

# UNIT 1

# INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Content Curated by Pollux M. Rey

# FOR THIS UNIT...

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What is AI?

02

History of AI

03

AI vs. ML vs. DL vs. Data Science

04

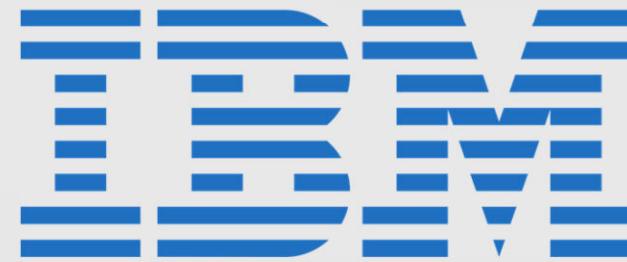
Applications of AI



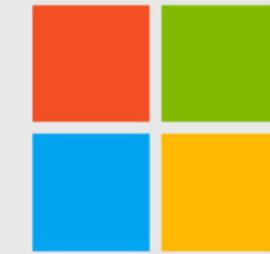
# WHAT IS ARTIFICIAL INTELLIGENCE?

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# what is AI?



NVIDIA®



Microsoft

Google amazon



what is AI?

problem-solving  
intelligence  
learning machines cognitive  
computers  
**human**  
capability **learn**

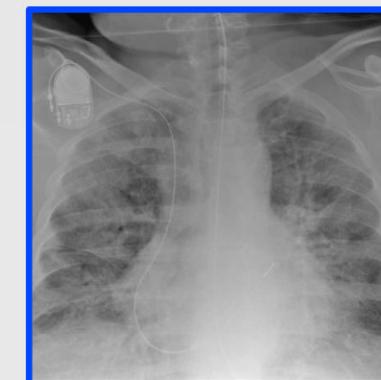
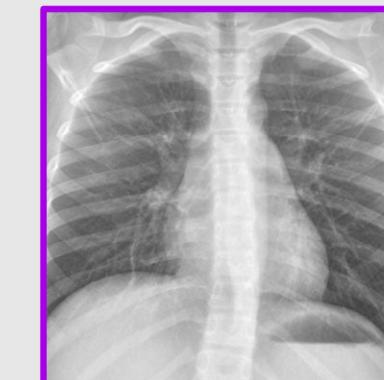
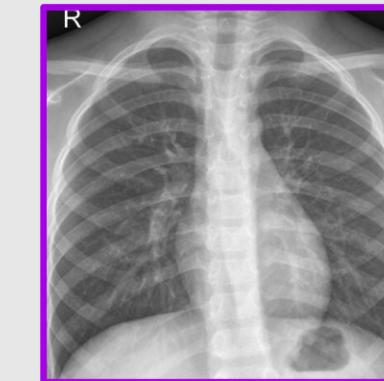
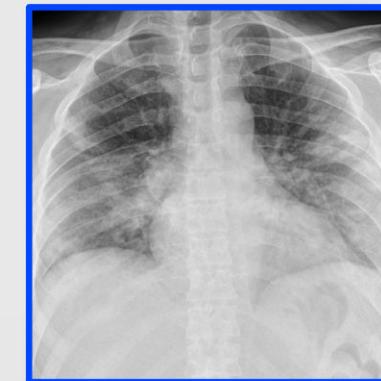
# what is AI?

A technology that enables computers  
and machines to simulate human intelligence  
and problem-solving capabilities.<sup>1</sup>

# How does AI work?

While the specifics vary across different AI techniques, the core principle revolves around data.<sup>1</sup>

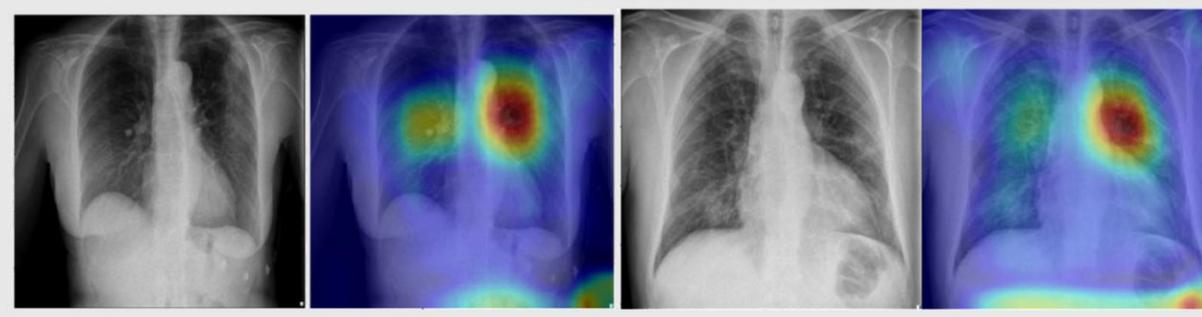
# How does AI work?



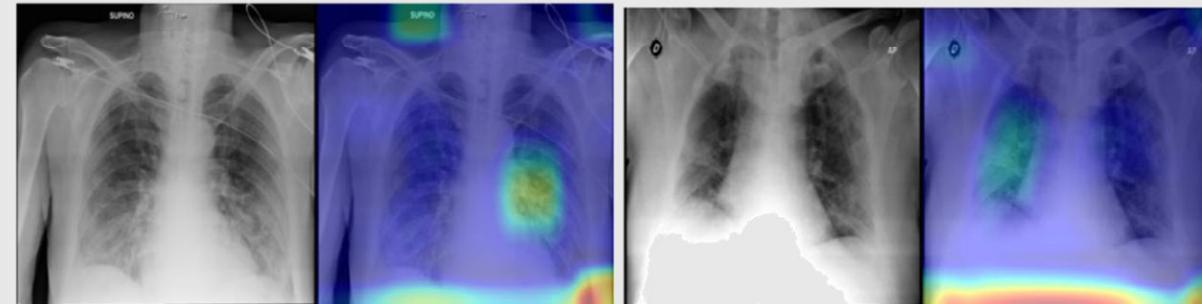
# How does AI work?

AI systems learn and improve through exposure to vast amounts of data, identifying patterns and relationships that humans may miss.<sup>1</sup>

# How does AI work?



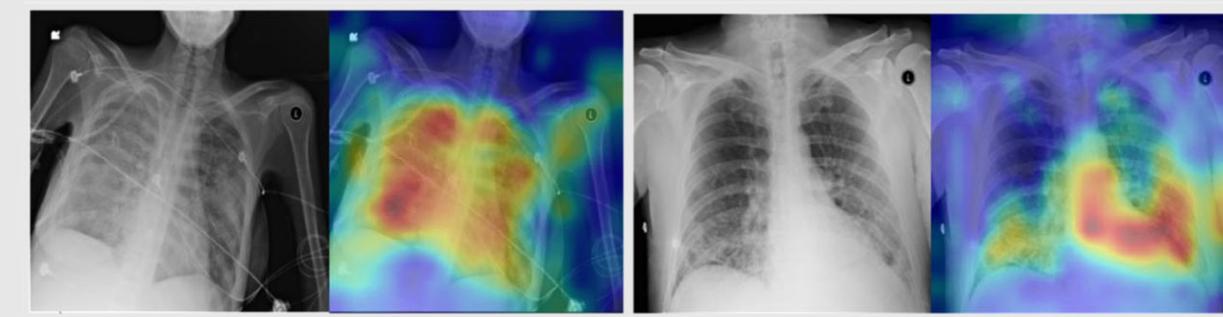
(a)



(c)

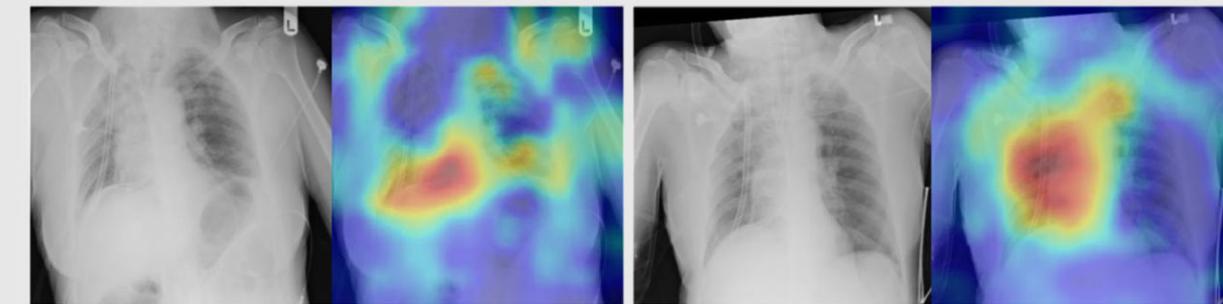
(b)

(d)



(e)

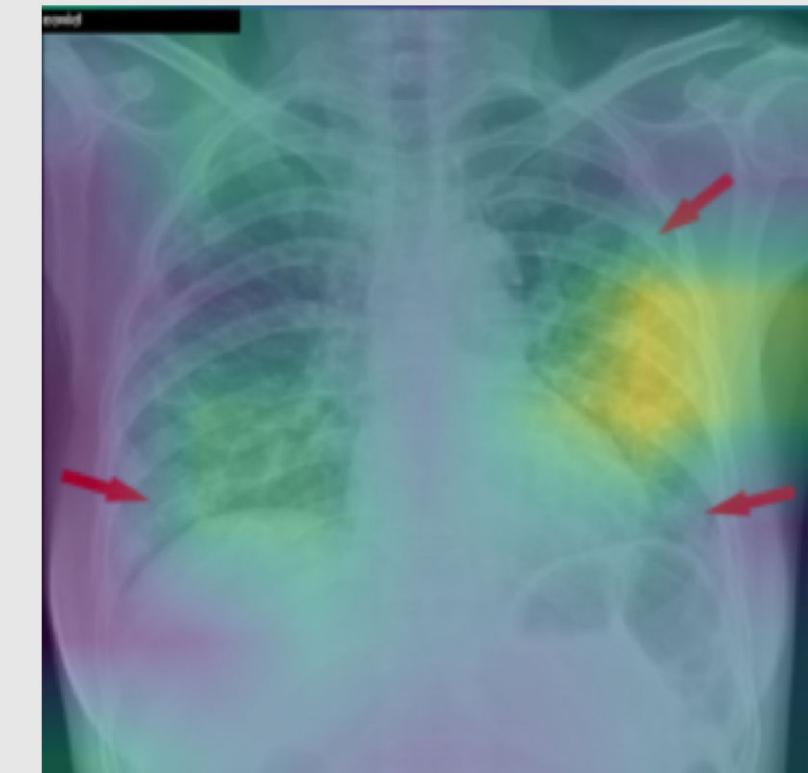
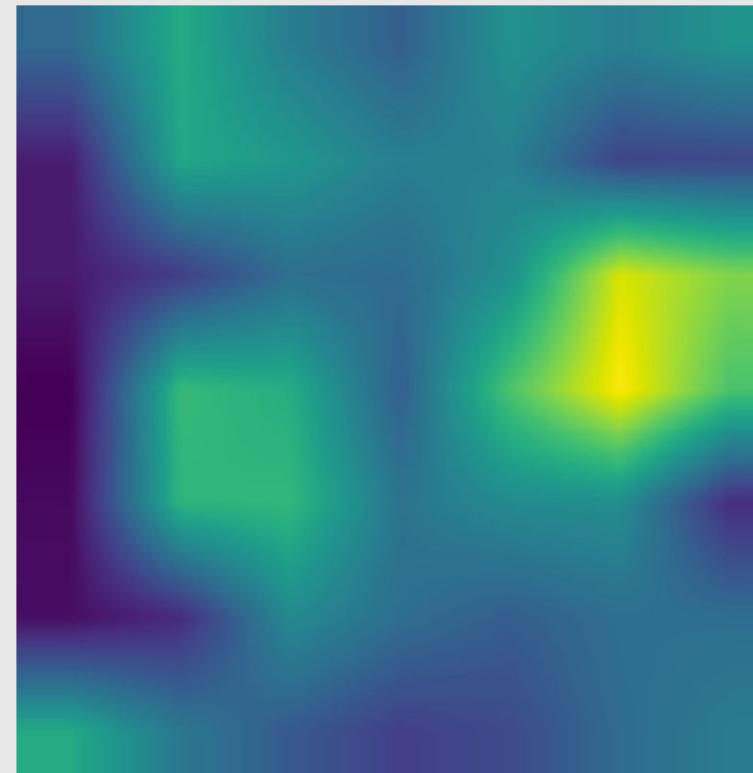
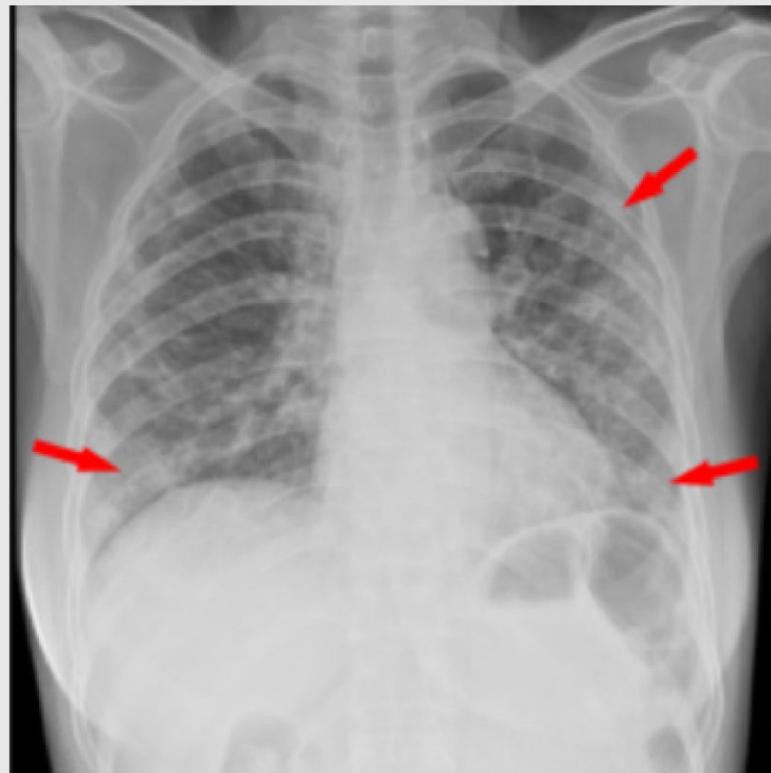
(f)



(g)

(h)

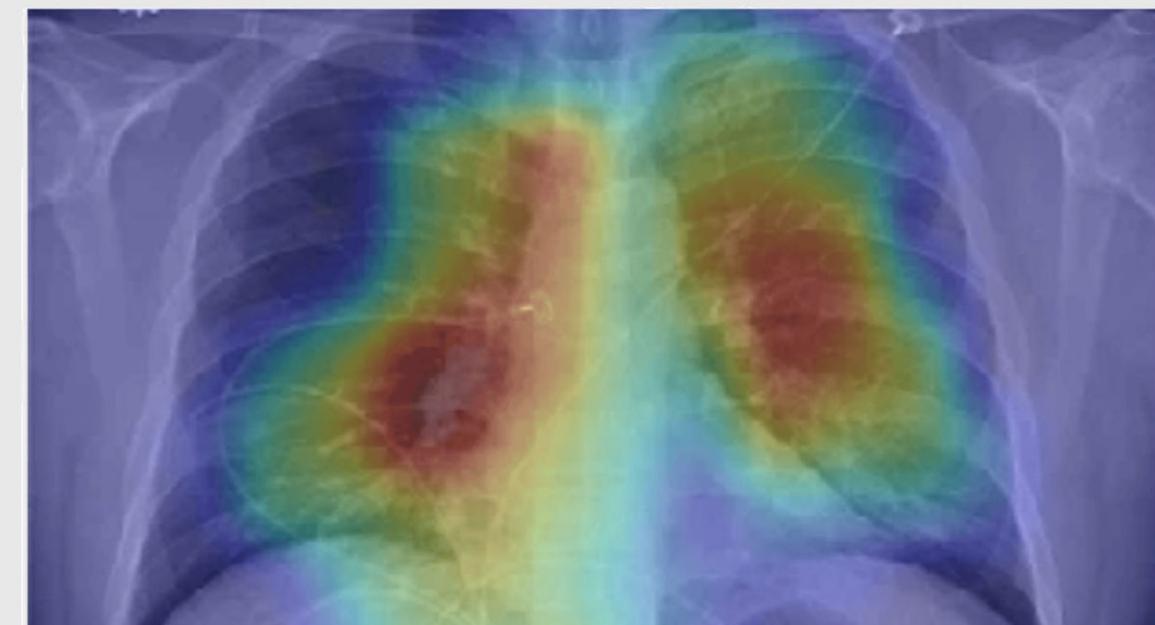
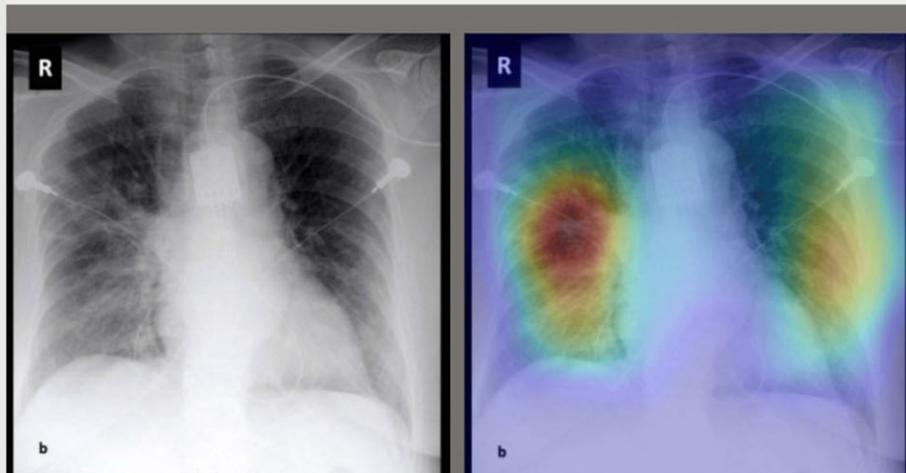
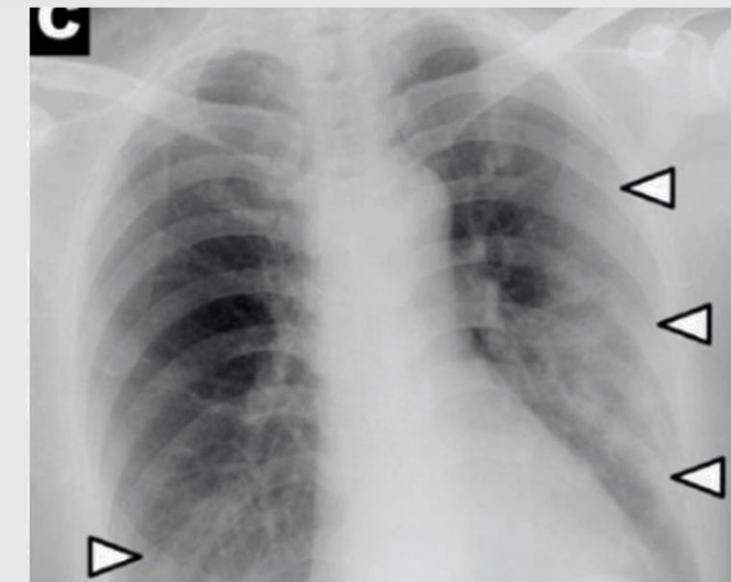
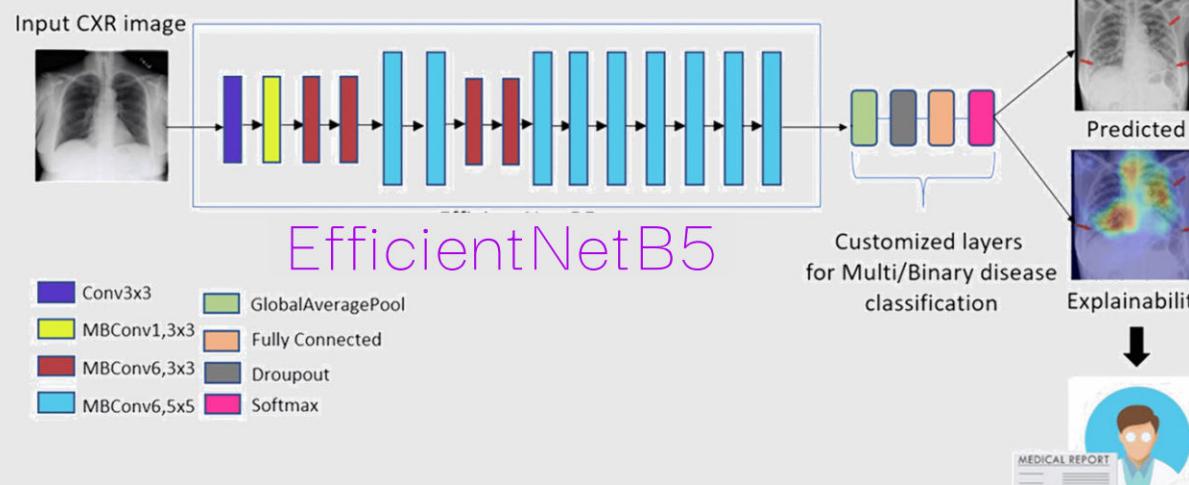
# How does AI work?



# How does AI work?

This learning process often involves algorithms, which are sets of rules or instructions that guide the AI's analysis and decision-making.<sup>1</sup>

# How does AI work?



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<sup>1</sup> <https://cloud.google.com/learn/what-is-artificial-intelligence>

# Types of AI



## Weak AI

Designed and trained  
for a **specific task**



## Strong AI\*

Have an intelligence  
equal to humans

# History of AI

Today's AI loosely stems from the 19th-century...

Charles Babbage's

Difference  
Engine

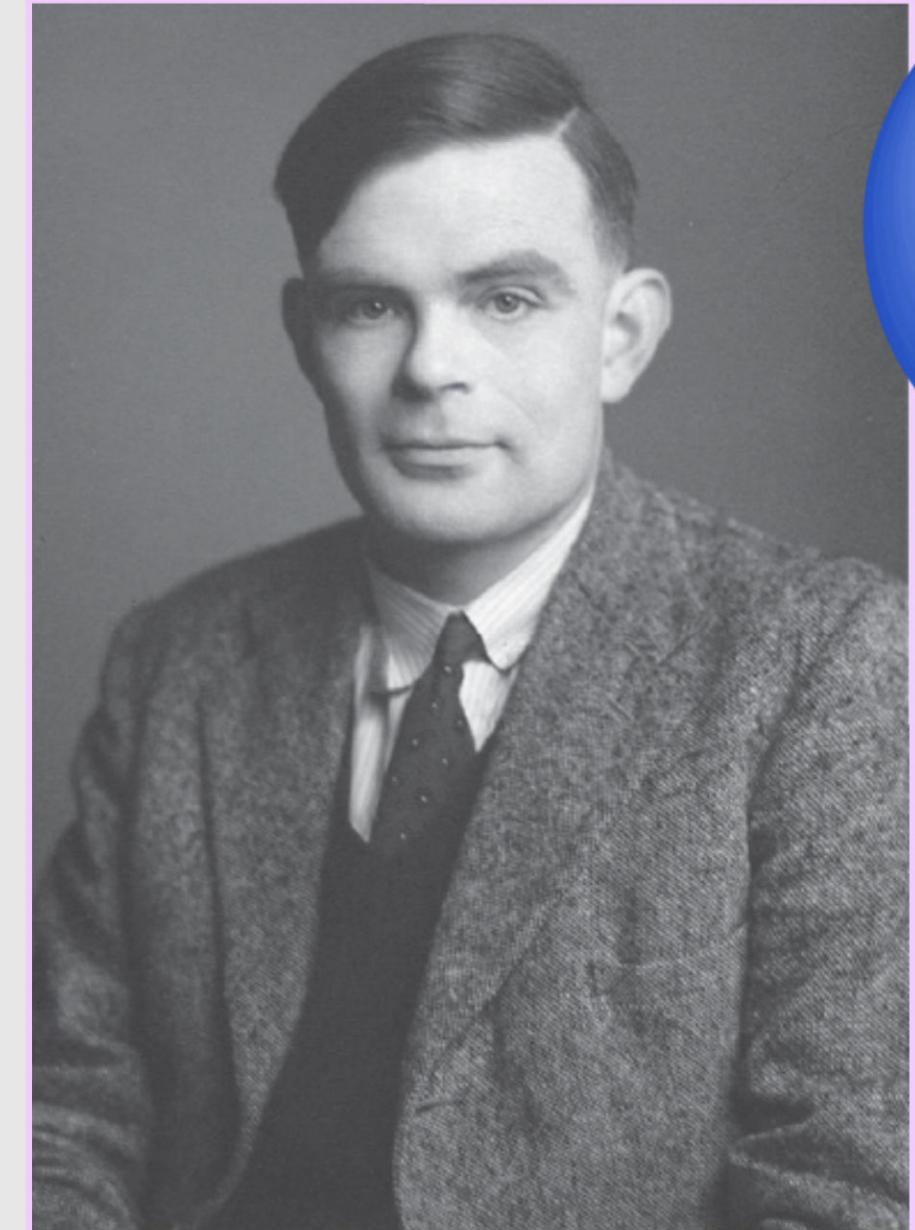
World's first successful automatic calculator



# History of AI

## Alan Turing

can also be seen as a father figure  
of today's iterations of AI



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<https://www.iso.org/artificial-intelligence/what-is-ai>

# History of AI

In 1950...

## I.—**COMPUTING MACHINERY AND INTELLIGENCE**

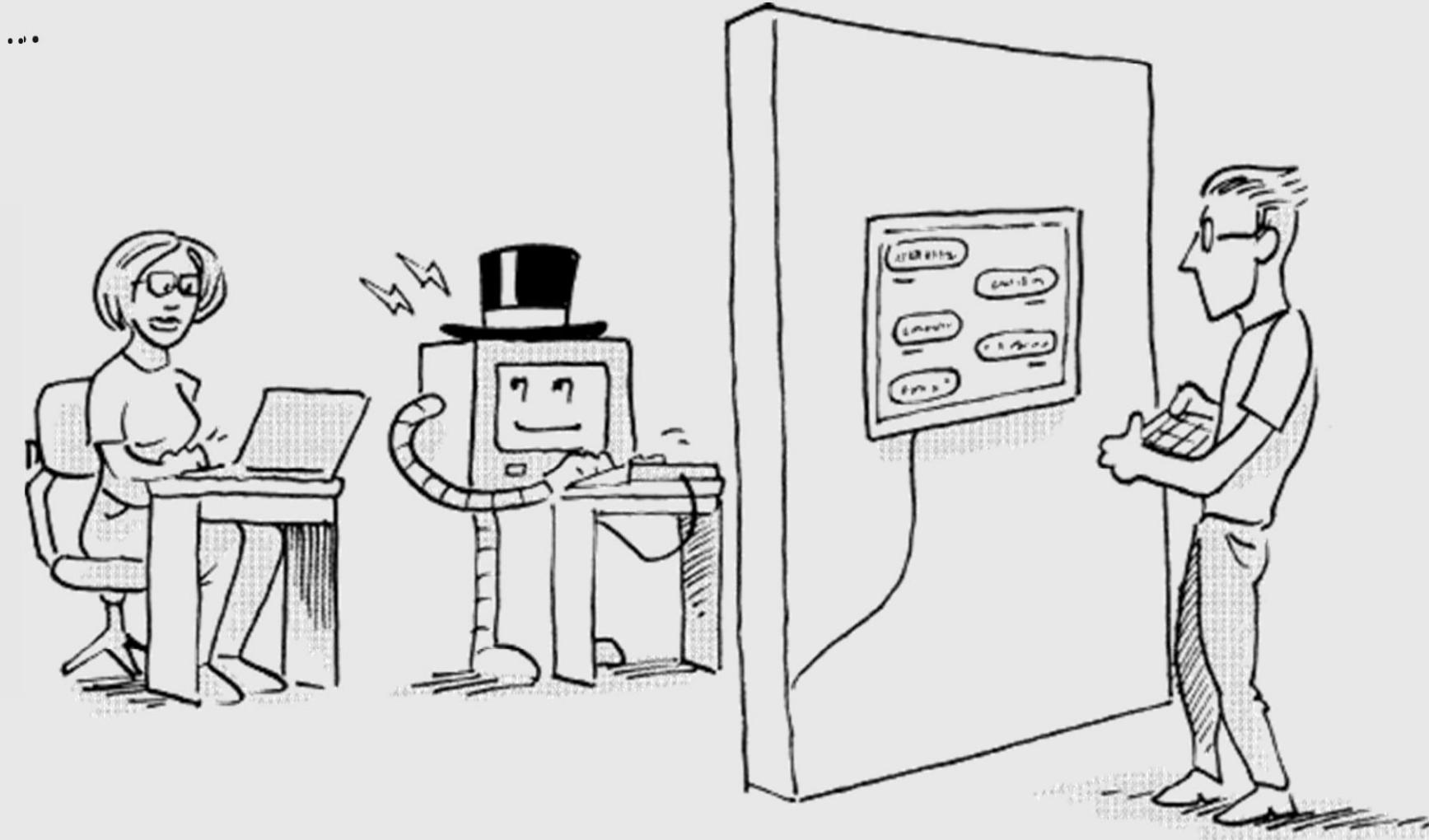
BY A. M. TURING

### 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

# History of AI

In 1950...



TURING TEST

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<https://www.iso.org/artificial-intelligence/what-is-ai>

<https://www.coursera.org/articles/history-of-ai>

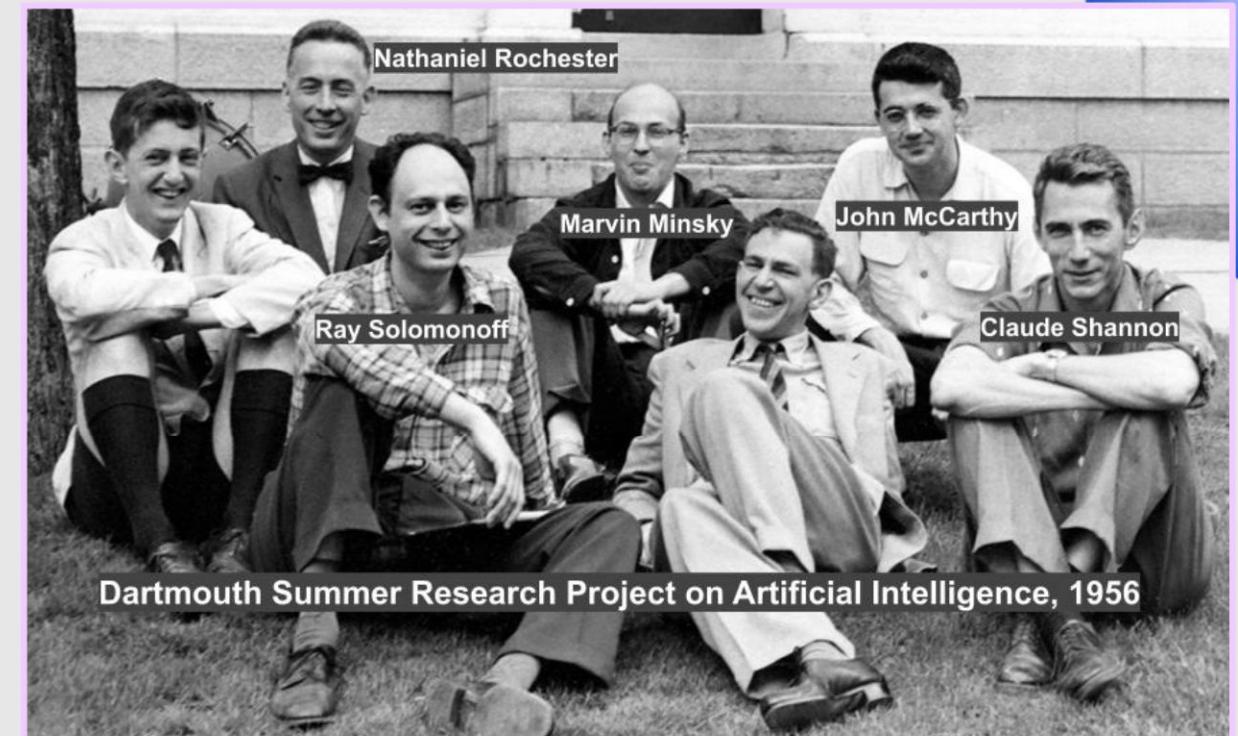
<https://www.informit.com/articles/article.aspx?p=3100062>

# History of AI

In 1956...

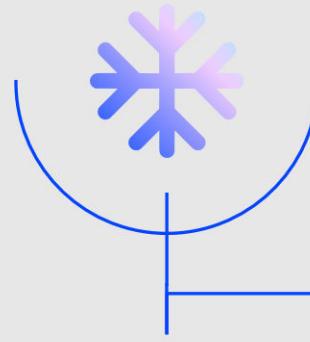
## Dartmouth Summer Research Project on Artificial Intelligence

Birth of AI research



# History of AI

1966-1974  
First AI Winter



Deep Blue beats chess champion Kasparov

1997

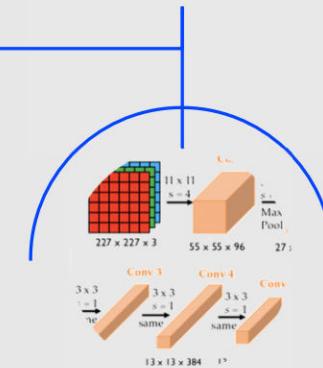


2011  
IBM's Watson DeepQA beats Jeopardy! champions

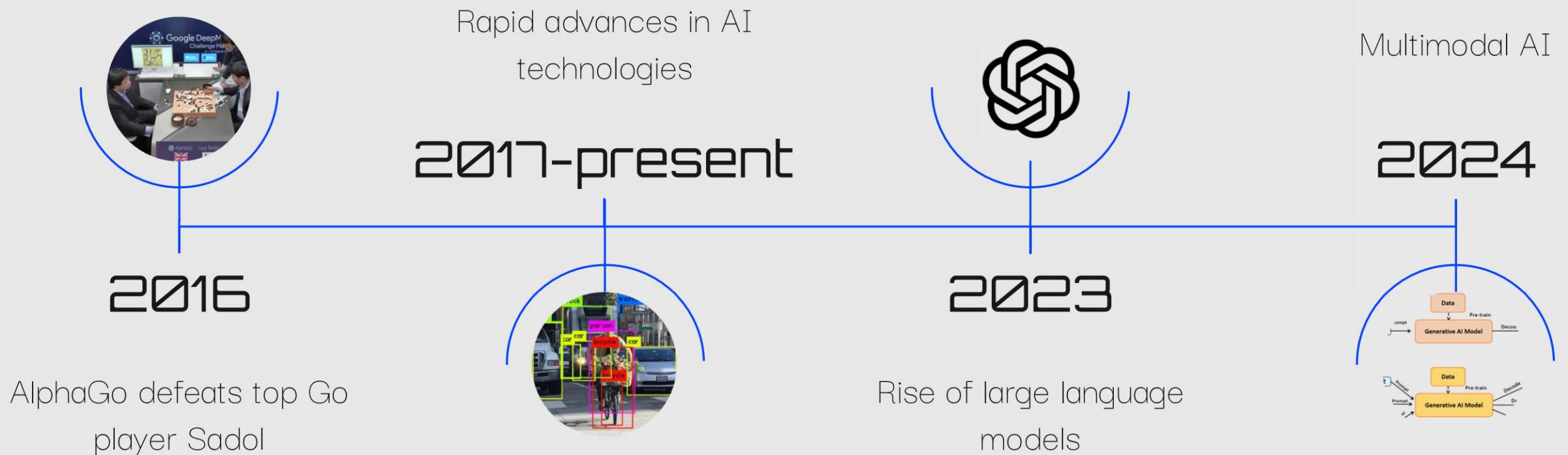


Deep learning revolutionizes AI

2012



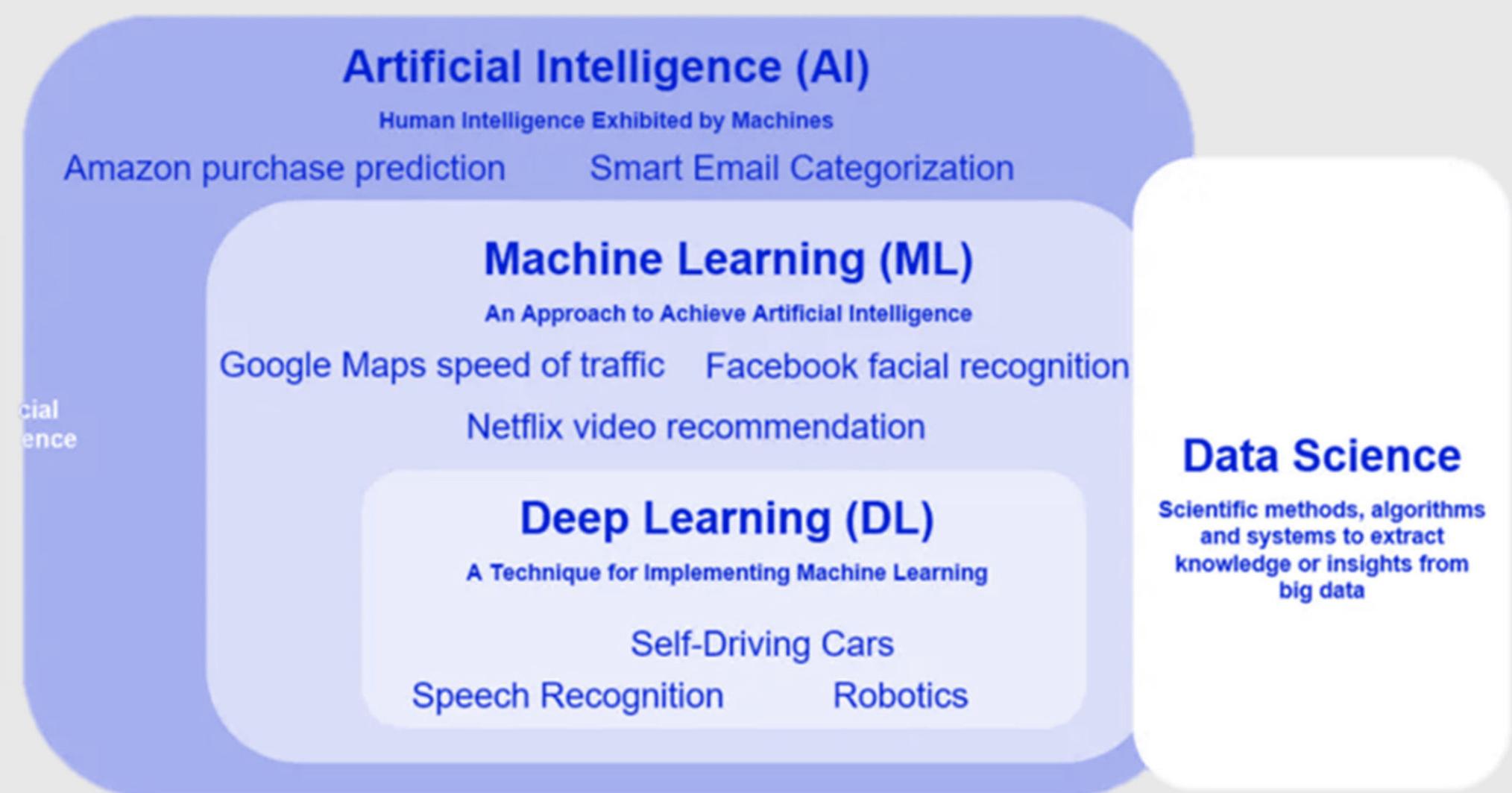
# History of AI



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<https://www.iso.org/artificial-intelligence/what-is-ai>  
<https://cloud.google.com/use-cases/multimodal-ai>

# AI vs. ML vs. DL vs. Data Science

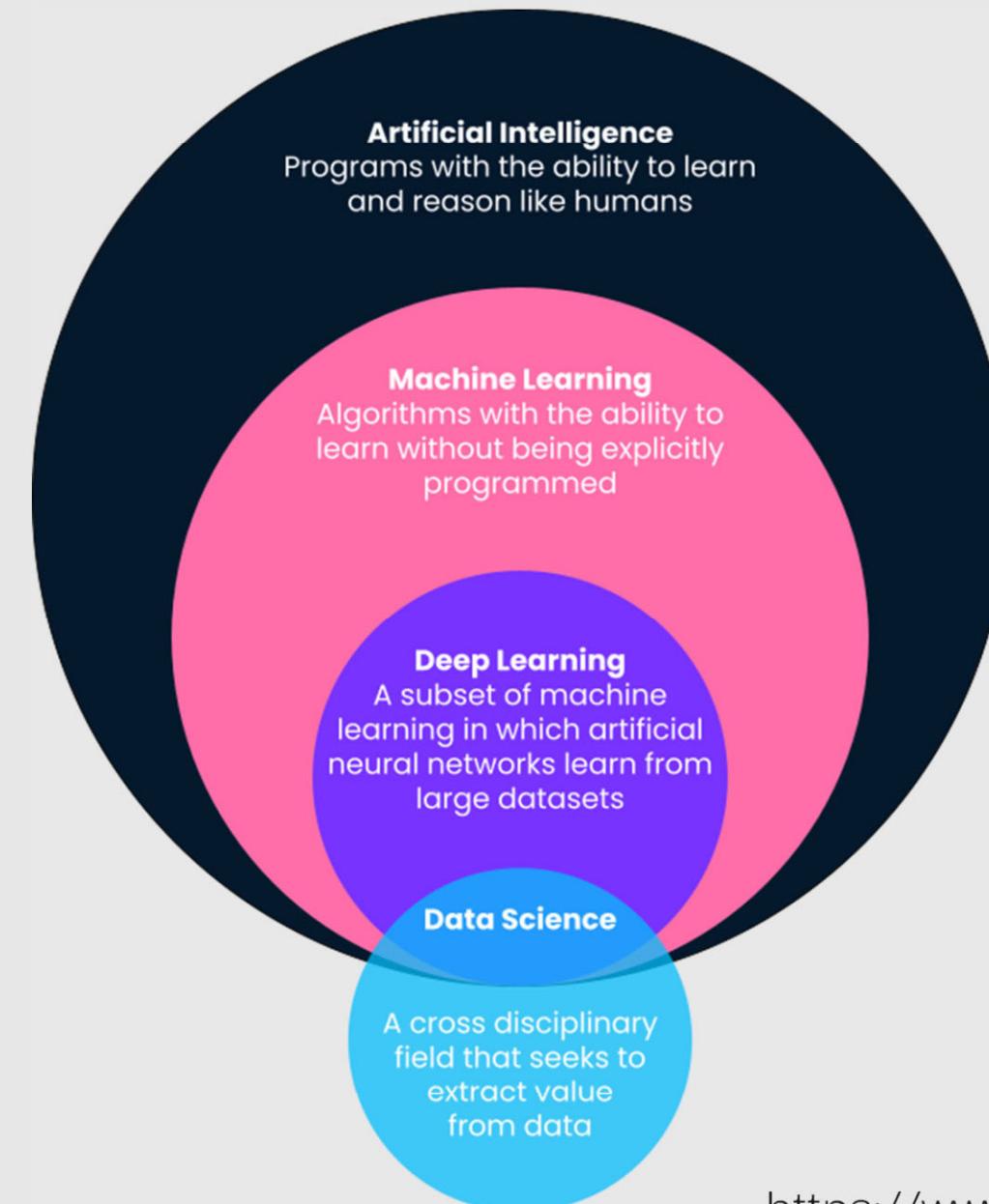


<https://www.ibm.com/think/topics/ai-vs-machine-learning-vs-deep-learning-vs-neural-networks>

<https://towardsdatascience.com/data-science-vs-artificial-intelligence-vs-machine-learning-vs-deep-learning-9fadd8bda583>

<https://medium.com/@marcellvollmer/how-to-make-it-simple-to-explain-ai-ml-dl-and-data-science-a49e54d54a12>

# AI vs. ML vs. DL vs. Data Science



<https://www.datacamp.com/blog/what-is-machine-learning>

# Applications

## Healthcare

The screenshot shows a news article on the flip science website. The header features the flip science logo and a navigation bar with links to Home, News, Podcast, Features, Earth, Health, Tech, Space, Biodiversity, Prehistory, About, and Contact. A search bar is also present. The main title of the article is "UPLB Scientists Develop AI-Driven System For Early Detection Of Liver Cancer". Below the title, it says "Published on January 9, 2024" and "by FlipScience Staff". The article includes a large image of two medical scans (ultrasound or CT) of eyes. Below the image is a photograph of six people standing in front of a presentation screen. The screen displays text about the project, including "Early CANcer Detection in the Philippines with Chronic Hepatitis B and C using AI-Driven Integration of Clinical and Genomic Biomarkers (CANDLE)" and "PROJECT 2: AI-driven Integration of Genomic, Ultrasound, Serum Biomarker and Clinical data for Early Diagnosis of Liver Cancer Renewal for Year 3 Implementation". The bottom right of the image is credited to "Cedric Katigbak". To the right of the main content, there is a "Recent" section featuring a thumbnail of a person milking a goat and the text "Offering goat's milk-based livelihood to mitigate COVID-19's impact in Central Luzon" with a publication date of June 15, 2024. At the bottom right, there is a blue box for "AGRI TECHNICA ASIA" with the dates "22 - 24 MAY 2024" and location "BITEC | BANGKOK | THAILAND".

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<https://www.flipscience.ph/technology/uplb-scientists-develop-ai-driven-early-detection-liver-cancer/>

# Applications

## Agriculture

The screenshot shows the official website of the International Rice Research Institute (IRRI). The header features the IRRI logo and navigation links for News & Events, Experience IRRI, Resources and Tools, and a search bar. Below the header, a main banner highlights a recent news story: "IRRI receives Google support to apply AI for climate resilient rice development". The news article is dated September 12, 2023, from Los Baños, Laguna, Philippines. It discusses Google's grant funding to IRRI's Fit-for-Future Genetic Resources unit to develop AI-powered phenotyping methods for rice varieties resilience against flooding, drought, and salinity.

**IRRI receives Google support to apply AI for climate resilient rice development**

HOME > NEWS & EVENTS > NEWS

*Leveraging the International Rice Genebank collection for a food-secure future*

**LOS BANOS, LAGUNA, PHILIPPINES (Sept. 12, 2023)** – The International Rice Research Institute (IRRI) is receiving 2 million USD in grant funding from Google’s philanthropic arm, Google.org, to harness the power of Artificial intelligence (AI) towards fast-tracking the development and deployment of high-yielding, climate-resilient rice varieties to sustain and increase rice production in the face of climate change.

Google’s philanthropic arm, Google.org, has set up this competitive grant to harness the power of Artificial Intelligence (AI) to achieve the United Nations Sustainable Development Goals.

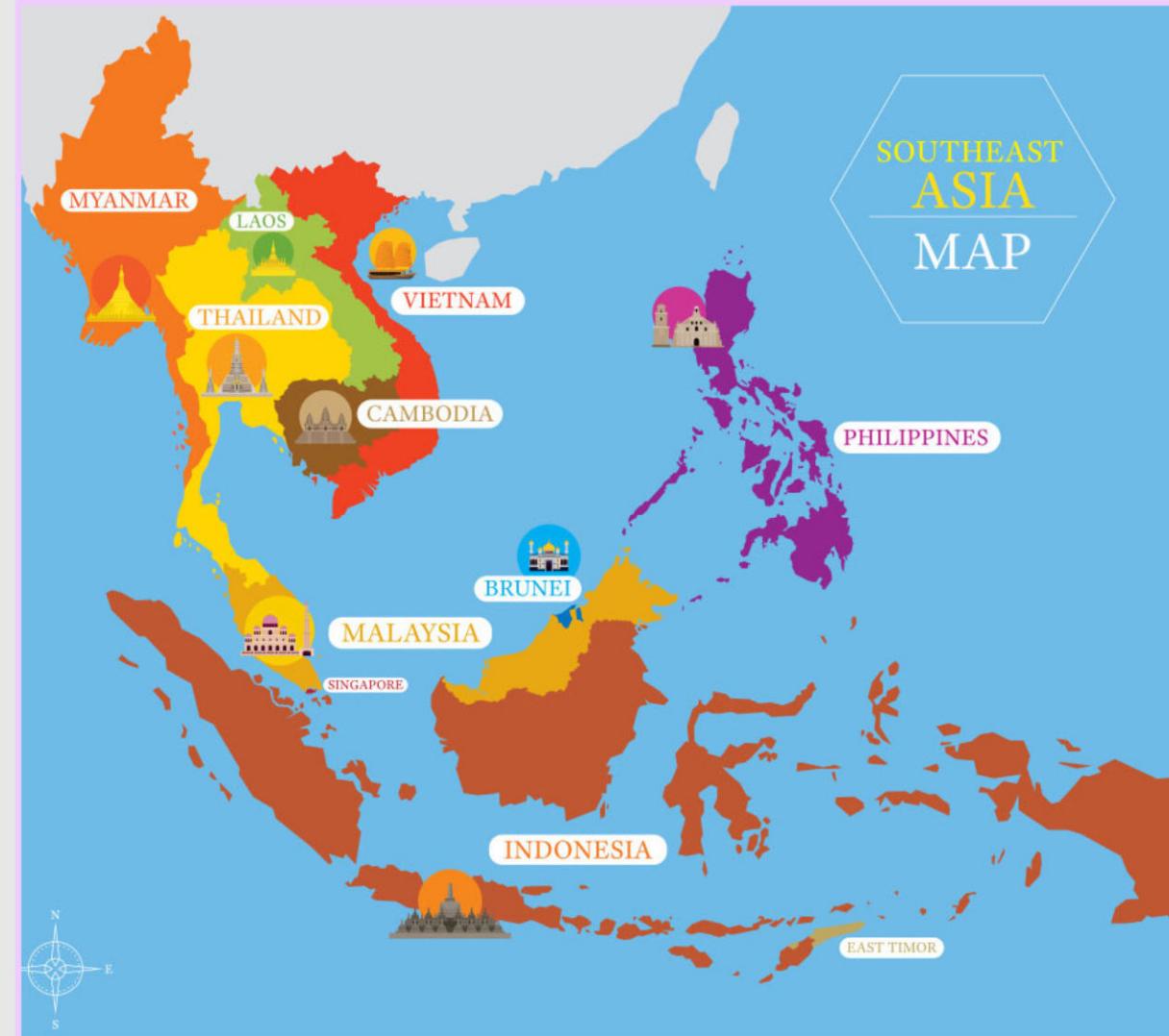
Through this grant, the researchers from IRRI’s Fit-for-Future Genetic Resources unit that steward the International Rice Genebank (IRG) aim to apply a combination of AI and high-throughput phenotyping methodologies to assess the IRG rice collection’s tolerance to abiotic stresses such as flooding, drought, and salinity – making a laborious, costly, and time-consuming process more efficient. This will also promote the enhanced utilization of the genebank’s resources.

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<https://www.irri.org/news-and-events/news/irri-receives-google-support-apply-ai-climate-resilient-rice-development>

# Applications

## Agriculture



<https://www.fao.org/agrifood-economics/publications/detail/en/c/123056/>

<https://www.vectorstock.com/royalty-free-vector/southeast-asia-map-with-country-icons-and-location-vector-15738463>

# Applications

## Flood Forecasting



# Applications

## Flood Forecasting



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<https://technology.inquirer.net/133105/google-ai-flood-forecasting-tool>

[https://www.youtube.com/watch?v=Mz0ikfuE\\_z0](https://www.youtube.com/watch?v=Mz0ikfuE_z0)

**THANK YOU!**

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