

# INTELIGENCIA ARTIFICIAL

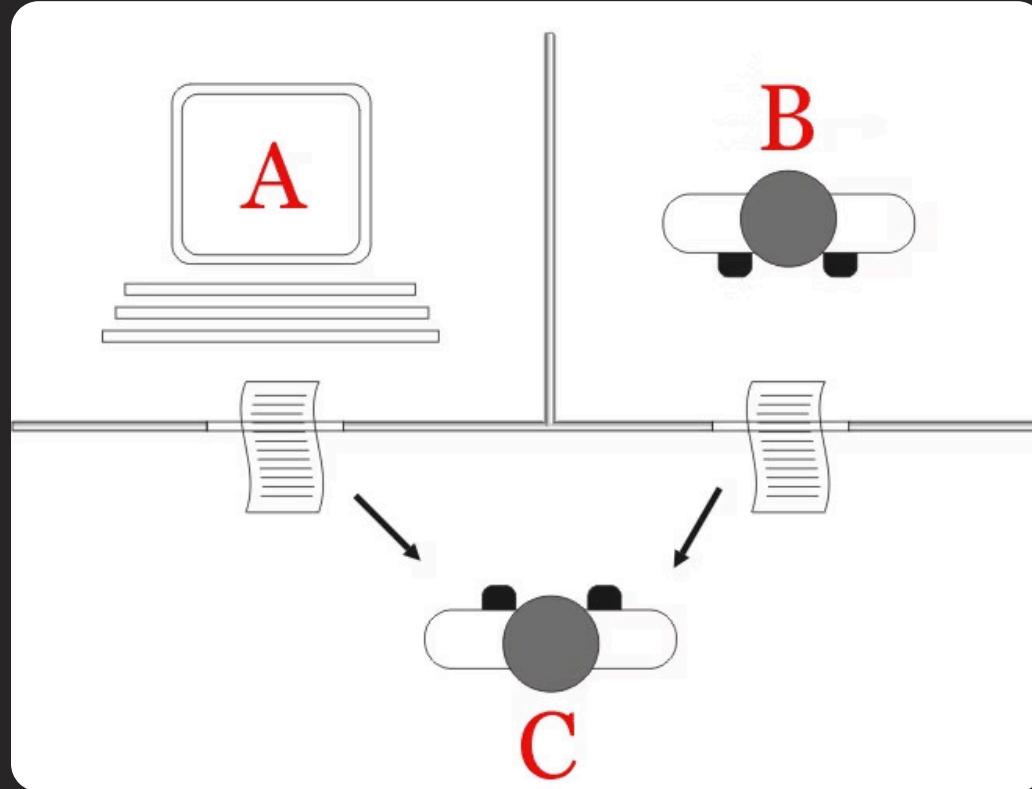


¿Qué es la INTELIGENCIA ARTIFICIAL?

**¿QUÉ ES LA INTELIGENCIA?**

**ESTÍMULO → DECISIÓN**

# ALAN TURING



# APLICACIONES

Reconocimiento de voz

Ciencia y Medicina

Predicción meteorológica

Procesamiento del lenguaje natural

Educación

Finanzas

Reconocimiento de imágenes y objetos

Conducción autónoma

Asistencia personalizada

Sistemas de recomendación

Robótica

**Inteligencia  
Artificial**

**Aprendizaje  
Automático**

**Aprendizaje  
Profundo**

# ¿CÓMO FUNCIONA?

¿Qué es y cómo funciona la  
INTELIGENCIA ARTIFICIAL?  
(youtube.com)

You Don't Understand AI Until You  
Watch THIS (youtube.com)



**1**

**2**

**3**

**4**

## Definir un problema

## Buscar y preparar datos

## Entrenar modelo

## Probar y evaluar modelo

Variedad (tamaño, orientación, luz, enfoque...)

Fuentes

Corrección

Etiquetado

Tipo de modelo

Nº neuronas

Nº capas

Optimizadores

Funciones

Épocas

Overfitting (plagios)

MoE

Rango de error

Confianza

Sesgos

Limitaciones

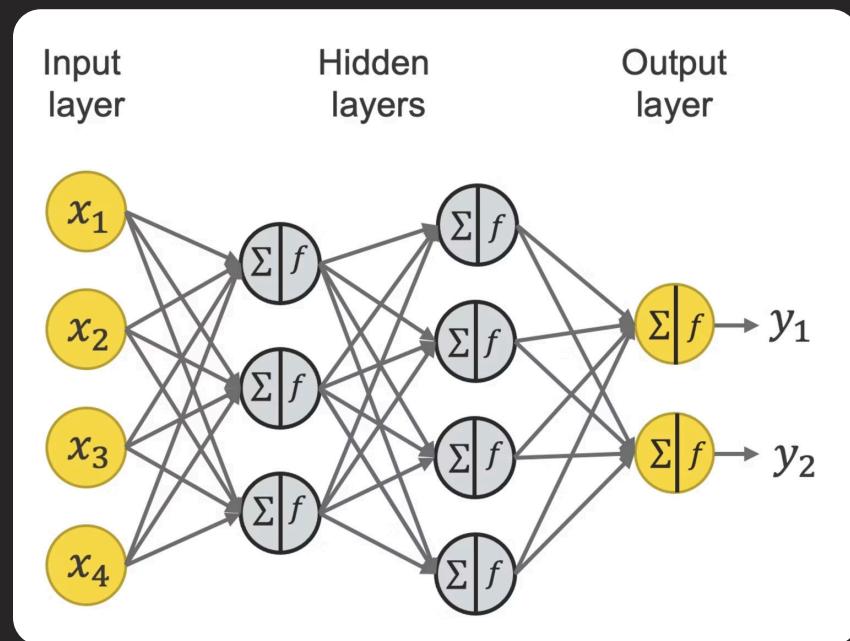
Prompts

# Imposibilidad de automejora

# DEEP LEARNING 1.0

APRENDIZAJE SUPERVISADO

# REDES NEURONALES



**Función de Pérdida (Loss)**

**Descenso de Gradiente (Gradient Descent)**

**Retropropagación (Backpropagation)**

# DEEP LEARNING 2.0

APRENDIZAJE AUTOSUPERVISADO

# IA GENERATIVA

Texto

Voz

Música

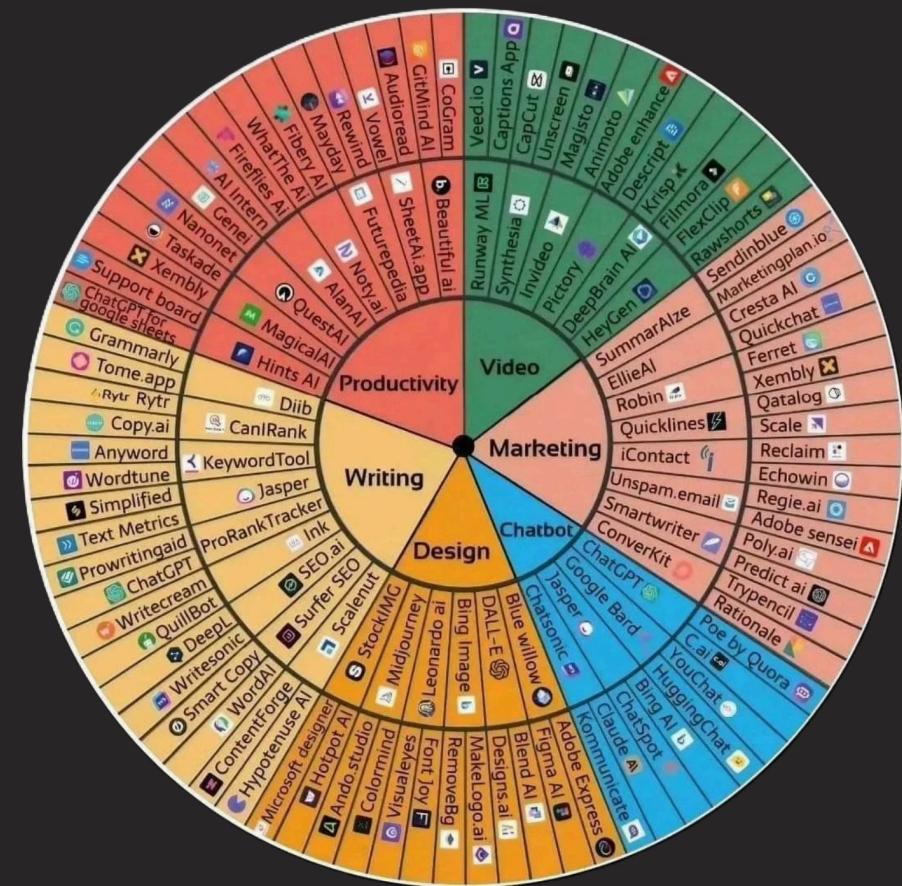
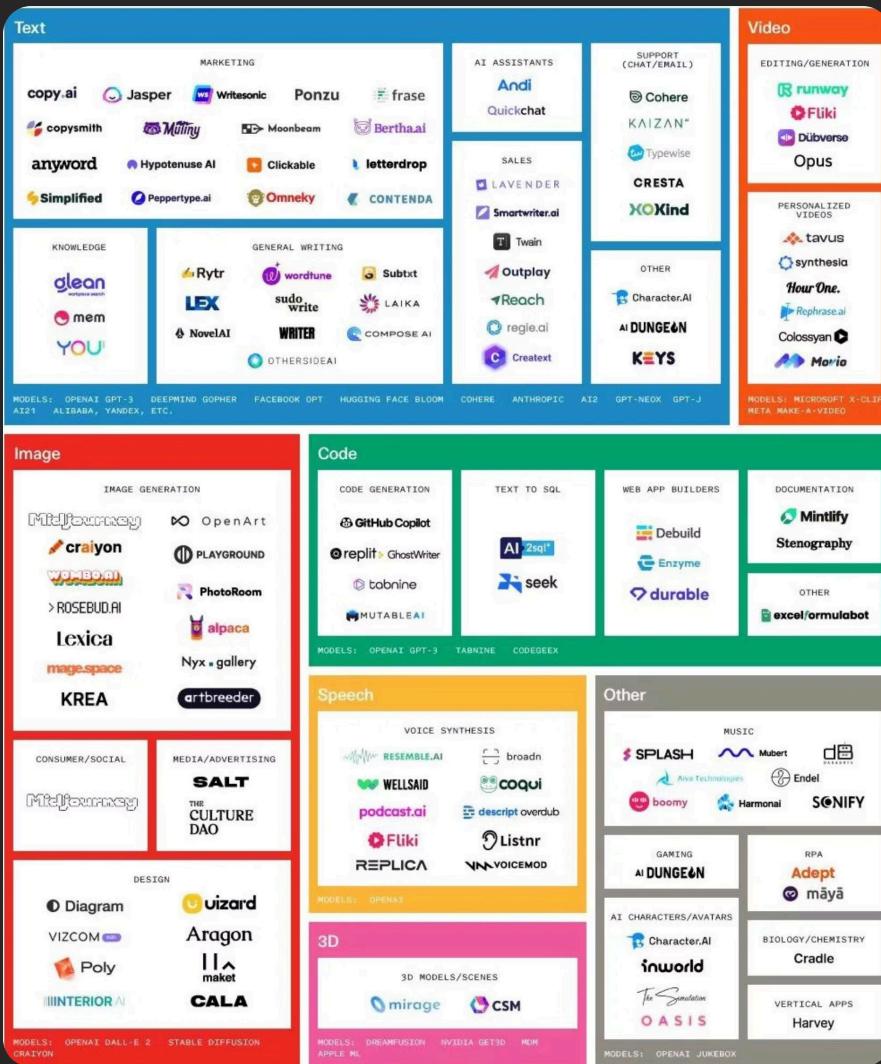
Imágenes

Vídeos

3D

Código

Paradoja de Movarec (tareas difíciles para humanos son fáciles para las máquinas)



# PRINCIPALES LLMS Y CHATBOTS



OpenAI



Google



Anthropic



xAI



DeepSeek



Meta

## Tecnología vs Producto

Modelos Razonadores (Daniel Kahneman)

Europa: Mistral, OpenEuroLLM, Alia

[La Historia Secreta del Juego de Tronos de la IA](#)

# TECNICISMOS IA LLMS

RAG

GAN

INTERPRETABILIDAD

MOE

TRANSFORMER

RAZONAMIENTO Y  
CREATIVIDAD

EMBEDDING

TOKEN

AGENTES

[¿Cómo funciona ChatGPT? La revolución de la Inteligencia Artificial \(youtube.com\)](#)

## **Se plantean como soluciones a problemas humanos**

Nos olvidamos de la inteligencia y nos centramos en su enfoque como herramienta.

# LA CUARTA REVOLUCIÓN INDUSTRIAL

# DEEP LEARNING 3.0

APRENDIZAJE POR REFUERZO

# ALPHAZERO

Modelo de inteligencia sobrehumana capaz de jugar al Go o al Ajedrez que forma entrenándose contra sí mismo (sin conocimientos humanos previos) mediante Aprendizaje por Refuerzo.



1 Se inicializa una red que hará predicciones de movimientos a ejecutar en base al estado actual del tablero con pesos aleatorios.

2 Se ejecuta un Monte Carlo Tree Search (MCTS) en el que se irán registrando las jugadas en base a las predicciones de la red y se registrará con qué movimientos se ganó la partida y con cuáles se perdió.

3 Con estos resultados se actualizan los pesos de la red para favorecer aquellos movimientos que hicieron que se ganase la partida y se repite el proceso.

Mejora de los humanos sin su conocimiento. Movimiento 37 Lee Sedol (innovación y creatividad).

# TIPOS DE INTELIGENCIA ARTIFICIAL



## DE PROPÓSITO ESPECÍFICO (Débil)

Una sola tarea (AlphaZero)



## DE PROPÓSITO GENERAL (AGI)

Capacidades cognitivas similares a las humanas (aprender, razonar, interactuar con el mundo, adaptarse...)



## SUPERINTELIGENCIA

Supera a la humana en todos los aspectos

[Vídeo](#)

Ray Kurzweil

# SINGULARIDAD TECNOLÓGICA

Teoría de la Simulación

## PROBLEMA DE LA ALINEACIÓN

Problema del Gorila

[Vídeo](#)

Nick Bostrom

# OBJECCIONES AGI

## 1 Confusión entre correlación y comprensión

Significante (LLM) vs Significado  
(Modelo del mundo)

## 2 Falta de teoría de la inteligencia

No podemos construir una IA que funcione algo que no conocemos

## 3 Contexto y Sentido Común

## 4 Metainteligencia y metacognición

## 5 Falacia del progreso lineal

## 6 Abducción vs Inducción

Relizar conjeturas a partir de información incompleta

Erik J. Larson - *The Myth of A.I.*

**PROBLEMAS FILOSÓFICOS**

**VS**

**PROBLEMAS REALES DE LA IA**

# LA ERA DE LA IA

[La "IA" lo cambia TODO | Lo que deberías saber sobre la Inteligencia Artificial](#)

EDUCACIÓN

MEDIOAMBIENTE

TRABAJO Y ECONOMÍA

ÉTICA / FIABILIDAD /  
SESGOS / PRIVACIDAD

BRECHA  
SOCIOECONÓMICA

CÓDIGO ABIERTO  
DEMOCRATIZACIÓN

REGULACIÓN (EU'S AI ACT)

ADOPCIÓN EMPRESAS

DEEPFAKES

CIBERSEGURIDAD

CONTROL DE AGENTES

FUSIÓN IA BIOLOGÍA

VIGILANCIA, PERSUASIÓN Y CONTROL

# RECURSOS

## Canales Youtube

- DotCSV
- RingaTech
- Sentdex
- Neuralnine
- Nicholas Rennote
- AI Uncovered

## Cursos

- CS50's Introduction to Artificial Intelligence
- Machine Learning with Python

## Podcasts

- SuperDataScience
- Lex Fridman
- Pocho Costa
- The Gradient
- Last Week in AI
- The AI Breakdown
- Me, Myself and AI
- Google DeepMind
- Mixture of Experts

## Documentales

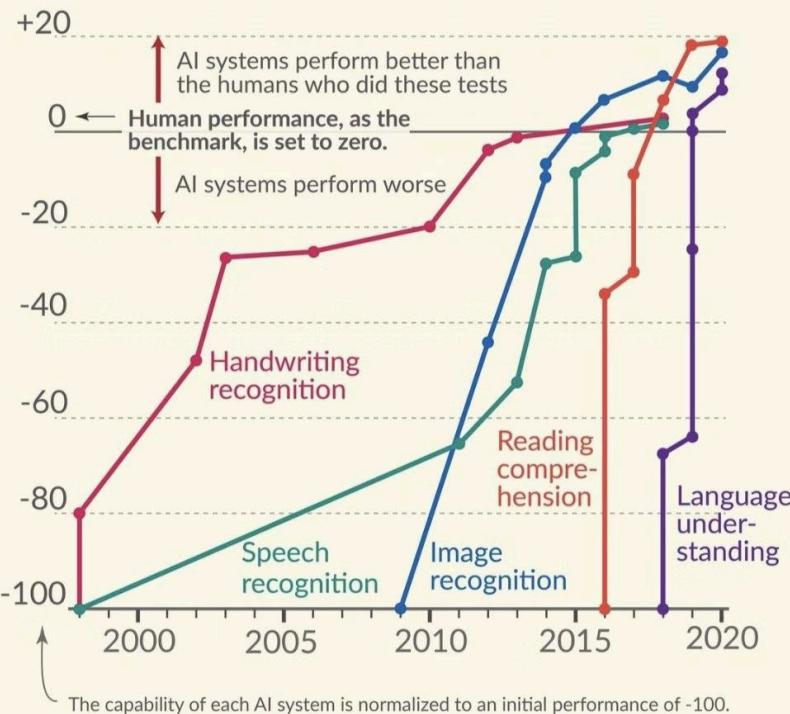
- The Age of A.I
- El dilema de las redes sociales

## Libros, Comunidades IA

# 2025 AI Index Report

# Language and image recognition capabilities of AI systems have improved rapidly

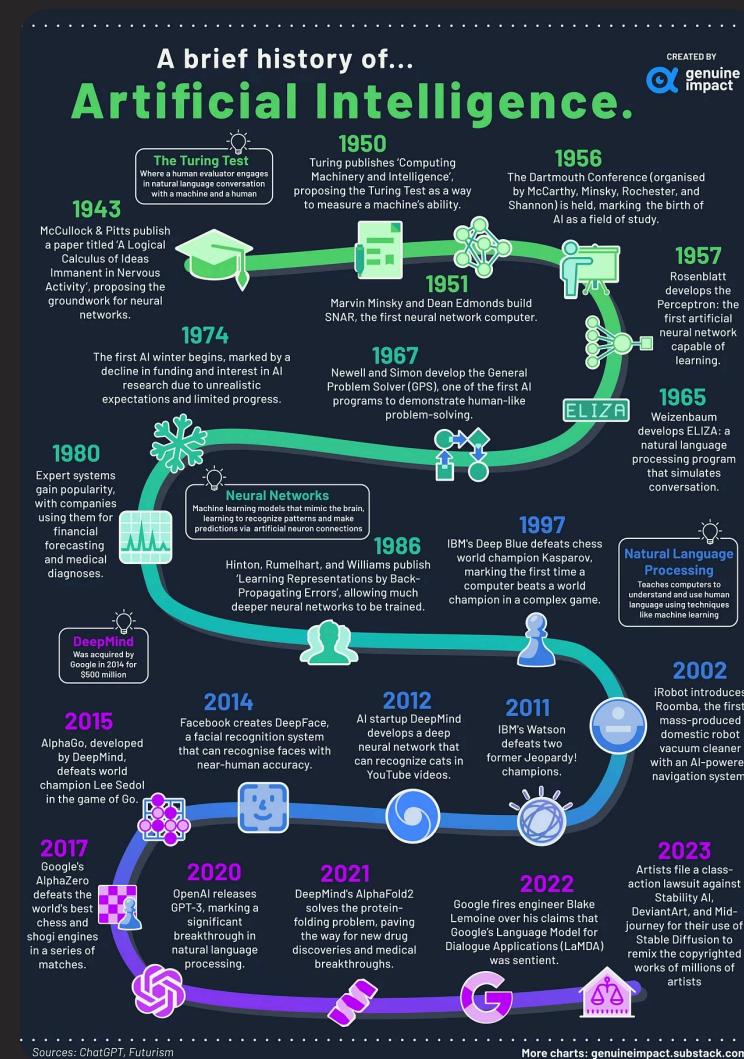
Test scores of the AI relative to human performance



Source:  
Kiel et al. (2021) Dynabench: Rethinking Benchmarking in NLP

[OurWorldInData.org/artificial-intelligence](https://OurWorldInData.org/artificial-intelligence) • CC BY

Our World  
in Data



## Companies Investing Big in Artificial Intelligence

Meta has developed its own LLM called LLaMa, and is continuing to invest in the development of the metaverse.

Meta



Amazon

Amazon's is developing a new LLM, the Alexa Teacher Model, to power its Alexa devices, and is investing heavy in AWS.

Google



Google has released ChatGPT competitor Bard, which is trained on Google's LaMDA technology.



Tesla

Tesla's semi-autonomous vehicles are powered by AI, and CEO Elon Musk plans to create an AI company to rival OpenAI

OpenAI



Open AI is paving the way in the generative AI field with its large language model ChatGPT.



Snapchat

Snapchat has many AI-powered lenses as well as its new generative chatbot, My AI.

Microsoft



Microsoft has a multi-billion dollar stake in OpenAI, and has also released a GPT-4 powered iteration of Bing.

Sources: Emerging Tech Brew, Financial Times

More charts: [genuineimpact.substack.com](https://genuineimpact.substack.com)

## How are Non-Tech companies using Artificial Intelligence?



JPMORGAN

JPMorgan's sizeable Artificial Intelligence Research program aims to **predict economic systems** to manage extreme/unseen situations. They also aim to **eradicate financial crime** through machine learning algorithms that recognise **abnormal financial activity** and check for **compliance with regulations**.



WALMART



Walmart's floor scrubbers take over 20 million photos a day of shelves to determine **real-time inventory levels**, allowing for **optimised deliveries** and **increasing employee productivity** by 15%.



DUOLINGO

Duolingo Max utilises OpenAI's GPT-4 to provide AI-powered **explanations**, **more examples** and further **clarification** for certain exercises and lessons. Users can also **roleplay** with a chatbot to practice real-world conversation skills - currently only available for Spanish and French learners.

MEDTRONIC

Medtronic

Medtronic's AI solutions aid in **analysing patient scans**, for example by identifying pre-cancerous and cancerous polyps during a colonoscopy. It scans **every single frame** in real-time and alerts physicians to the presence of lesions that can easily go **undetected by the human eye**.



ASOS

ASOS' Style Match lets users **upload photos** of people wearing items of clothing they like, and scans their database to find something that is similar. Users of the visual search functions **view 48% more products** and are **75% more likely to make a return visit**.



Shell uses predictive maintenance to forecast issues and predict equipment failures before they arise. The system looks at 300+ system parameters all the time, for 24/7 coverage of important machinery.

More charts: [genuineimpact.substack.com](https://genuineimpact.substack.com)

Source: Company publications

# THE SPECTRUM OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) is the computerized ability to perform tasks commonly associated with human intelligence, including reasoning, discovering patterns and meaning, generalizing, applying knowledge across spheres of application, and learning from experience. The growth of AI-based systems in recent years has garnered much attention, particularly in the sphere of Machine Learning. A subset of AI, Machine Learning (ML) systems "learn" from the success or accuracy of their outputs, and can change their processing over time, with minimal human intervention. But there are non-ML types of AI that, alone or in combination, lie behind the real-world applications in common use. General AI—a human-level computational system—does not yet exist. But Narrow AI exists in many fields and applications where computerized systems greatly enhance human output or outperform humans at defined tasks. This chart explains the main types of AI, their relationships to each other, and provides specific examples of how they are currently appear in our day-to-day lives. It also demonstrates how AI exists within the timeline of human knowledge and development.

## AI USE CASES AND CONTEXTS

### FINANCE TAX COMPLIANCE

A software platform that distills tax laws into a program, creates a personalized decision system, and enables individuals to quickly and accurately file their taxes.

**Value of AI:** Tax compliance requires complete accuracy. This efficient, interactive system that provides precise and logically connected results allows taxpayers to understand, confirm, and have confidence in the outcome. KE provides transparent and clear explanations.

#### Types of AI:



### HEALTHCARE AMBIENT CHARTING

The use of background voice-to-text processing during a patient/medical provider exchange to record those interactions into the patient's chart, along with extracting tasks, symptoms, and recommendations for further action as required.

**Value of AI:** Medical providers spend significant time documenting, with uneven outputs, as well as difficulty in correlating between providers. Ambient systems encode conversations, target key phrases, and present a summary for provider edit/acceptance.

#### Types of AI:



### TRACKING WORKPLACE MONITORING

Embedded systems can monitor physical and digital traffic, data usage, device management, and some employee behaviors for efficiency and security management of time, assets, and resources.

**Value of AI:** Monitoring enables necessary enforcement of data security policies and protocols. Also, systems can monitor and manage time reporting and project management tools, as well as ensuring appropriate supervision, training, and support; including for remote workers.

#### Types of AI:

