

Ready4AI

« *Defining Artificial Intelligence* »

C.DELOGNE

16.05.2022



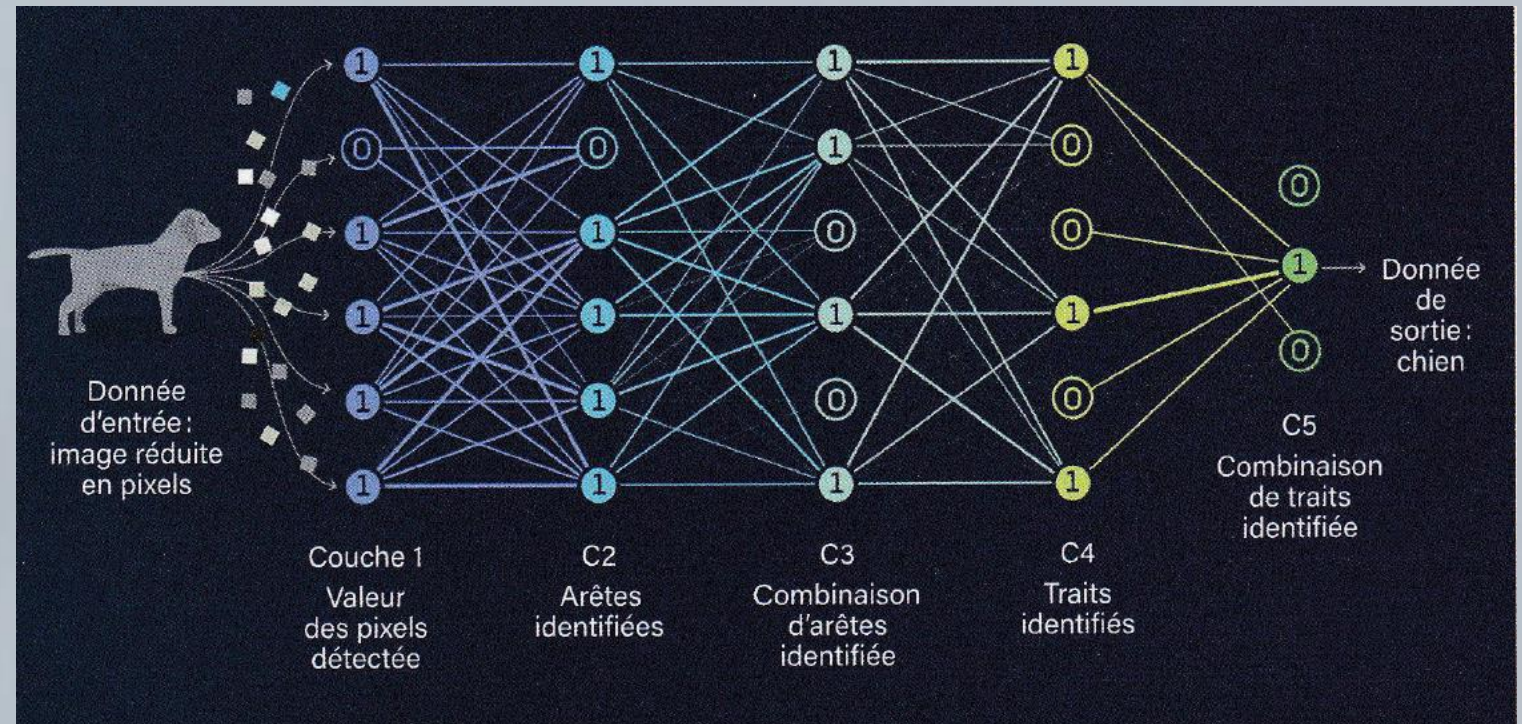


What is Artificial Intelligence ?

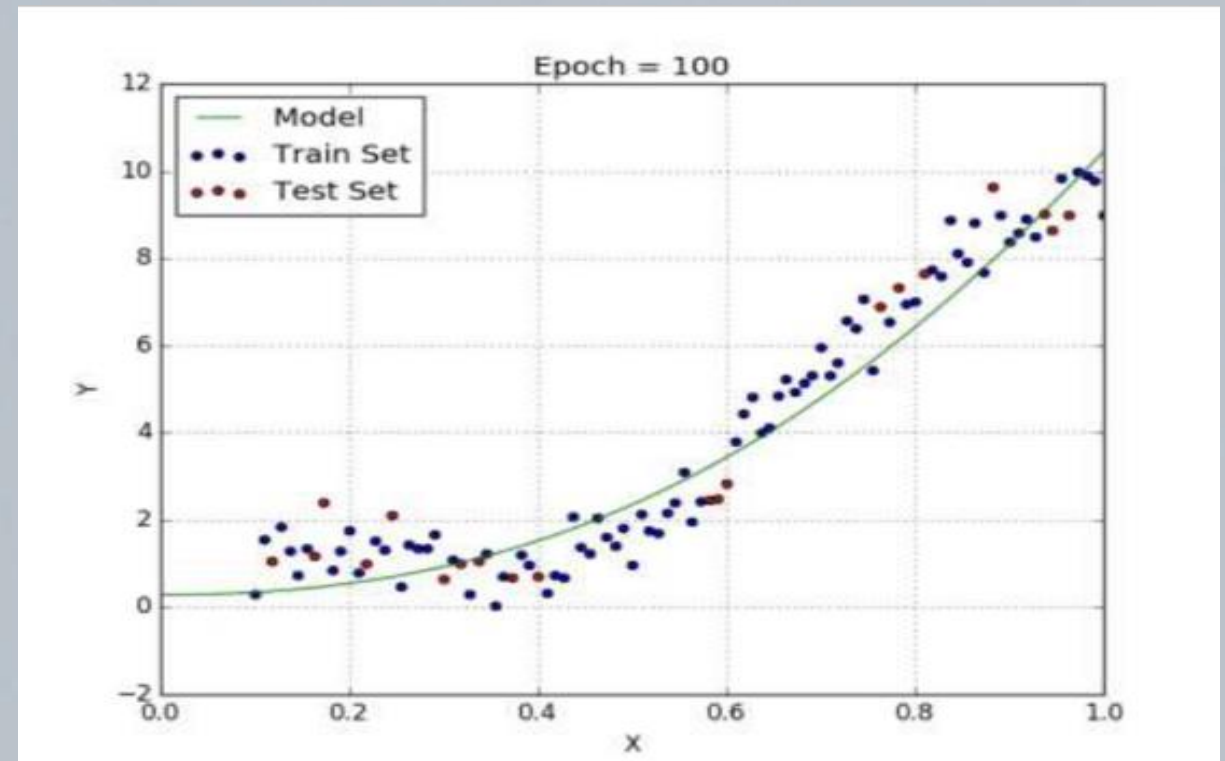


AI is
mimicking the human
behaviour

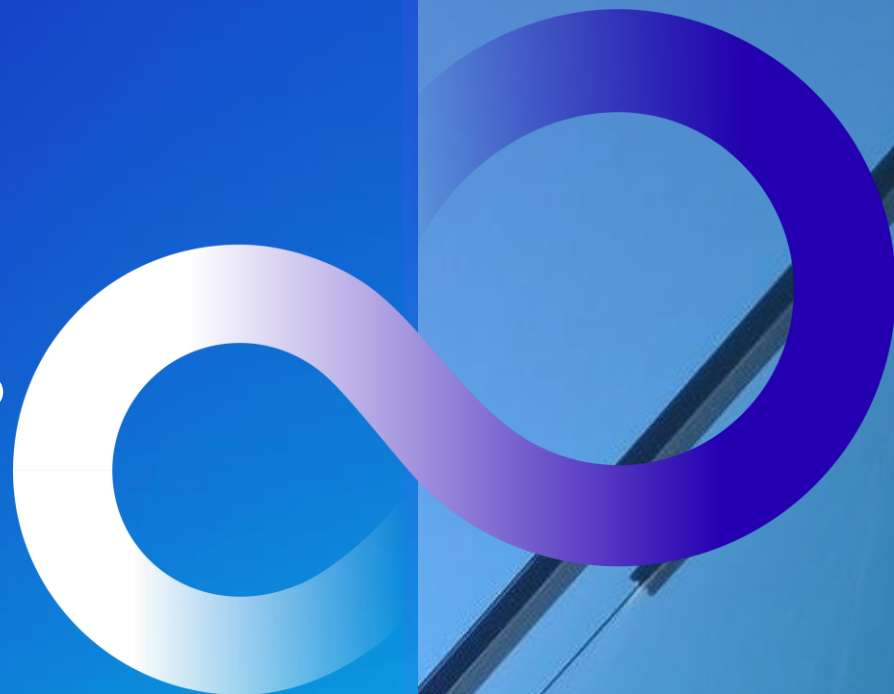
AI is



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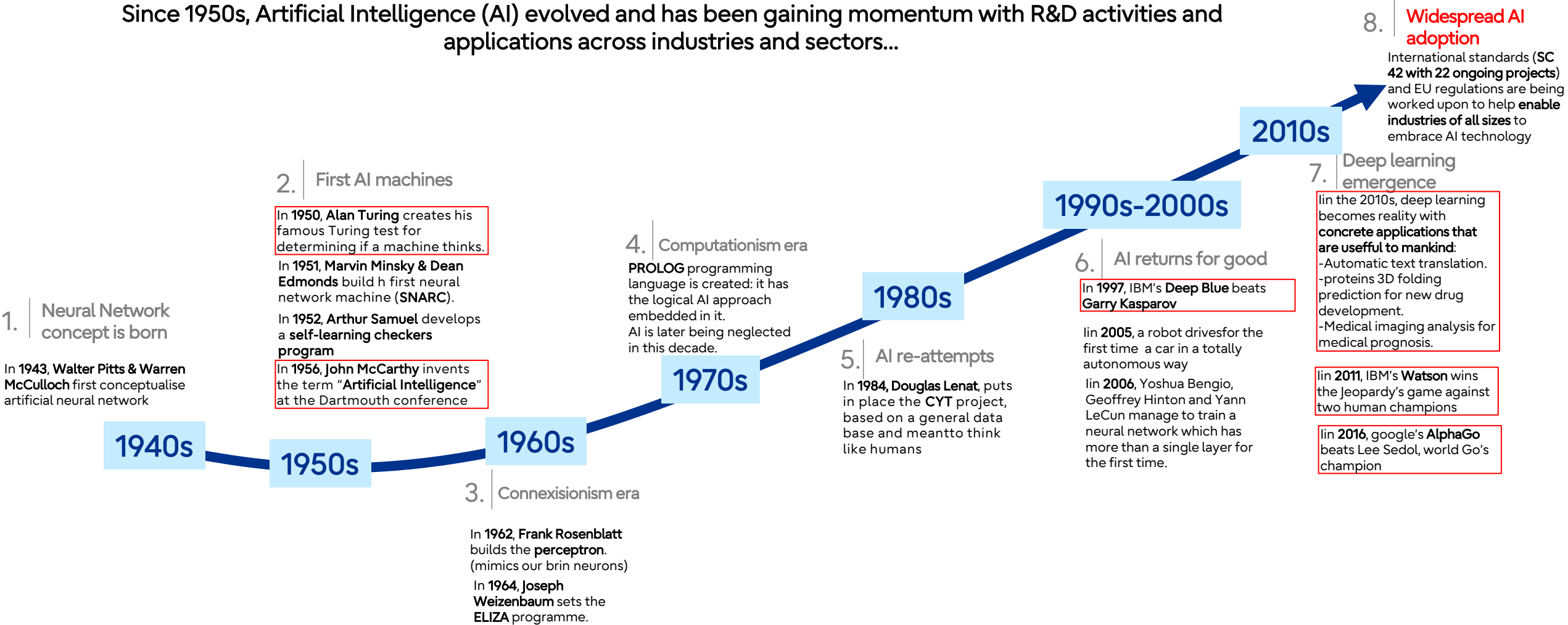


Artificial Intelligence (AI) A Definition or Definitions?



AI Genesis

Since 1950s, Artificial Intelligence (AI) evolved and has been gaining momentum with R&D activities and applications across industries and sectors...



AI Genesis

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1. Neural Network concept is born

In 1943, **Walter Pitts & Warren McCulloch** first conceptualise artificial neural network

1940s



In 2011, **Watson** computer (IBM) wins the famous Jeopardy game. It manages to answer questions asked in natural language, understands the meaning of words and knows if one needs to

1990s-2000s

6. AI returns for good

In 1997, IBM's **Deep Blue** beats **Garry Kasparov**

In 2005, a robot drives for the first time a car in a totally autonomous way

In 2006, **Yoshua Bengio**, **Geoffrey Hinton** and **Yann LeCun** manage to train a neural network which has more than a single layer for the first time.

2010s

7. Deep learning emergence

In the 2010s, deep learning becomes reality with **concrete applications that are useful to mankind**:
-Automatic text translation.
-proteins 3D folding prediction for new drug development.
-Medical imaging analysis for medical prognosis.

In 2011, IBM's **Watson** wins the Jeopardy's game against two human champions

In 2016, google's **AlphaGo** beats **Lee Sedol**, world Go's champion

8. Widespread AI adoption

International standards (SC 42 with 22 ongoing projects) and EU regulations are being worked upon to help **enable industries of all sizes** to embrace AI technology

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To the right in the picture: Lee Sedol, Go world champion against AlphaGo program

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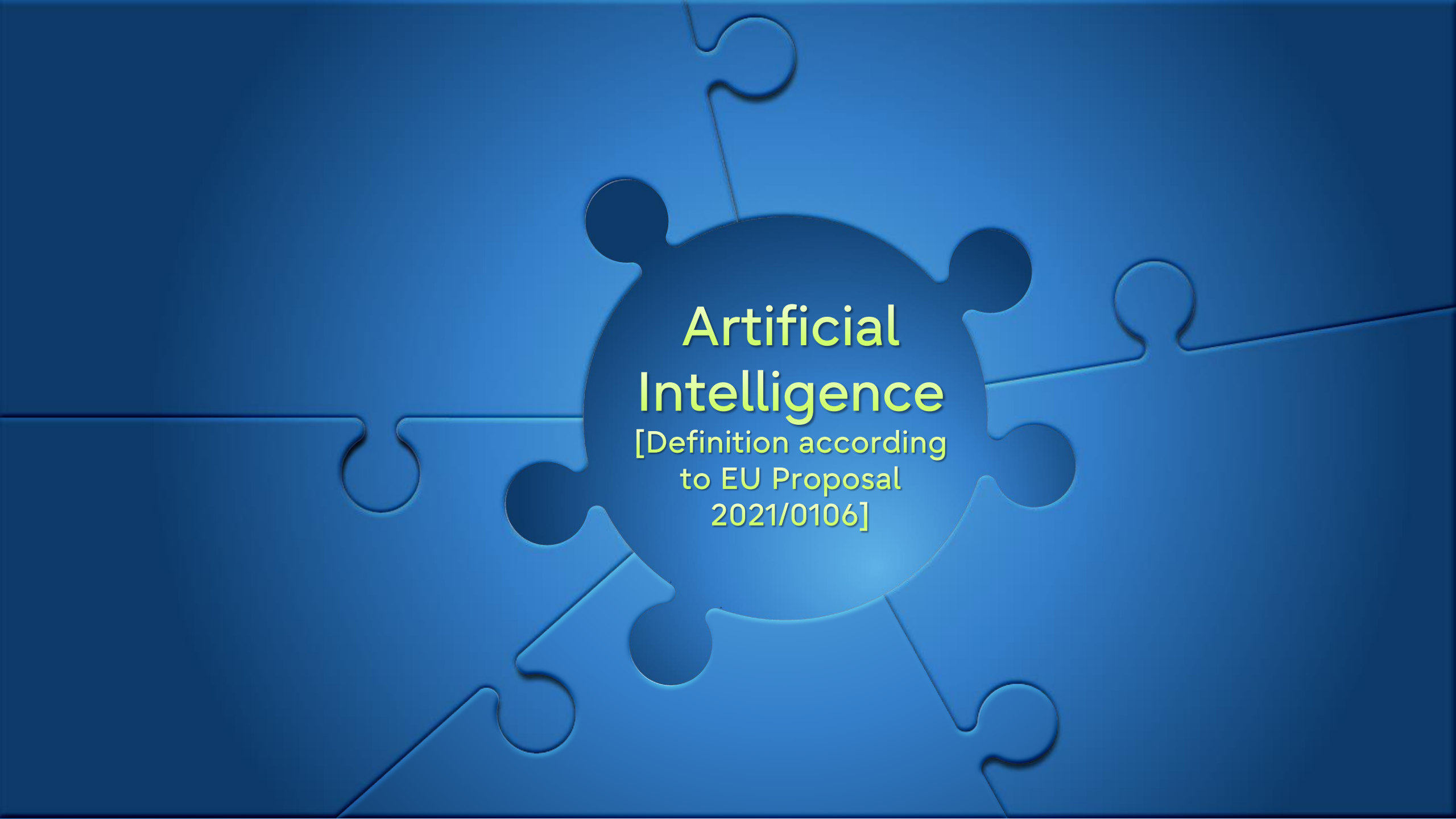
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Artificial Intelligence

[Definition according
to EU Proposal
2021/0106]

Machine Learning

«Approches d'apprentissage automatique, y compris d'apprentissage supervisé»

Examples: Linear Regression, Logistic Regression, Decision Tree, Random Forest, SVM, Neural Networks
Survival Analysis (Kaplan Meier, Cox Regression Modelling)

Machine Learning

«Approches d'apprentissage automatique, y compris d'apprentissage non-supervisé»

Examples: K-means Clustering, Principal Component Analysis

Artificial Intelligence [Definition according to EU Proposal 2021/0106]

Machine Learning

«(...) utilisant une grande variété de méthodes, y compris l'apprentissage profond »

Logic-Based

«la programmation inductive (logique), les bases de connaissances, les moteurs d'inférence et de déduction, le raisonnement (symbolique) et les systèmes experts »

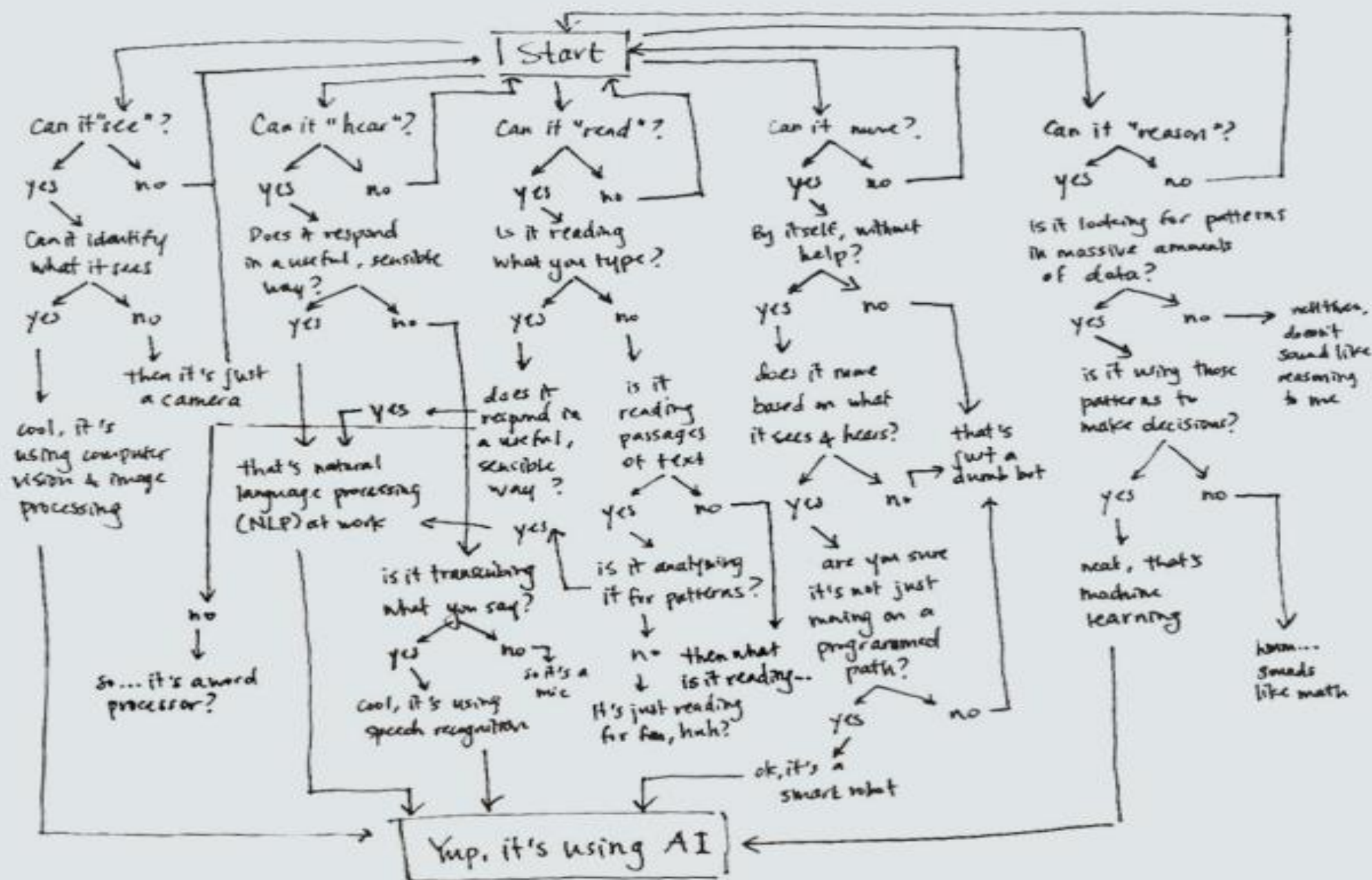
Examples: Fuzzy logic, W3C Web Ontology Language, Knowledge Graph, Logical Reasoning

Examples: Computer Vision Systems, Recommender Systems, Natural Language Processing

Statistics

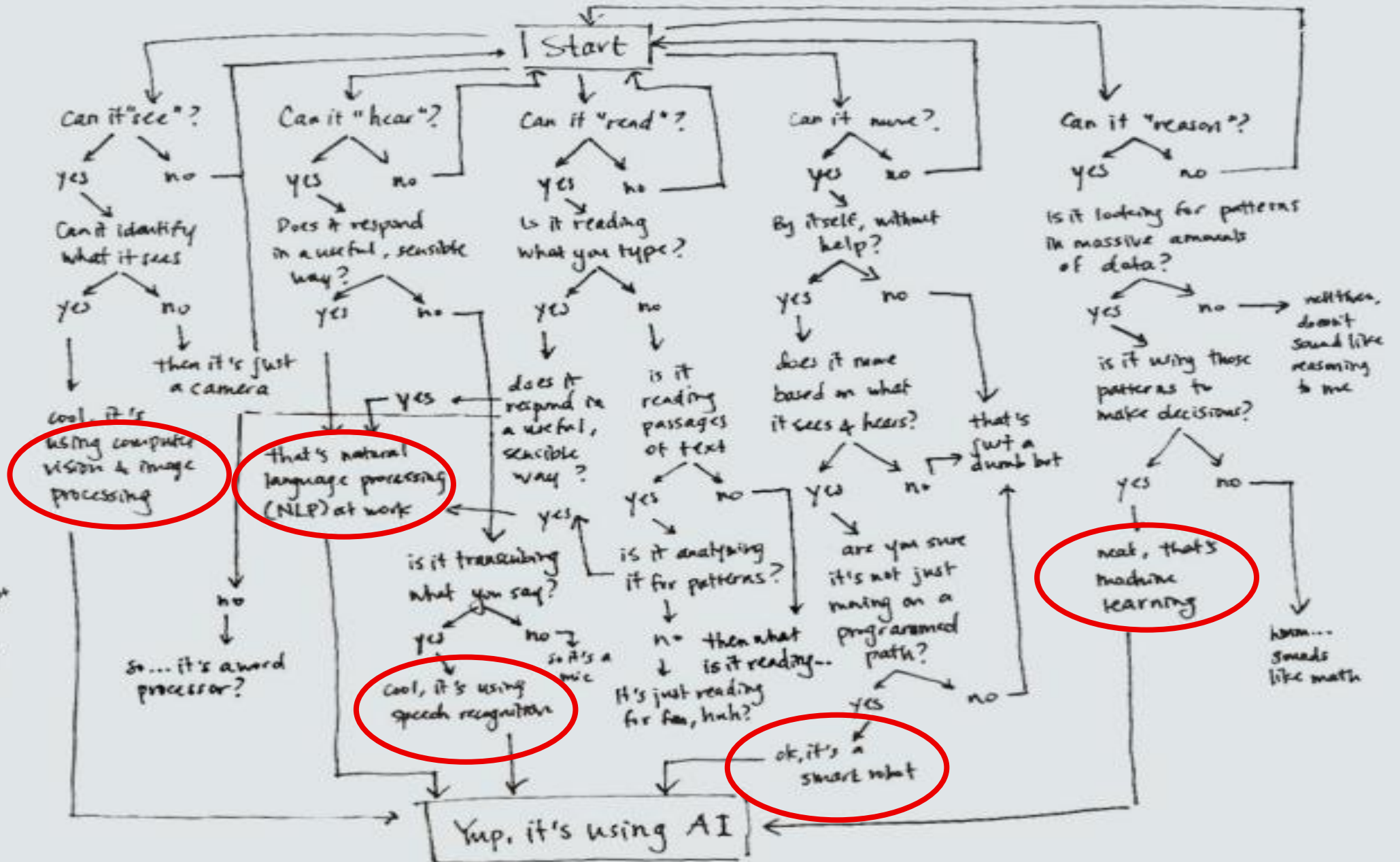
«Approches statistiques, estimation bayésienne, méthodes de recherche et d'optimisation.»

Examples: Naïve Bayes Classifier, Optimal Sample Size, T-tests, ANOVA, ANCOVA, Wilcoxon signed-rank test, Chi-square test, Fisher's exact test, CMH test, McNemar's test, multicomparison tests, MC simulations, etc



"is it using AI?"
The Algorithm,
MIT Technology
Review

By:
Karen Hao



"is it using AI?"
The Algorithm,
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Review

By:
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Machine
Learning

Speech
Recognition

Artificial Intelligence

[Definition according to MIT
Technology Review]

Computer
Vision & Image
Processing

Natural
Language
Processing

Smart Robot

A Definition or Definitions?



"The theory and development of computer systems able to perform tasks normally requiring human intelligence"

English Oxford Living Dictionary

"A science and a set of computational technologies that are inspired by – but typically operate quite differently from – the ways people use their nervous systems and bodies to sense, learn, reason and take action"

Eric Horvitz - A hundred year study of AI

A Definition or Definitions?



There isn't a universal definition of «AI» as researchers are still struggling to draw a line between AI and IT, and more generally to define a clear definition of what AI means...

Key Take-Away



"The theory and development of computer systems able to perform tasks normally requiring human intelligence"

English Oxford Living Dictionary

"A science and a set of computational technologies that are inspired by – but typically operate quite differently from – the ways people use their nervous systems and bodies to sense, learn, reason and take action"

Eric Horvitz - A hundred year study of AI

"Les gens parlent de AI, mais en fait l'AI ce sont les data scientists"

Sabine Everaet (former CIO of Coca Cola) 05.05.2022 Luxembourg Golden-i round table panelist: Digital Revolution: Les Objectifs du Luxembourg.

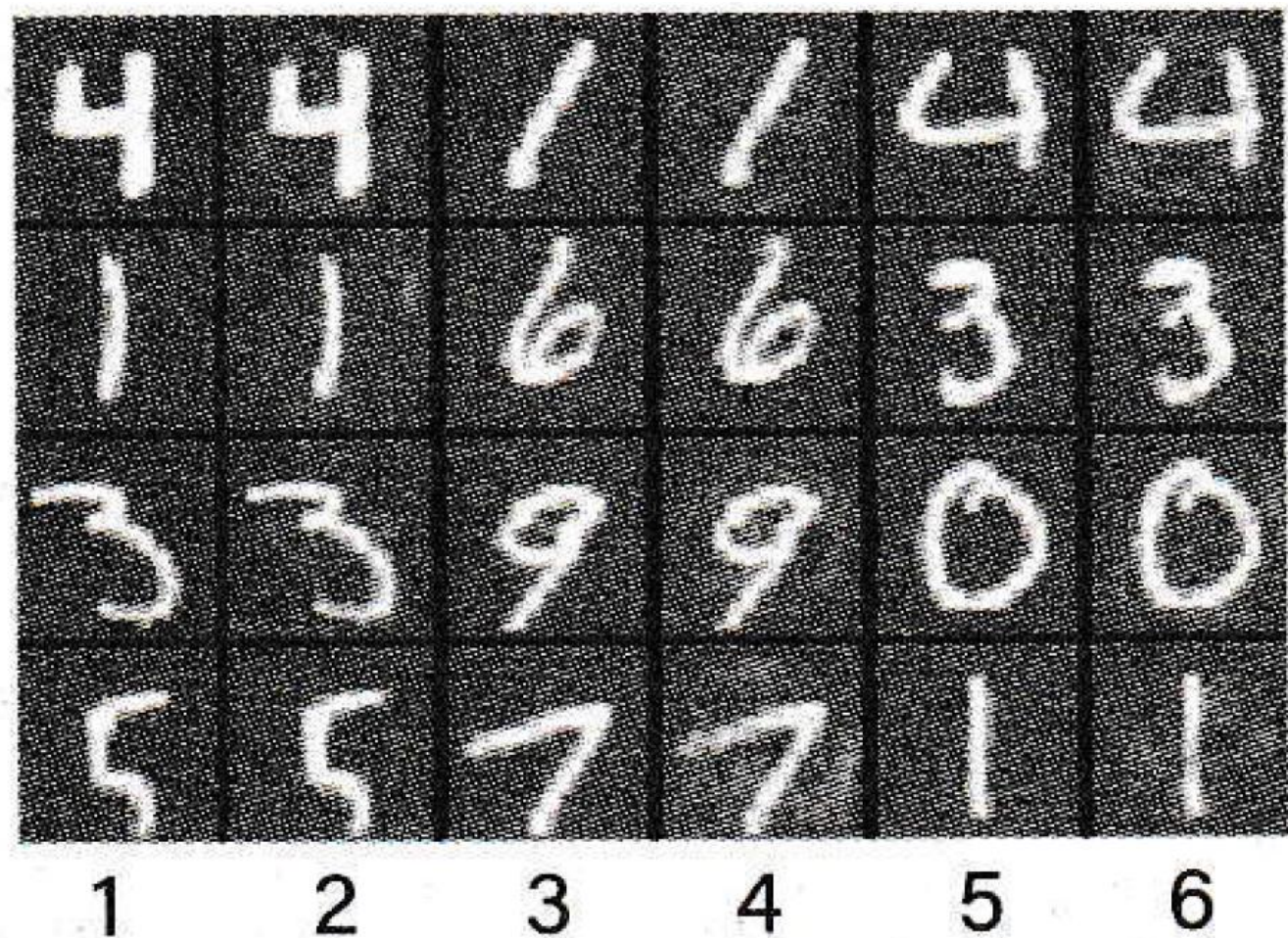
AI = Robots?

Consciousness, legal rights and political rights for robots - we are not there yet!



Can AI perform it all?

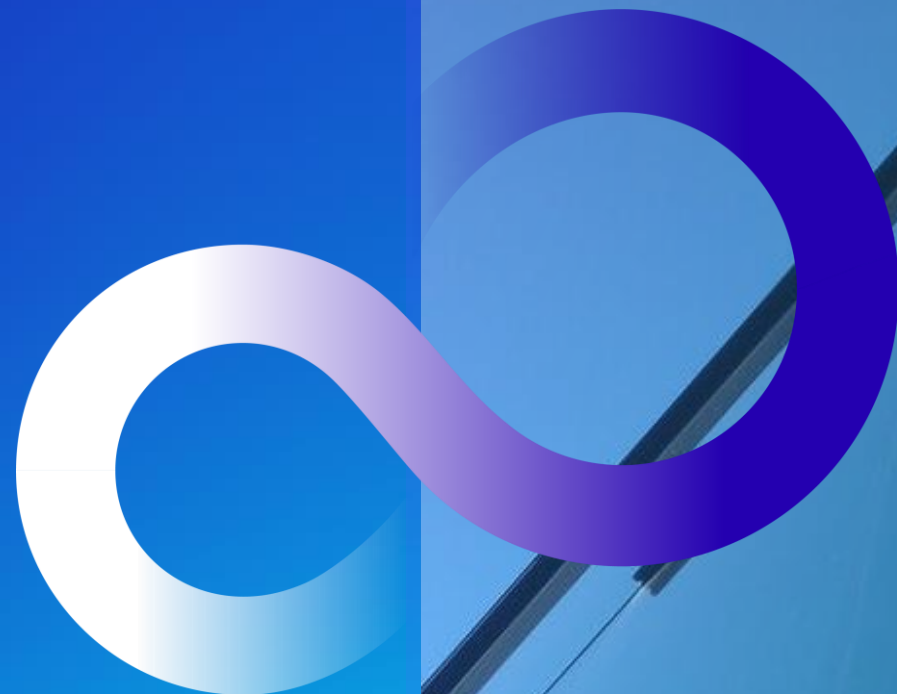
Subtle modifications in an image (just 1 pixel) can break it all...



«Le neurone artificiel est un modèle extrêmement simplifié de la réalité biologique (...) Les intelligences artificielles ont aujourd'hui moins de sens commun qu'un rat»

Yann LeCun, IA Research Director
Facebook.

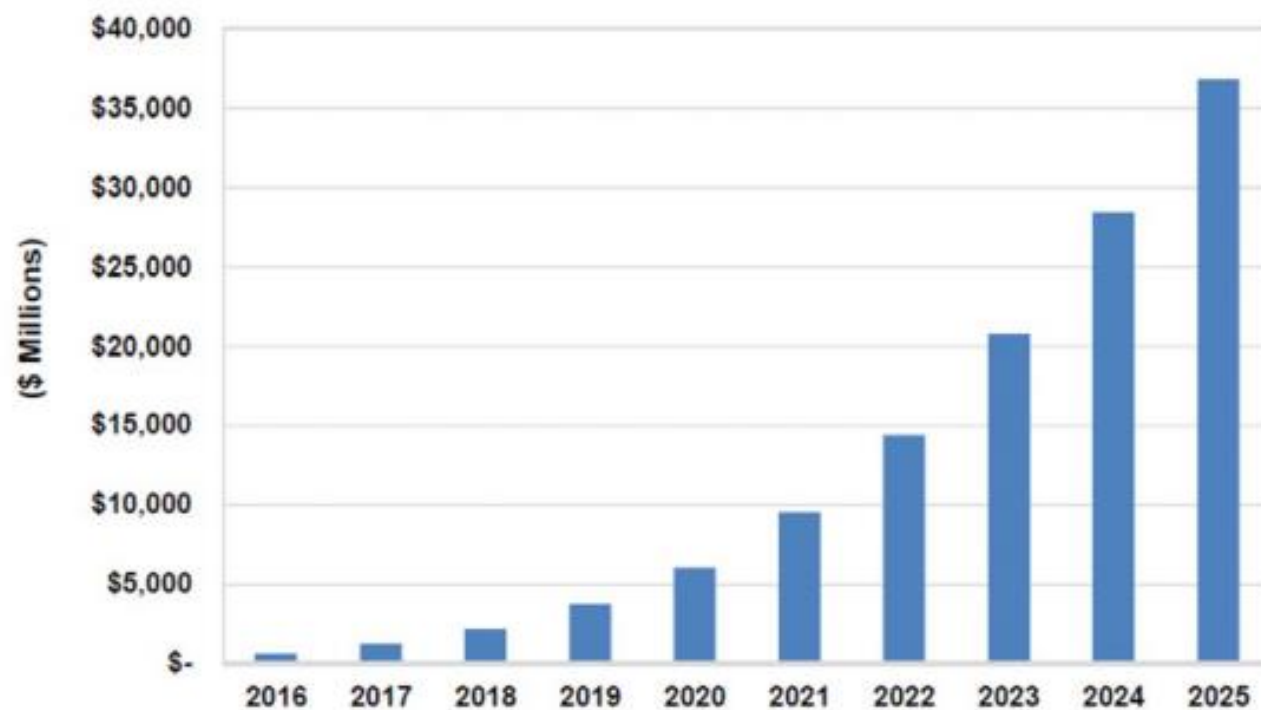
Rise of AI: Benefits & Applications



AI Global Market Overview

AI market was valued at \$23.94 Billion in 2018 and is expected to reach \$208.49 Billion by 2025

Artificial Intelligence Revenue, World Markets: 2016-2025



(Source: Tractica)



AI: Biggest Value to Your Organisation



Whether you are a small, medium or large organisation



AI Adoption Benefits



Improved
Efficiency



Better Employee
engagement



Improved
Productivity



Better Customer
Experience



Revenue Growth



Better Operating
Model

FUJITSU



AI - Drug Discovery

Alphafold2 developed by John Jumper et al (DeepMind, London)



AI - Autonomous machines



AI - Autonomous machines

- WaymoOne (Google) works on autonomous vehicles: It is the only company that offers an on-demand service without a human driver

- The R2 delivery robot from Nuro is about to be produced on a large scale after a test with the Domino's pizza chain. The vehicle delivers goods to the home autonomously!



Waymo Picture

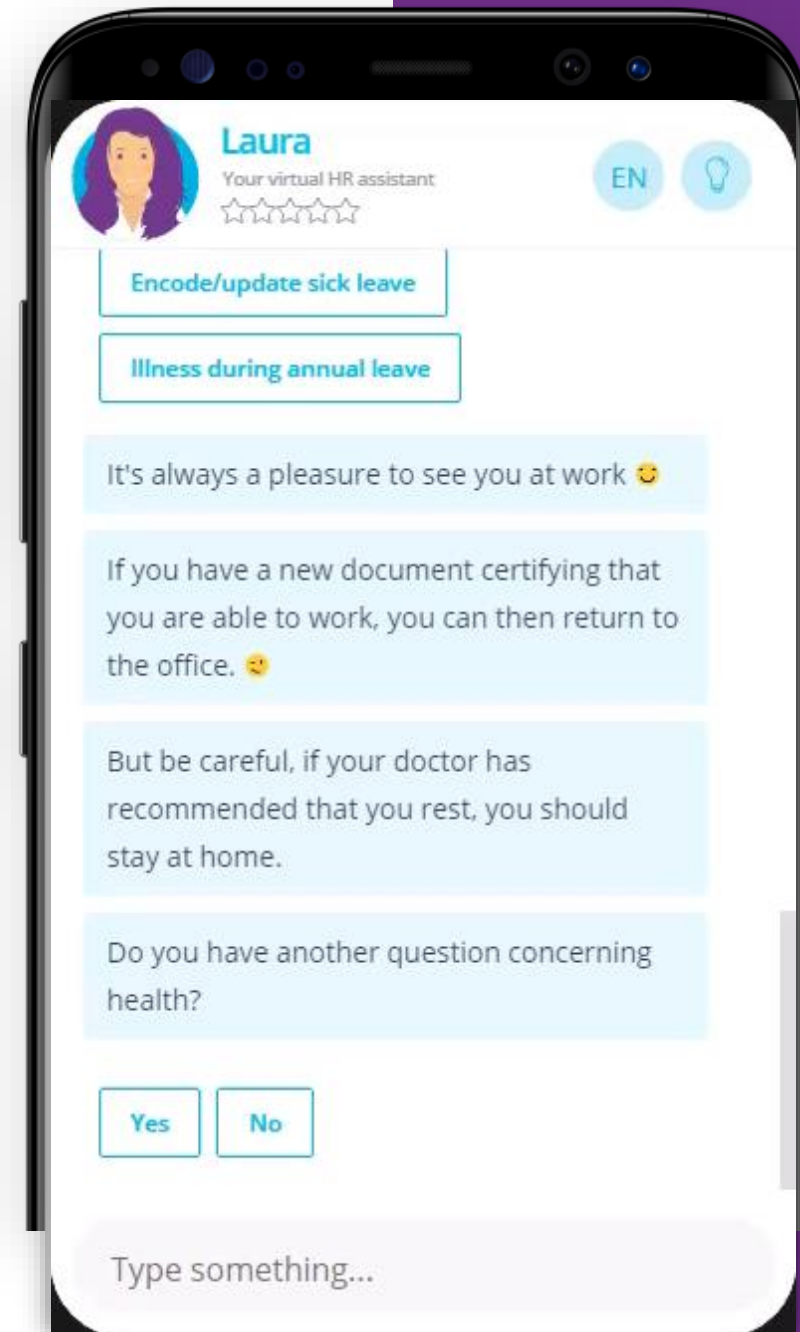


Nuro Picture

AI - Chatbot

Virtual Assistant

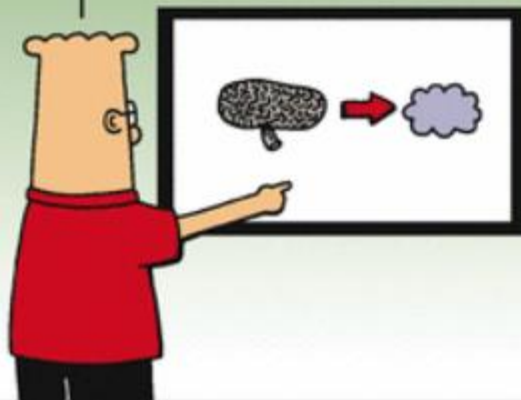
- Persona definition
 - Workshops:
 - Functional
 - Technical
 - UX
 - Assessment report
 - Development using:
- IBM Watson Assistant
 - IBM Tone Analyzer
 - React js.
 - Java
 - Knowledge transfer
 - Support on test and train phase



**So can you identify some
AI use cases for
your organisation?
Do they have to be of a
complex nature?**

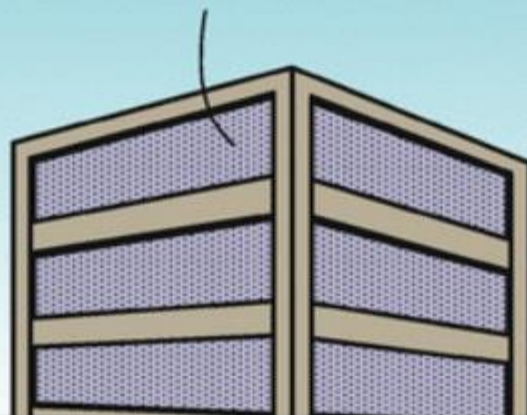


MY INVENTION CAN
SCAN THE HUMAN BRAIN
AND DUPLICATE IT
IN SOFTWARE.



Dilbert.com DilbertCartoonist@gmail.com

I COMBINED THAT
TECHNOLOGY WITH A 3-D
PRINTER THAT MAKES
HUMAN BODY PARTS.



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WHAT
DOES IT
ALL DO?



HE'S
GETTING
TO THE
GOOD
PART.



I GOT APPROVAL
TO WORK FROM
HOME.



Dilbert.com @ScottAdamsSays

MY CHATBOT WILL
ANSWER ALL OF MY
EMAILS AND TEXT
MESSAGES.



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CHATBOT
ANSWERS
WOULD BE
USELESS.



I HOPE SO.
OTHERWISE
IT WON'T
SOUND LIKE
ME.



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Phone: +352 661 36 15 96

