EMERGING TRENDS, TECHNOLOGIES, AND APPLICATIONS

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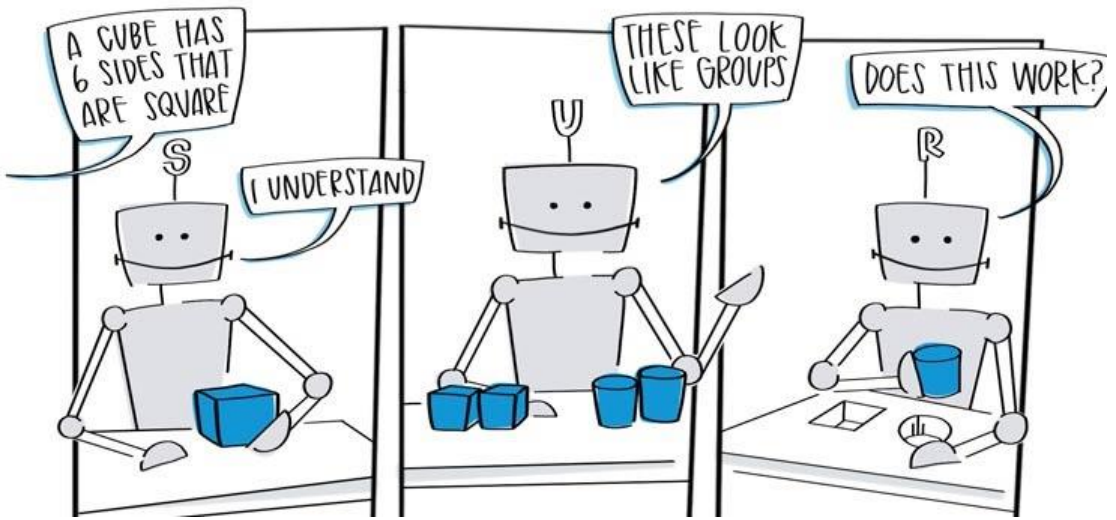
Artificial Intelligence (AI)

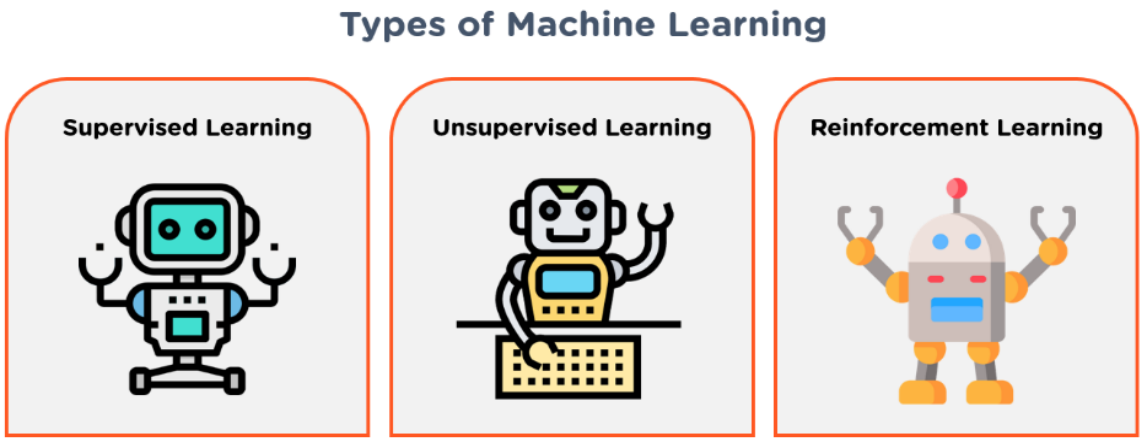
AI refers to the ability of a computer or robot to mimic human intelligence. It could cover, for example, computers that analyse data independently or the autonomous systems embedded in driverless vehicles.

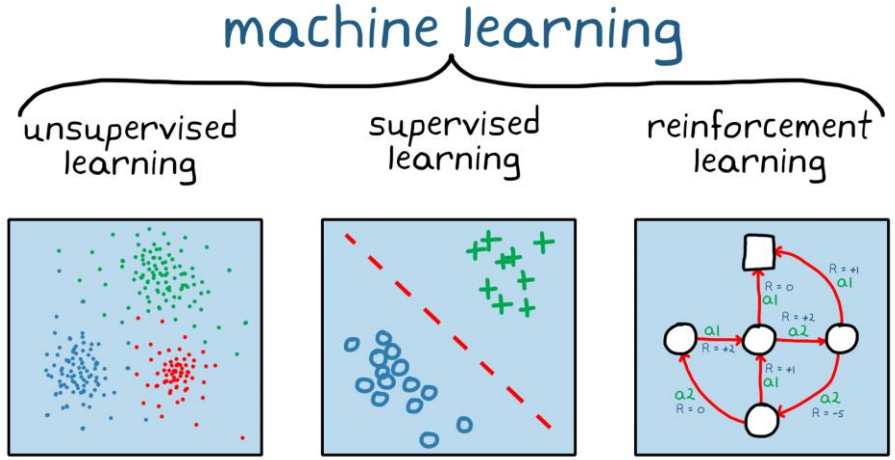
AI thrives in an environment where there are defined rules and patterns that it can work with. This is where AI will seem the most “Intelligent”.

Machine Learning (ML)

Machine learning is a subfield of artificial intelligence, which is broadly defined as the capability of a machine to imitate intelligent human behavior. Artificial intelligence systems are used to perform complex tasks in a way that is similar to how humans solve problems.

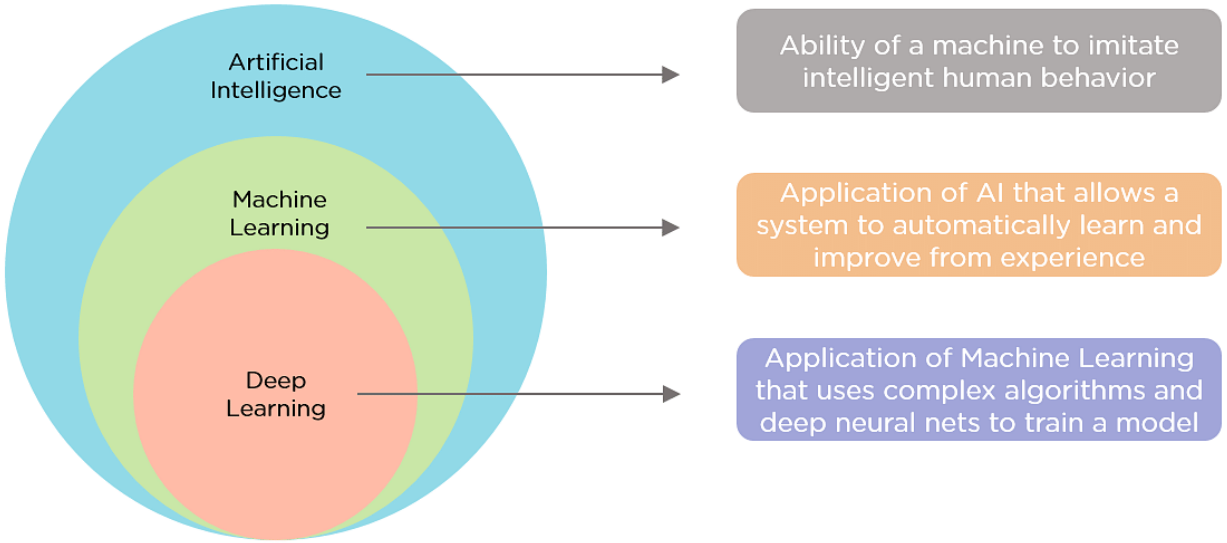


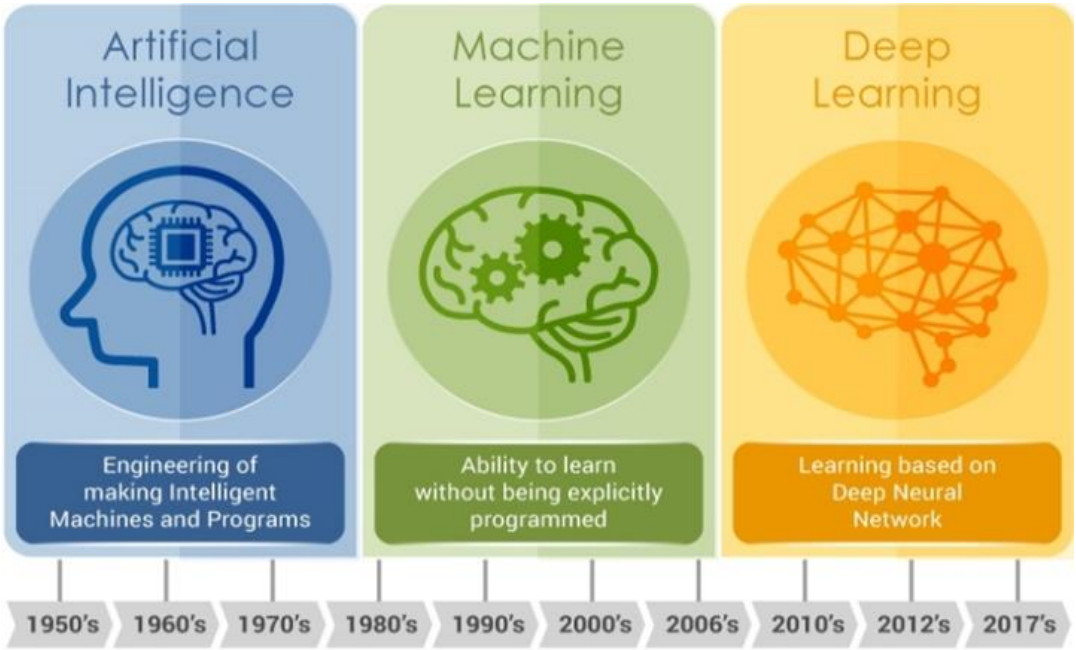




Deep Learning (DL)

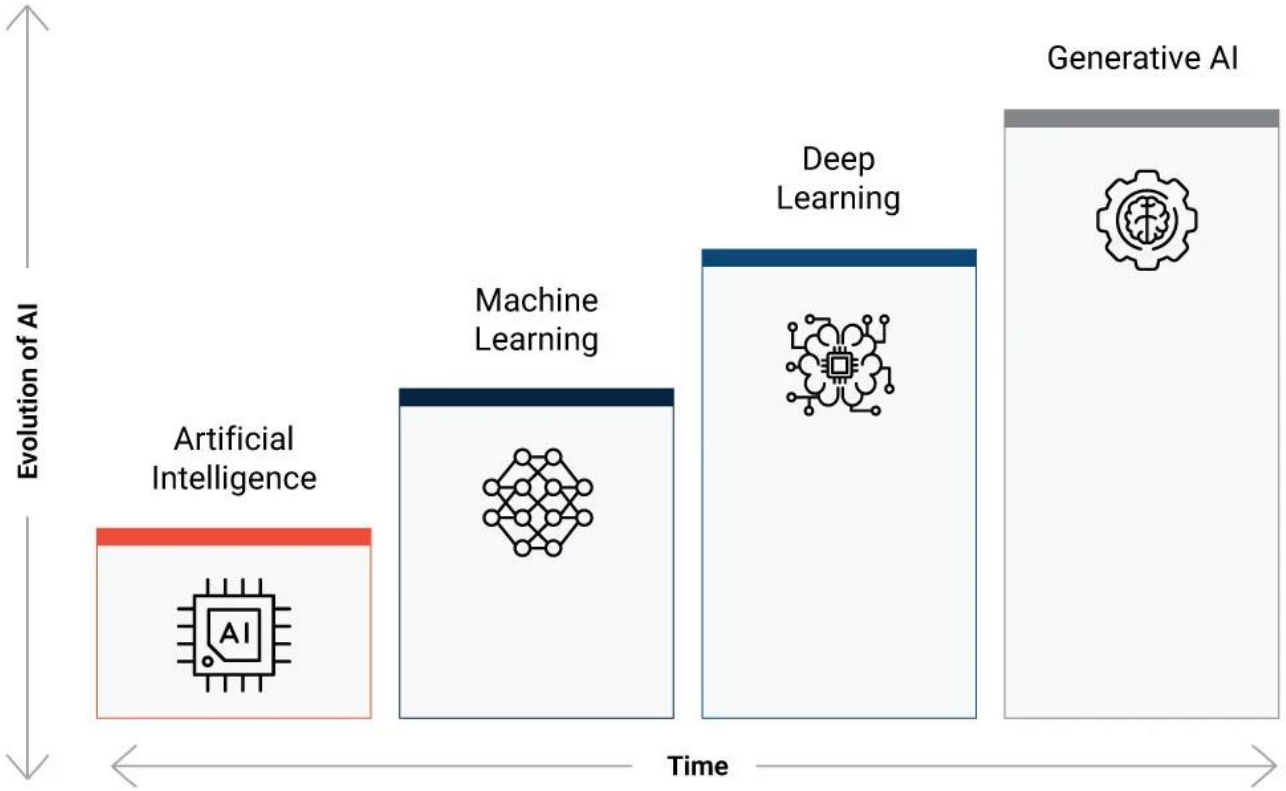
Deep learning: DL is a subset of machine learning. With this model, an algorithm can determine whether or not a prediction is accurate through a neural network without human intervention. Deep learning models can build extensive knowledge over time, acting as a brain, of sorts.

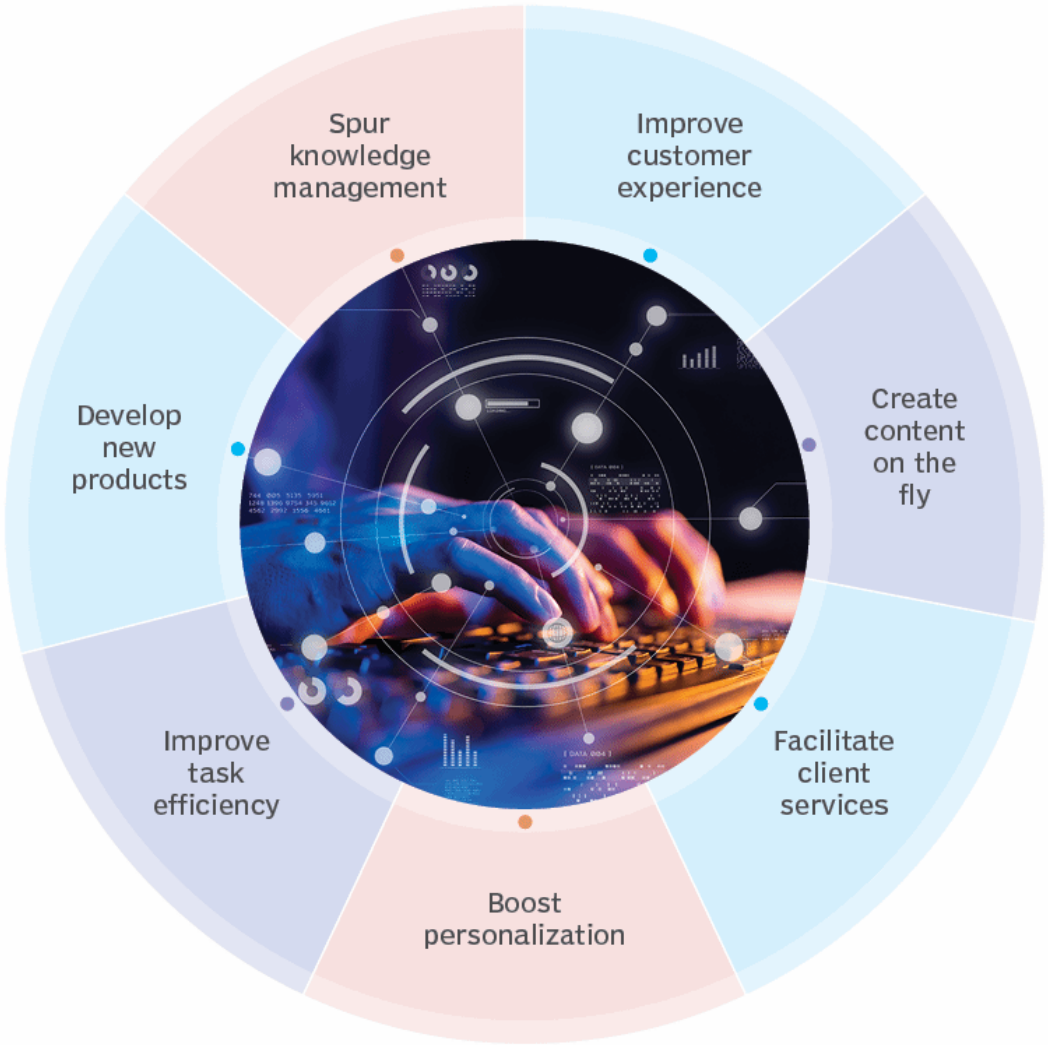




Generative AI (GAI)

Generative AI focuses on creating new and original content, chat responses, designs, synthetic data or even deepfakes.





Generative Artificial Intelligence (GAI)

Technology that uses algorithms and machine learning to create new content (text, photos, video, audio, etc.)

Examples of AI software*:

- ChatGPT/OpenAI
- Socratic
- AirMath
- Nerdy Bot
- Grammarly
- OddityAI

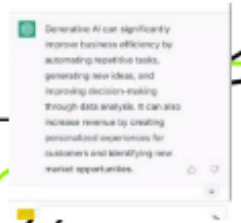
** Not all inclusive*

GAI's Capabilities

Generative AI can produce a wide range of outputs depending on the specific application and type of data that is needed. Here are some common output types that are applicable to business

Text

Prompt: Explain the business impact of Generative AI in 50 words



Video

Prompt: Create a video of a teddy bear painting a portrait

Image

Prompt: A bowl of soup that is a portal to another dimension as digital art

Code

Prompt: In python, code a program that predicts the likelihood of customer conversion

Audio

- Phone / Voice
- Multi-Lingual
- Multiple Tasks
- Empathy / Humor
- Ensures Resolution
- Systems Integration

Generative AI-powered customer service agents

3D

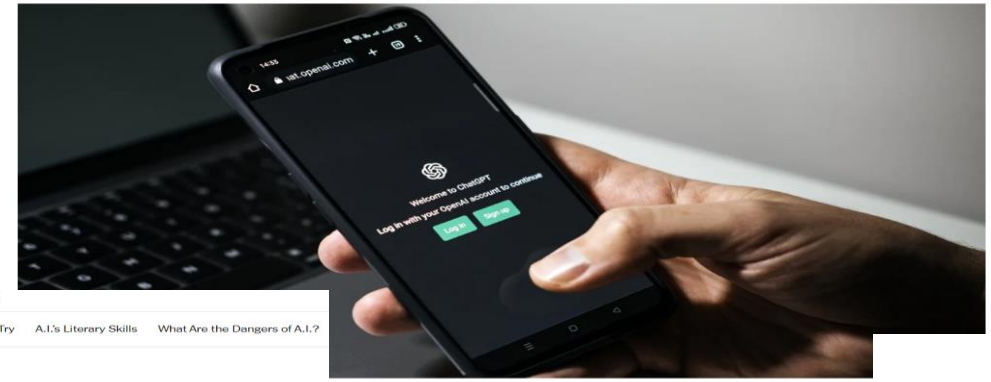
Prompt: A beautiful dress made from garbage bags, on a mannequin. Studio lighting, high quality, high resolution

Large Language Models: ChatGPT, Bard, Claude, DALL-E, …

CNN US Crime + Justice Energy + Environment Extreme Weather Space + Science

ChatGPT can write sermons. Religious leaders don't know how to feel about it

By AJ Willingham, CNN
Updated 1:23 PM EDT, Tue April 11, 2023



The New York Times

A.I. and Chatbots › Can A.I. Be Fooled? Testing a Tutorbot Chatbot Prompts to Try A.I.'s Literary Skills What Are the Dangers of A.I.?

THE SHIFT

Don't Ban ChatGPT in Schools. Teach With It.

OpenAI's new chatbot is raising fears of cheating on homework, but its potential as an educational tool outweighs its risks.

Nata Metlukh

THE SHIFT

The Brilliance and Weirdness of ChatGPT

A new chatbot from OpenAI is inspiring awe, fear, stunts and attempts to circumvent its guardrails.

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TECH

What Is ChatGPT? What to Know About the AI Chatbot

OpenAI's chatbot and Microsoft's conversational Bing have triggered a new AI race that may reshape the future of work

By Karen Hao
Updated May 16, 2023 6:40 pm ET

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A Guide to Collaborating With ChatGPT for Work

Unlike with other tech tools, working with generative AI is closer to collaborating with humans

By Alexandra Samuel
April 11, 2023 11:00 am ET

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BUSINESS | JOURNAL REPORTS: TECHNOLOGY

ChatGPT Can Give Great Answers. But Only If You Know How to Ask the Right Question.

That's why companies are hiring 'prompt engineers'—experts in talking to AI systems effectively

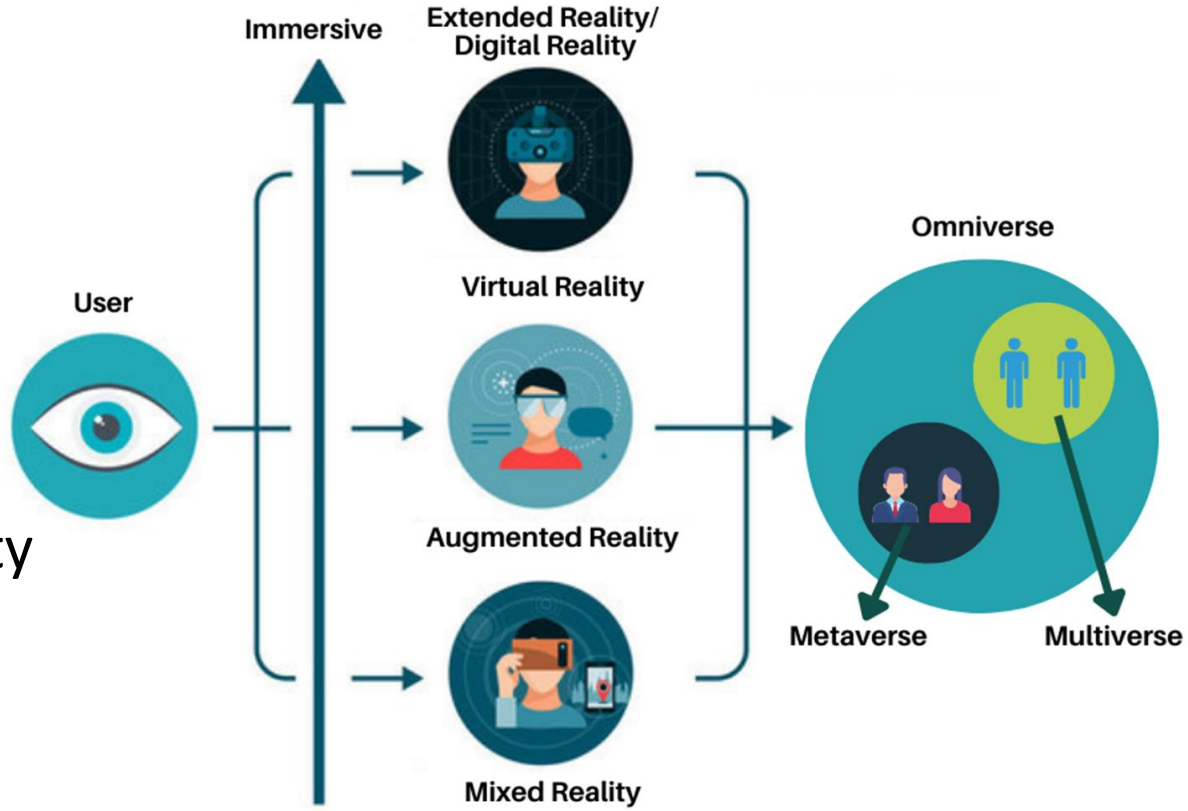
By Jackie Snow
Updated April 12, 2023 11:00 am ET

Generative AI: Deepfake

Immersive Technologies

The concept of immersive technology is not new and first appeared around 50 years ago when the first immersive human-computer interaction prototype “Man-Machine Graphical Communication system” was built.

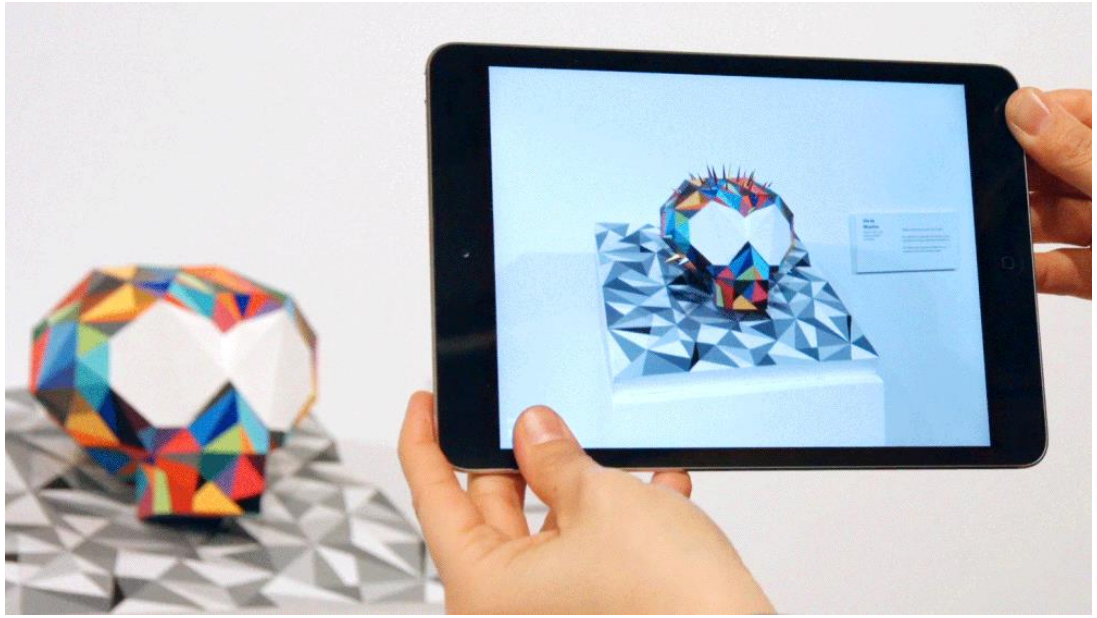
Immersive Extended reality technology is used as a term that describes virtual reality (VR), augmented reality (AR) mixed reality (MR), and eXtended reality (XR) technologies as a whole.



Immersive Technologies

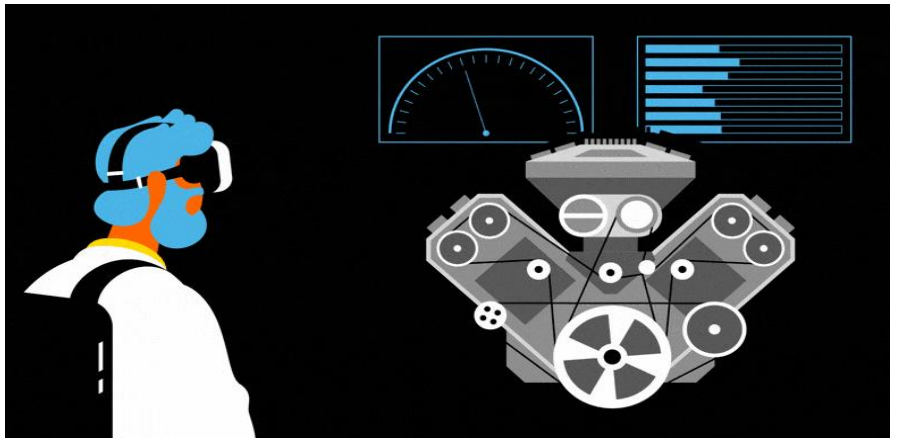
Virtual Reality (VR) is an interactive computer-generated experience taking place **within a simulated environment.**

Augmented reality (AR) is an interactive experience of a real-world environment where the **objects that reside in the real-world are "augmented"** by computer-generated perceptual information

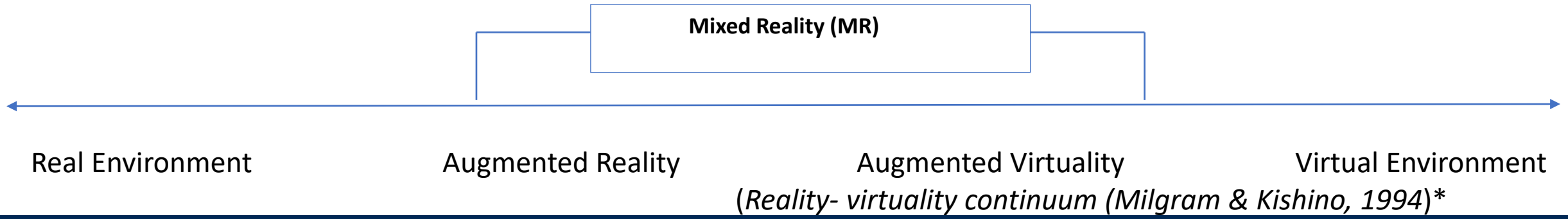


Immersive Technologies

Mixed reality (MR), or hybrid reality, is the merging of real and virtual worlds to produce new environments and visualizations where physical and digital objects co-exist and interact in real time

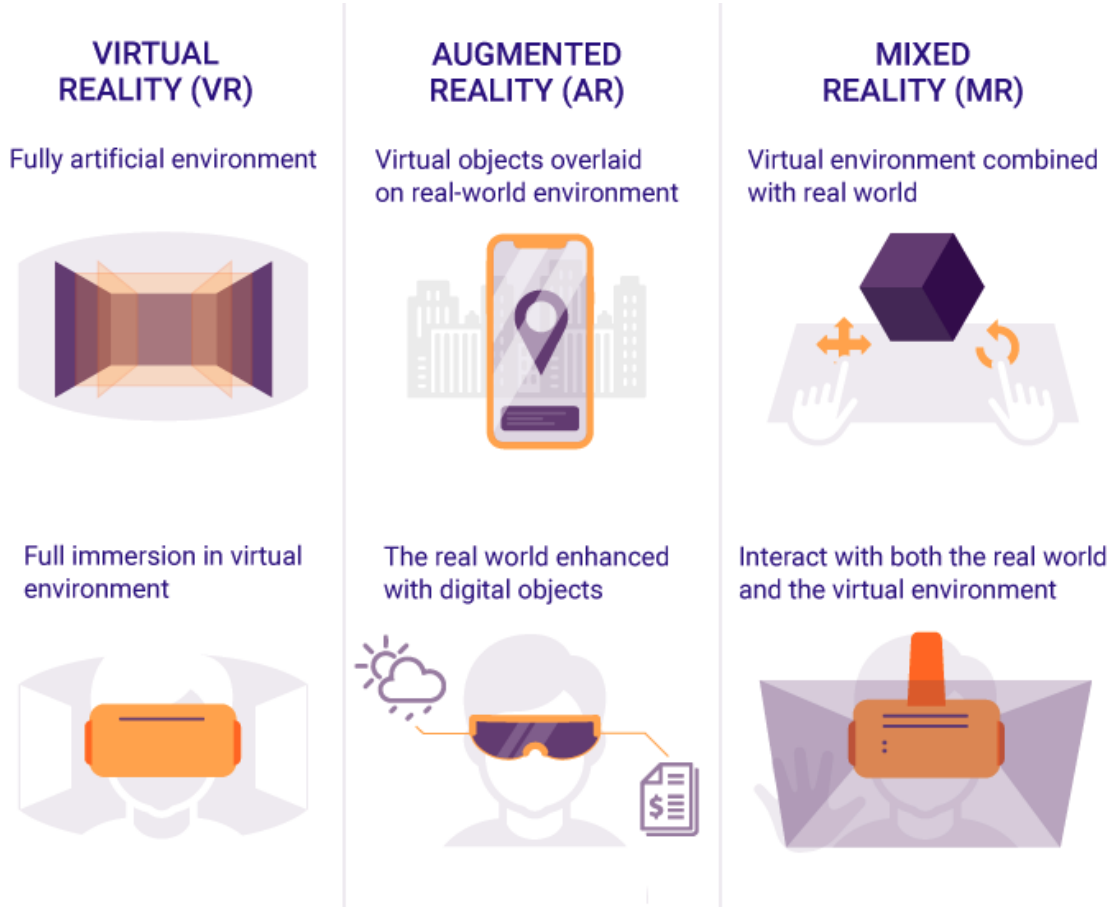


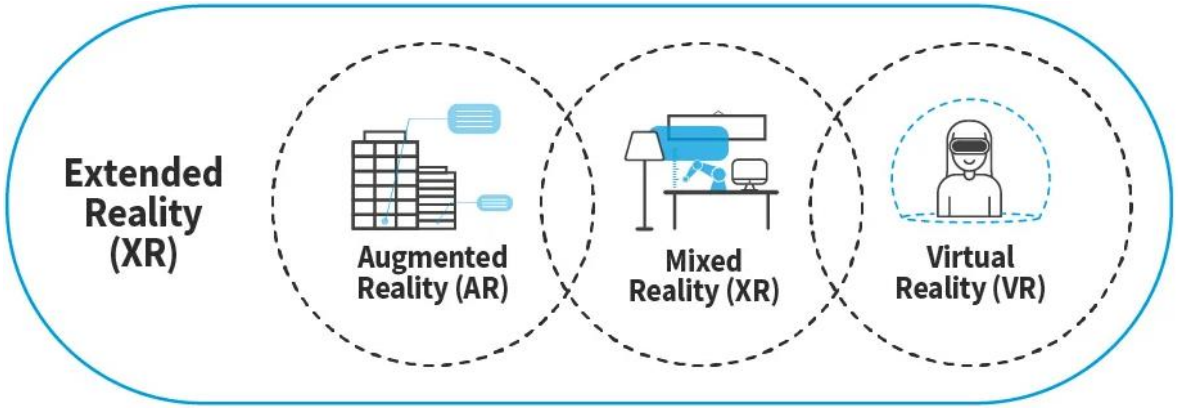
Extended reality (XR) is a universal term inclusive to immersive learning technologies virtual reality (VR), augmented reality (AR), and mixed reality (MR).



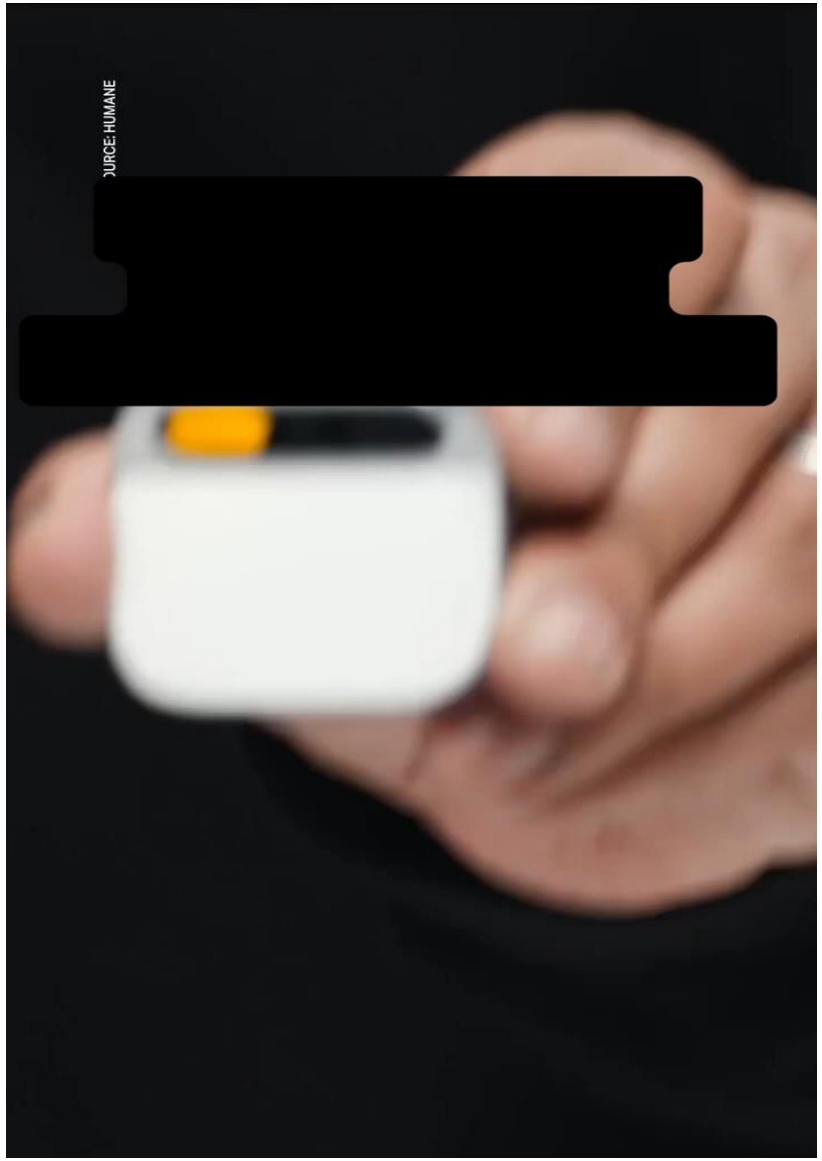
(*Reality- virtuality continuum (Milgram & Kishino, 1994*)*

Immersive Technologies





Example: AI-PIN



Other Technologies

Advanced Computing

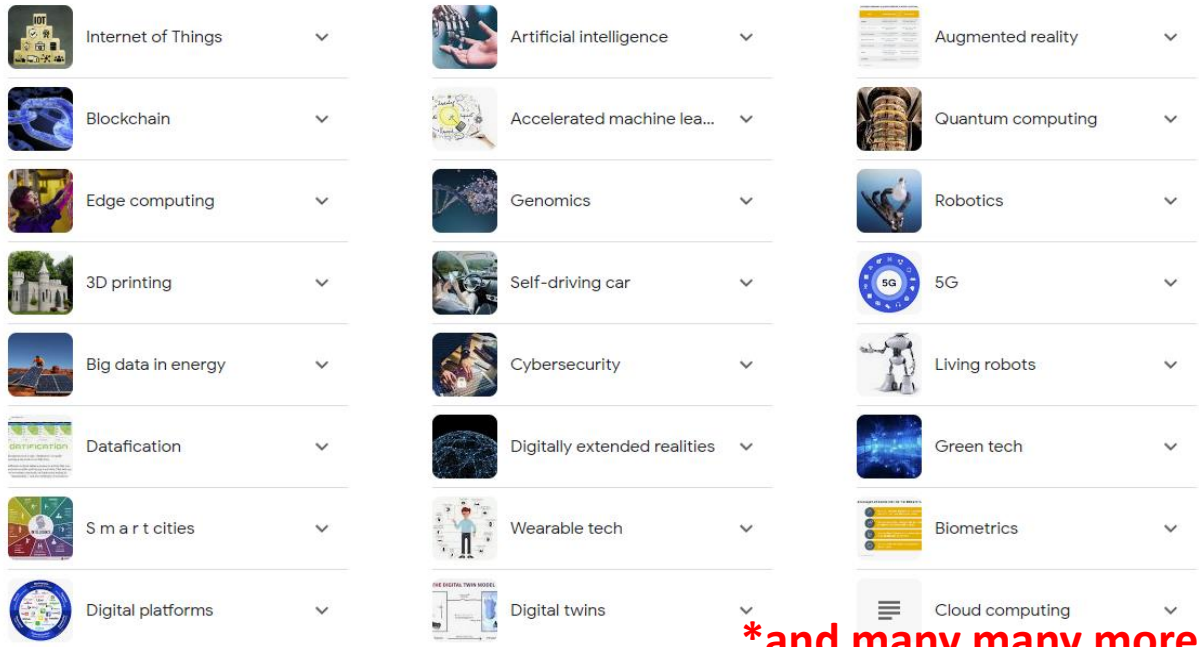
- Supercomputing
- Edge computing
- Cloud computing
- Data storage
- Computing architectures
- Data processing and analysis techniques

Quantum Information Technologies

- Quantum computing
- Materials, isotopes, and fabrication techniques for quantum devices
- Post-quantum cryptography
- Quantum sensing
- Quantum networking

Renewable Energy Generation and Storage

- Renewable generation
- Renewable and sustainable fuels
- Energy storage
- Electric and hybrid engines
- Batteries
- Grid integration technologies
- Energy-efficiency technologies



*and many many more

Innovations that will shape the future

Artificial intelligence (AI)

Robotics

Virtual reality (VR)

Internet of things (IoT)

Augmented reality (AR)

QR Scan

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