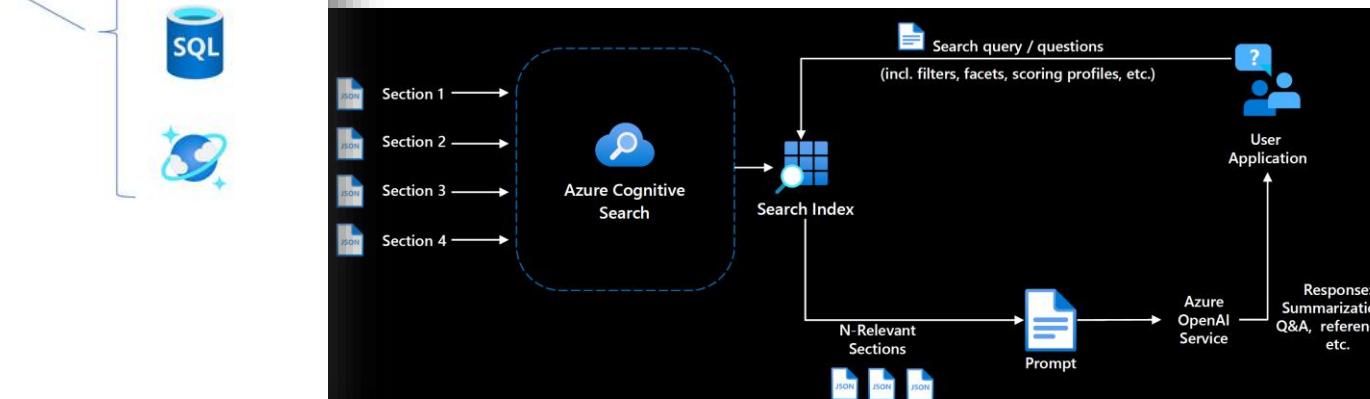
Source : Microsoft Community Hub

[Revolutionize your Enterprise Data with ChatGPT: Next-gen Apps w/ Azure OpenAI Service](https://www.microsoft.com/en-us/microsoft-365/ai-enterprise-data-with-chatgpt)

Epoch friendly bot project : Architecture



Source : Jonathan Pacifico - Avanade



Azure AI

Applications

Microsoft 365

Microsoft Dynamics 365

Partner Solutions

Application Platform AI Builder



Power BI



Power Apps



Power Automate



Power Virtual Agents

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

Azure OpenAI Service

ML Platform



Azure Machine Learning



Business
Users



Developers &
Data Scientists

Announcing

Azure AI Studio



Build and
train your
own models



Ground Azure
OpenAI Service
and OSS models
using your data



Built-in
vector
indexing



Retrieval
augmented
generation
made easy



Create
prompt
workflows



AI safety
built-in



Azure AI

AI you can trust

Your Azure OpenAI Service instance
is isolated from every other customer

Your data is not used to train the
foundation AI models

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



Announcing

Prompt flow in Azure AI

Orchestrates AI models,
prompts, and APIs

Support for prompt tuning
and experimentation

Blue/green deployments
and testing

Supports Semantic Kernel,
LangChain, Plugins



Responsible AI with Azure



Sarah Bird

Partner GPM, Responsible AI

Mitigation Layers

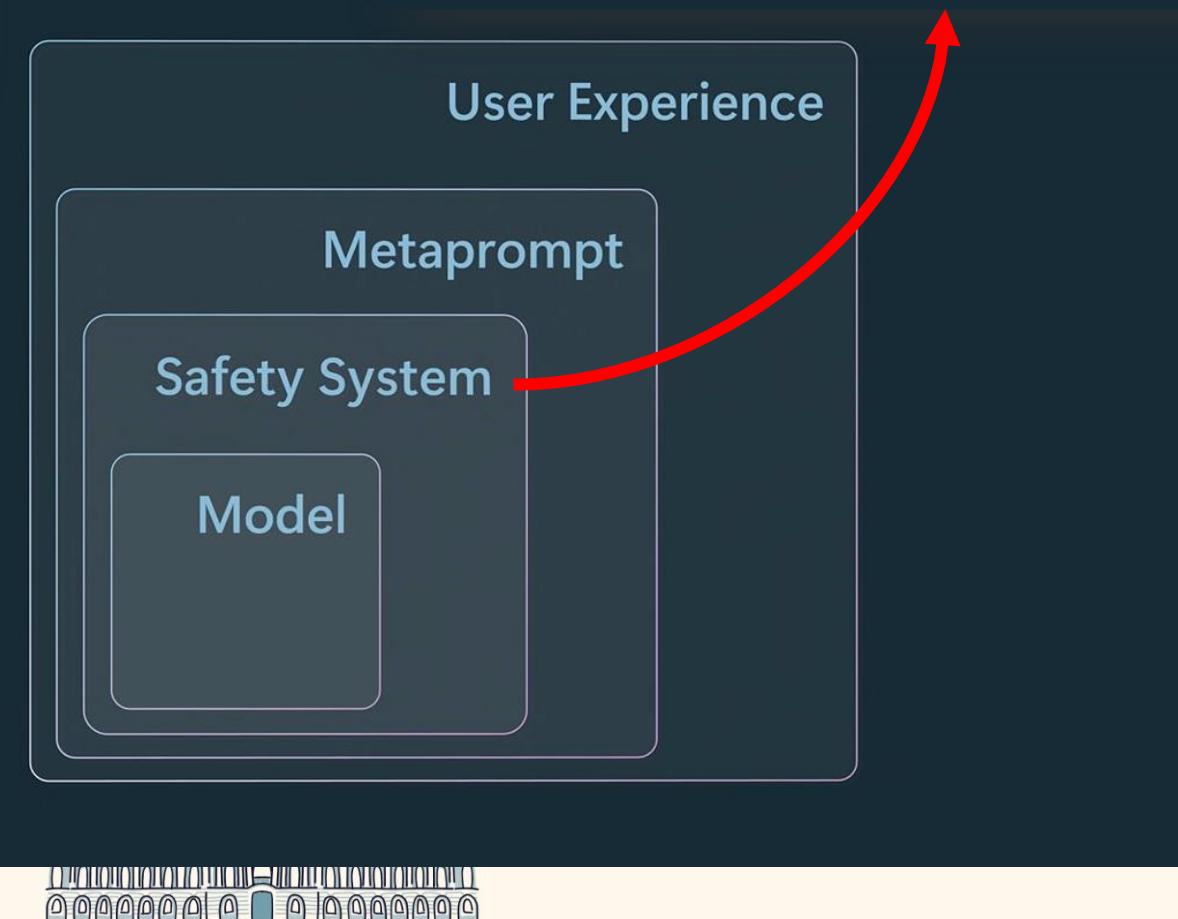
Announcing

Azure AI Content Safety

Detect and assign severity scores to unsafe content

Works on human and AI generated content

Integrated across Azure AI





Des questions ?
Et merci de votre attention.