

# MBAi 448 | Winter 2026

## The AI Landscape

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Alex Castrounis  
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# Attendance

Enter the “Magic Word” in Canvas

\*\*\* Do not share the Magic Word with any absent students \*\*\*

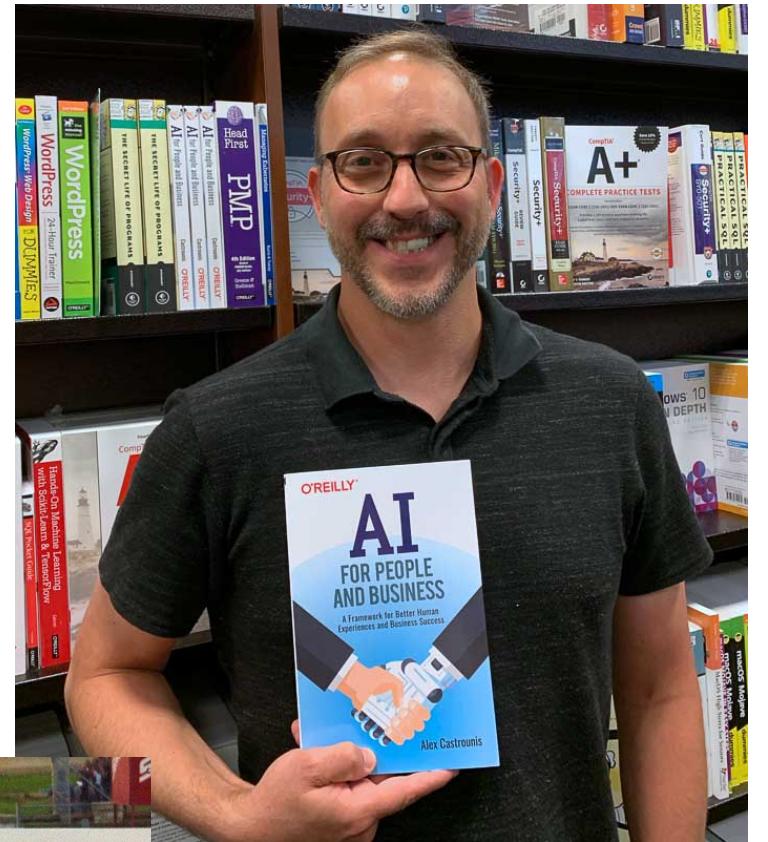


# Northwestern Kellogg

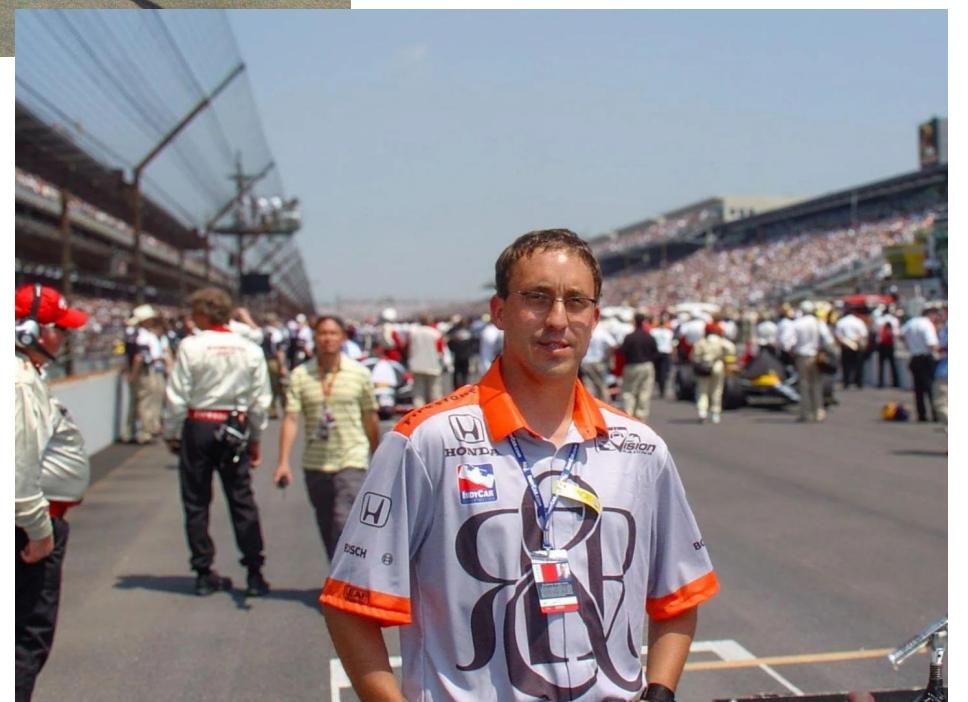
**CHICAGO BOOTH**   
The University of Chicago Booth School of Business

i87i

# Why of AI®



Connect with me:  
[Linkedin](#) | [Email](#)



# Graduate Assistant – Harper Pack

## Professional

Works as Research Associate at Northwestern University

Northwestern  
ENGINEERING

## Education:

MS in Artificial Intelligence, Northwestern University, Fall 2019



Connect with me: [LinkedIn](#) | [Email](#)

# Graduate Assistant – Candela Kechkian



Connect with me: [Linkedin](#) | [Email](#)

## Professional Experience

**D.** Analyst-Senior Consultant, Deloitte Consulting

## Education

**K** MBA, Artificial Intelligence, Northwestern University, 2026

**C** B.S. Mechanical Engineering, Clemson University, 2019

**C** B.A. Communication, Clemson University, 2019

## Examples of how I can help as your GA

- Normal GA stuff: class content, assignments, final project, etc.
- If you want to dive deeper into the cool topics we cover in class (and beyond)
- If you don't have technical background and want a basic explanation
- Any questions about trustworthy and ethical AI (and why it's good for business)
- Resources to continue exploring / self-learning
- Comparison of AI tools for different use cases (which one is best for what)
- If you're bored and want to hear my many AI hot takes

# Graduate Assistant – Bryant Bettencourt



## Professional Experience

 Software Engineer, Intel

## Education

 M.S. Artificial Intelligence, Northwestern University, 2026

 B.A. Data Science, UC Berkeley, 2021

## Examples of how I can help as your GA

- If you have questions about the class! (assignments, logistics, grades, etc)
- If you want to go more in-depth on the technical aspects!
- If you love to have conversations about all things AI, especially human-AI interactions!
- If you are interested in finding local AI hackathons or meetups!
- If you need book or podcast recs about AI!

Connect with me: [Linkedin](#) | [Email](#)

# Student Introductions

Name & Preferred 1st Name | Previous Work | Professional Goals



# Why This Course and Key Differentiators



Landscape

Fluency / Understanding

Collaboration / Translation

Hands-on Coding / Appreciation

Research

Mapping

Vision and Strategy

Image via ChatGPT

Business Leadership, Management, Acumen

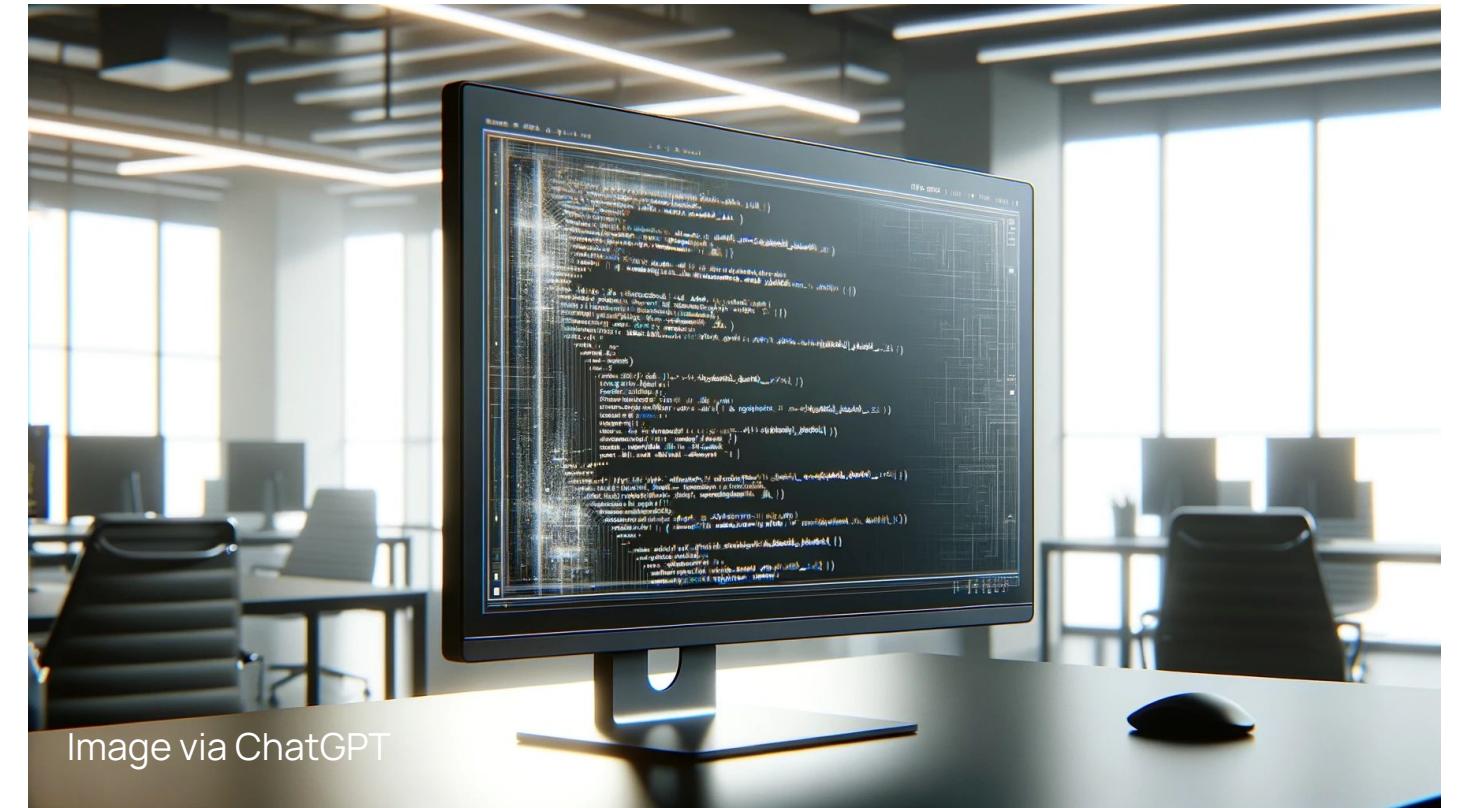


Image via ChatGPT

Technical Expertise, Hands-on Skills, R&D

<b>WEEK</b>	<b>TOPIC</b>
1	The AI Landscape
2	Data Representations
3	AI Fundamentals
4	Deep Learning
5	Transformers
6	Generative AI
7	Aligned AI
8	Agentic AI
9	AI Today & Beyond
10	Putting It All Together

# Grading and Cadence



30% quizzes



60% assignments



10% attendance

**Quizzes** - Due weekly

**Assignments** - Worked on mostly outside of class and one or more assignments due weekly

**Attendance** - Every Class

# About this Class

**Class meets every week on Mondays and Thursday from 10:30am to 12pm.**

- Typical Monday class
  - Lecture and in-class activities
- Typical Thursday class
  - Lecture
  - Code walkthrough or demonstration
  - Assignment work

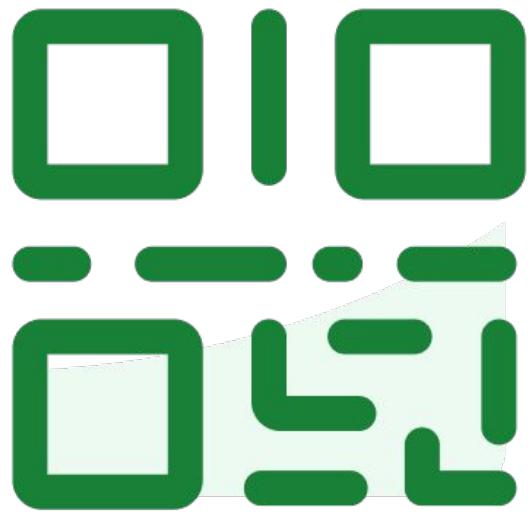
We will also have weekly quizzes based on the material covered each week.

**\*\*\* Canvas is the source of truth for ALL due dates. Late submissions not accepted.**

- › Plan to attend all classes **In-Person**
- › See Canvas for sick/quarantine instructions
- › See Canvas for planned absence instructions
- › Class will **NOT** be recorded
- › Schedule interviews outside of class time if possible
- › Lecture slides will be made available before class



- › In-class: use the **#mbai-448-in-class-comms** channel
- › For help: use the **#mbai-448-graduate-assistants** channel



Join at [slido.com](https://www.slido.com)  
**#mbai**



Presenting with animations, GIFs or speaker notes? Enable our [Chrome extension](#)



# MBAi Kickoff Survey

# Activity

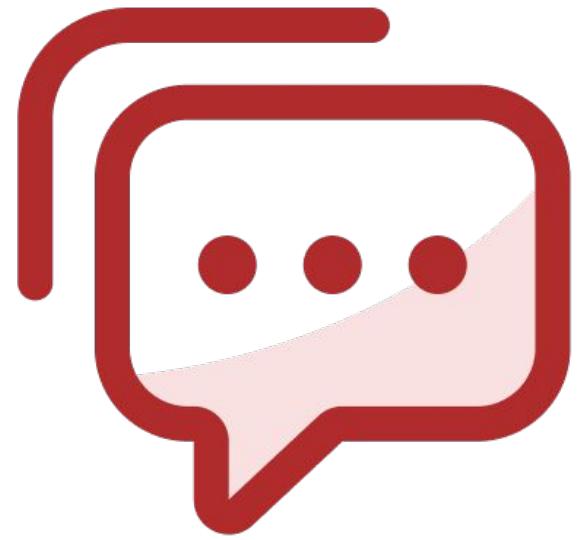
*Q&A*

## Instructions

### **Navigate to the “Q&A” tab**

- Enter the top three questions about AI that you want answered this quarter
- Enter the top three things about AI that you want to learn more about this quarter
- Review and “like” as appropriate for your interests

\*\*\* We will come back to this later in the quarter



## Audience Q&A



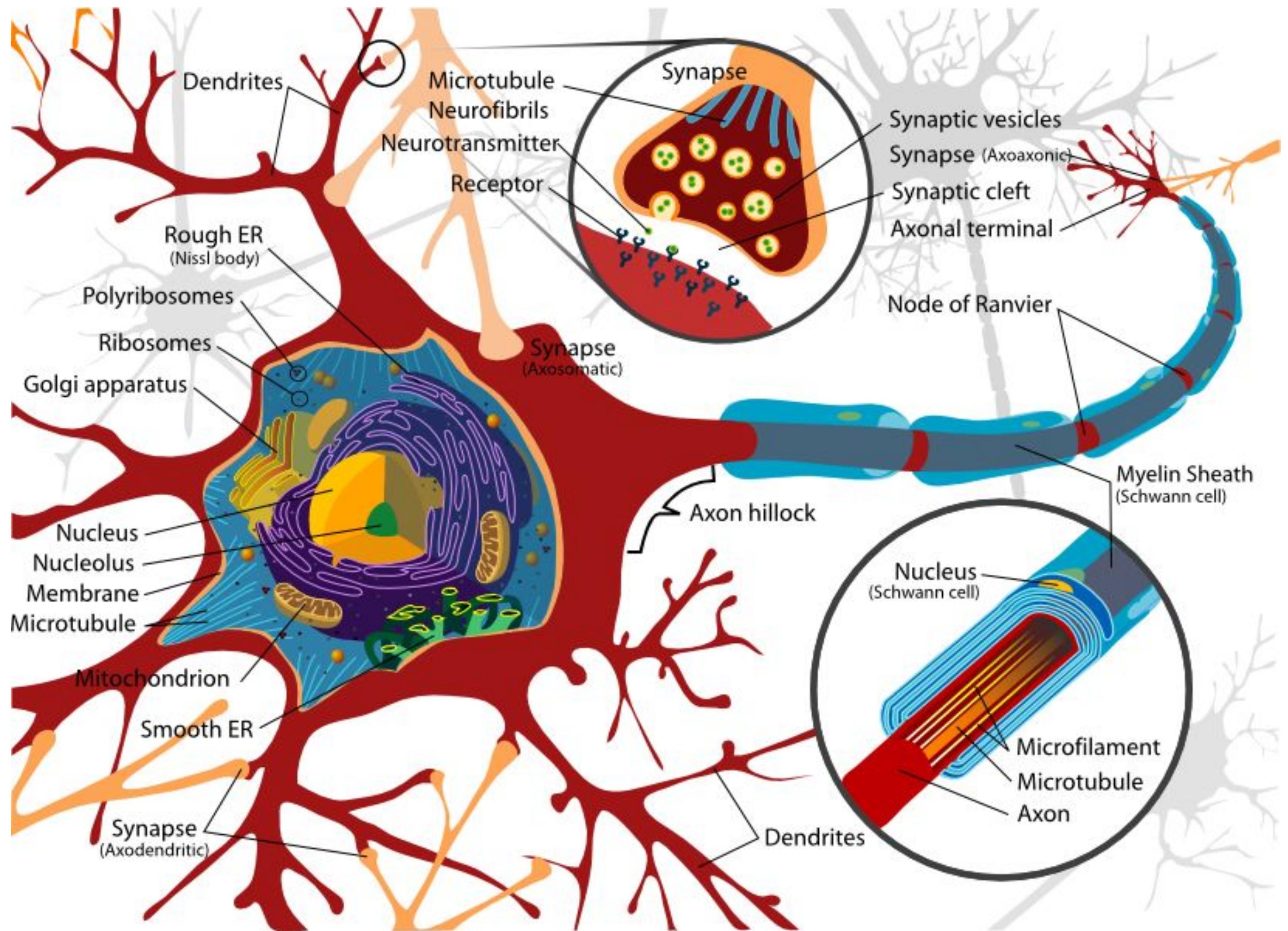
Presenting with animations, GIFs or speaker notes? Enable our [Chrome extension](#)

# What is intelligence?

# Intelligence Defined

- Learning and Understanding in almost all definitions
- Results in common sense, our world model, and our knowledge
- The ability to apply our knowledge and skills (e.g., reasoning, logical thinking)

**TL;DR: learning, understanding, and applying knowledge and skills learned**



# What is artificial intelligence?

# AI ≠ LLMs

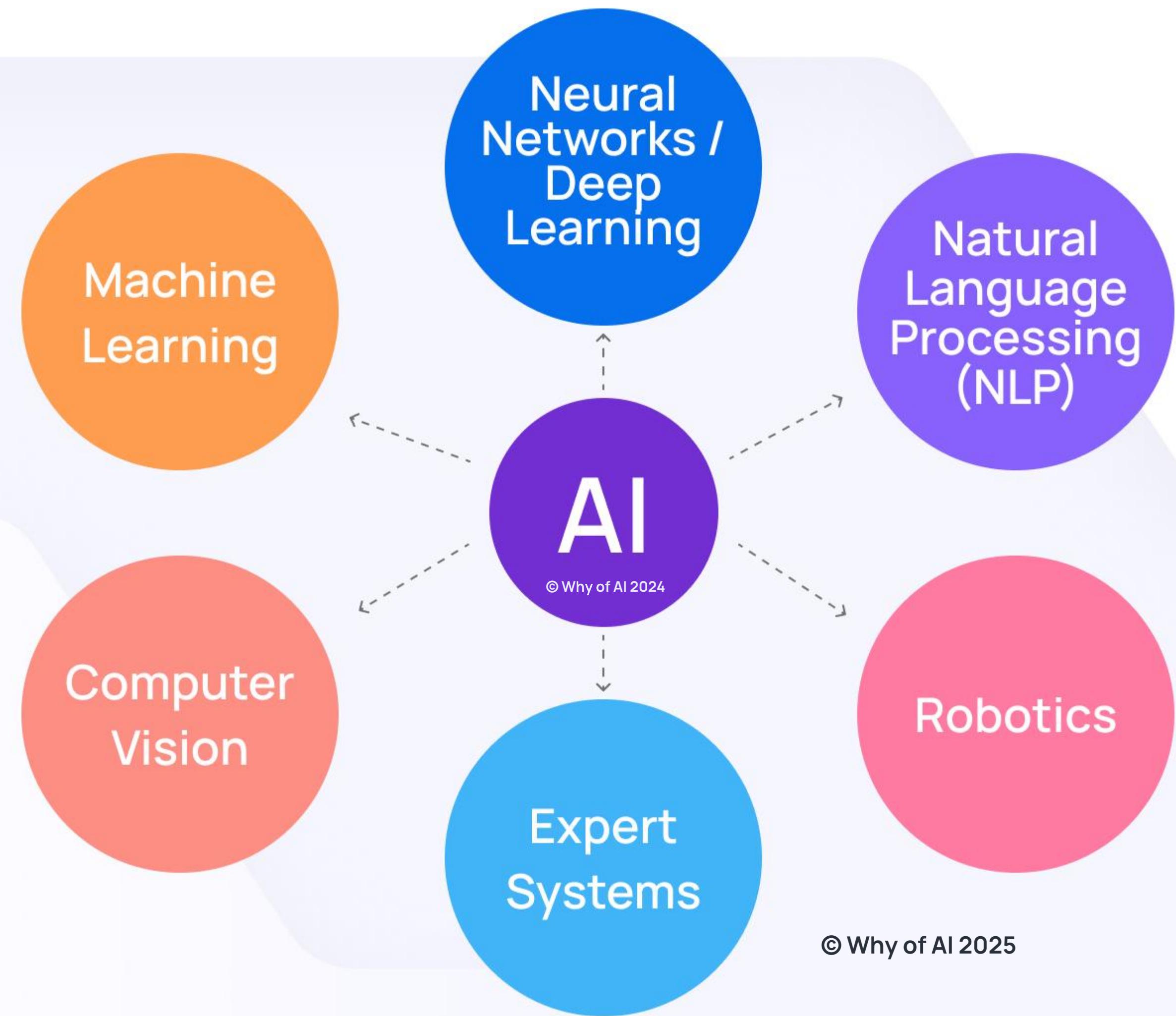
# **Intelligence Exhibited by Machines**

- › Increase Productivity
- › Reduce Manual Work
- › Fill Gaps
- › Innovate
- › Get and Stay Ahead



Image: ChatGPT

What does the  
phrase "AI  
Landscape"  
mean to you?

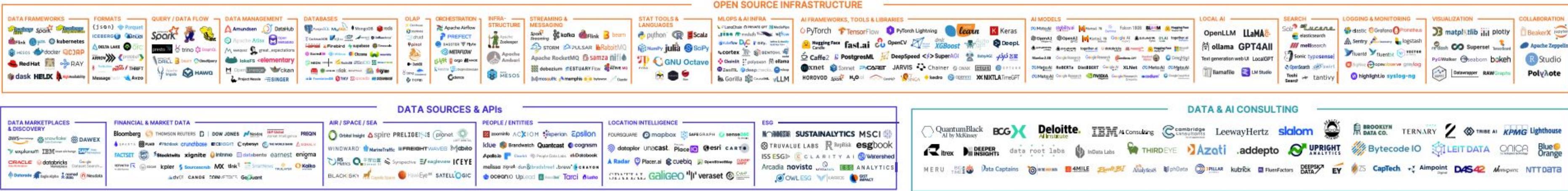
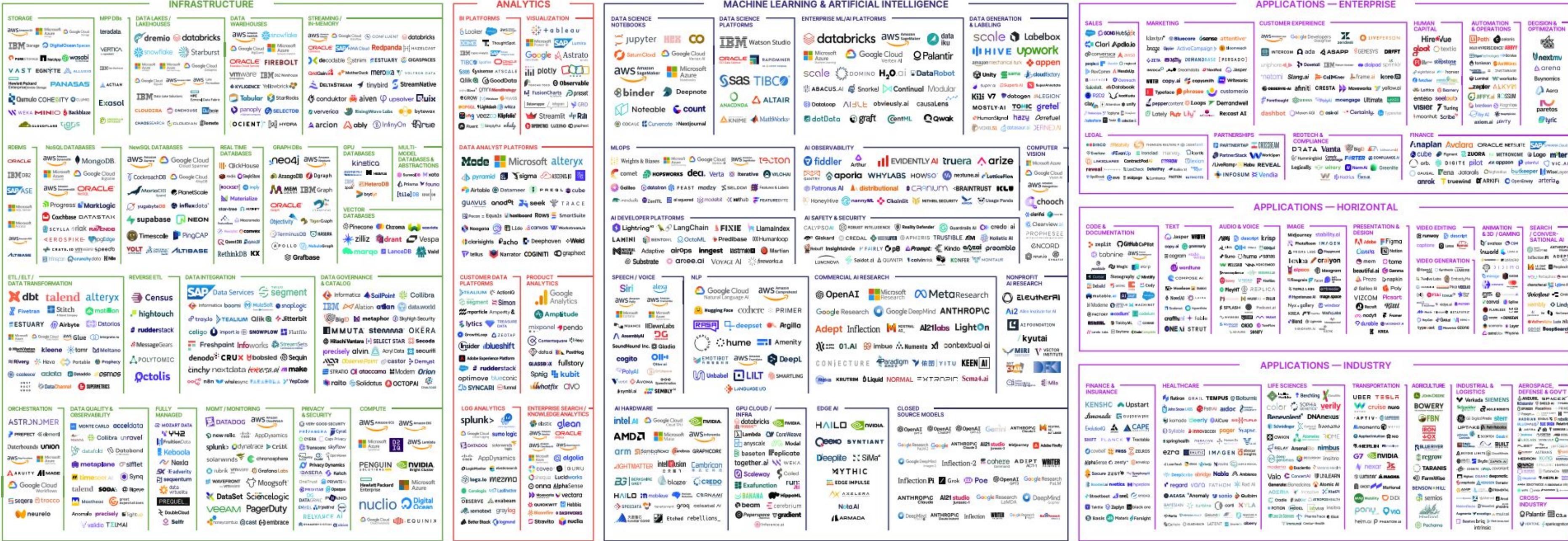




Gemini

The word "Gemini" is written in a large, blue, sans-serif font. A small, purple, four-pointed starburst icon is positioned above the letter "i".

THE 2024 MAD (MACHINE LEARNING, ARTIFICIAL INTELLIGENCE & DATA) LANDSCAPE



# Artificial Intelligence

## Authors and titles for recent submissions

- [Wed, 21 Aug 2024](#)
- [Tue, 20 Aug 2024](#)
- [Mon, 19 Aug 2024](#)
- [Fri, 16 Aug 2024](#)
- [Thu, 15 Aug 2024](#)

See today's [new](#) changes

Total of 611 entries : 1-25 [26-50](#) [51-75](#) [76-100](#) ... [601-611](#)

Showing up to 25 entries per page: [fewer](#) | [more](#) | [all](#)

**Wed, 21 Aug 2024 (showing first 25 of 164 entries )**

[1] [arXiv:2408.11042](#) [pdf, html, other]

### **GraphFSA: A Finite State Automaton Framework for Algorithmic Learning on Graphs**

[Florian Grötschla](#), [Joël Mathys](#), [Christoffer Raun](#), [Roger Wattenhofer](#)

Comments: Published as a conference paper at ECAI 2024

Subjects: Artificial Intelligence (cs.AI)

[2] [arXiv:2408.11039](#) [pdf, html, other]

### **Transfusion: Predict the Next Token and Diffuse Images with One Multi-Modal Model**

[Chunting Zhou](#), [Lili Yu](#), [Arun Babu](#), [Kushal Tirumala](#), [Michihiro Yasunaga](#), [Leonid Shamis](#), [Jacob Kahn](#), [Xuezhe Ma](#), [Luke Zettlemoyer](#), [Omer Levy](#)

Comments: 23 pages

Subjects: Artificial Intelligence (cs.AI); Computer Vision and Pattern Recognition (cs.CV)

[3] [arXiv:2408.10970](#) [pdf, html, other]

### **Hybrid Recurrent Models Support Emergent Descriptions for Hierarchical Planning and Control**

[Poppy Collis](#), [Ryan Singh](#), [Paul F Kinghorn](#), [Christopher L Buckley](#)

Comments: 4 pages, 3 figures

Subjects: Artificial Intelligence (cs.AI); Systems and Control (eess.SY)

[4] [arXiv:2408.10947](#) [pdf, html, other]

### **Dr.Academy: A Benchmark for Evaluating Questioning Capability in Education for Large Language Models**

[Yuyan Chen](#), [Chenwei Wu](#), [Songzhou Yan](#), [Panjun Liu](#), [Haoyu Zhou](#), [Yanghua Xiao](#)

- › Accuracy & Trustworthiness
- › Alignment
- › Safety & Fairness
- › Privacy & Security
- › IP Confidentiality & Protection
- › Governance & Compliance
- › System Quality Attributes

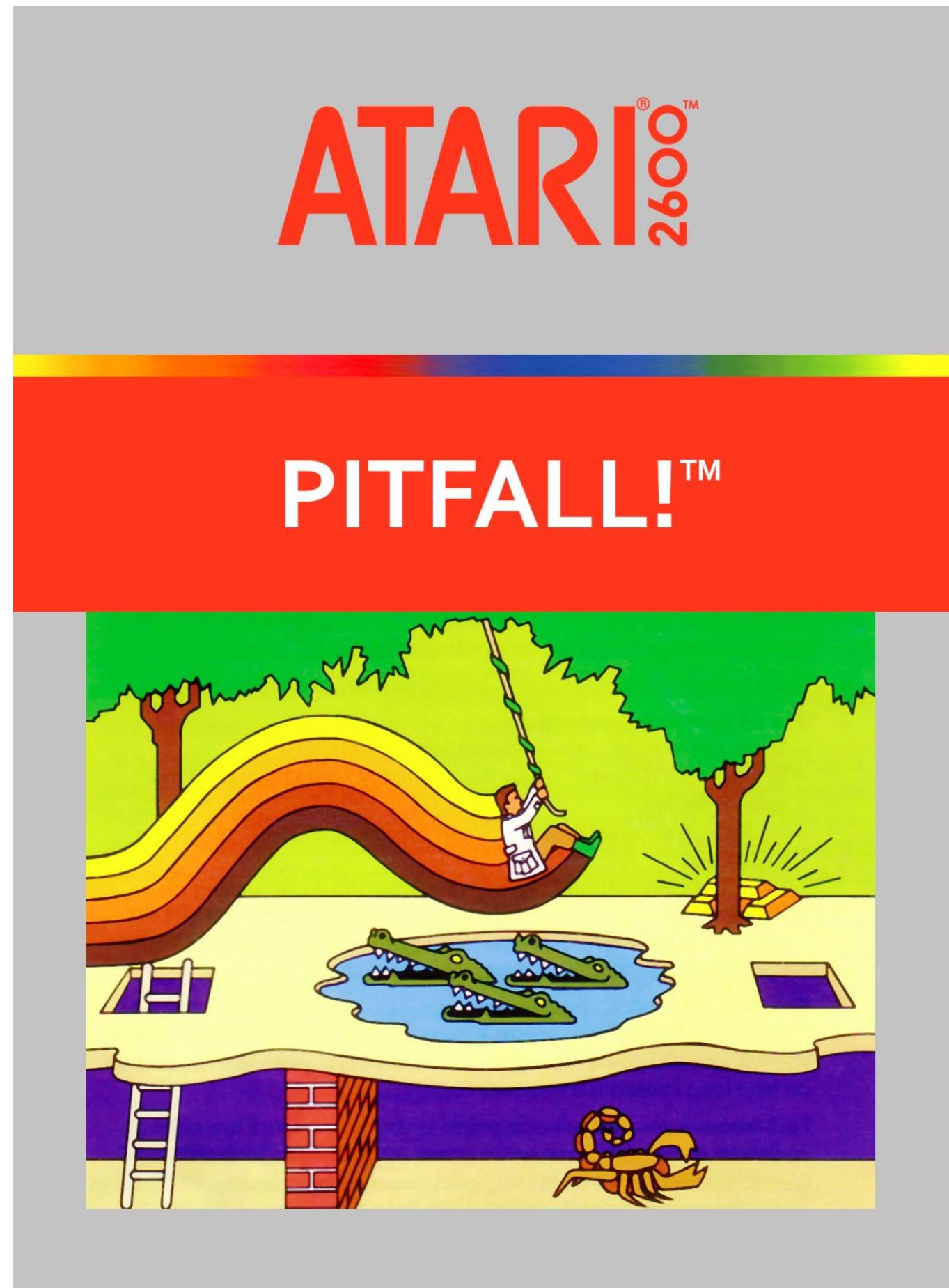
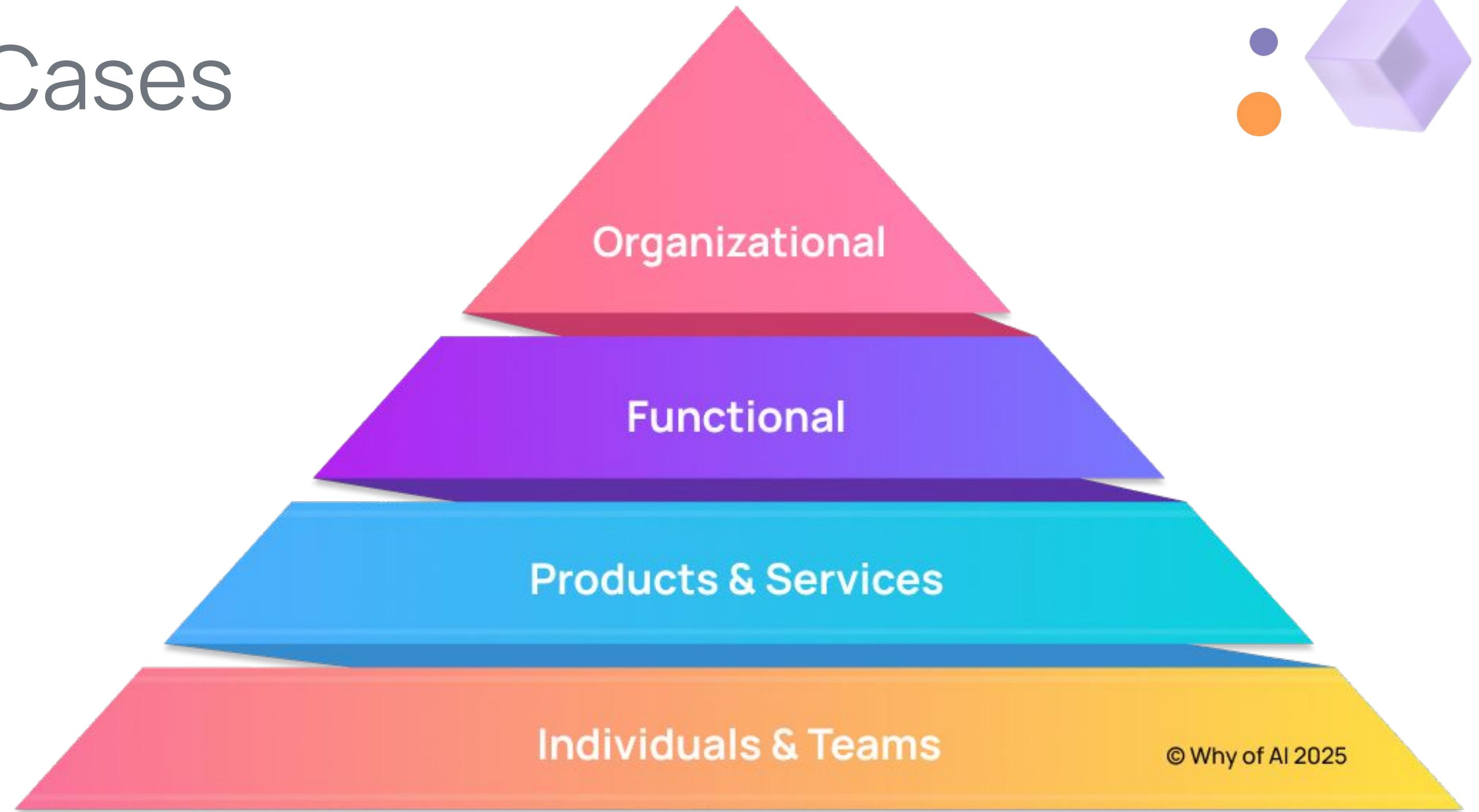
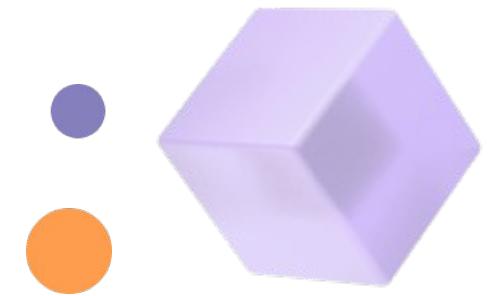
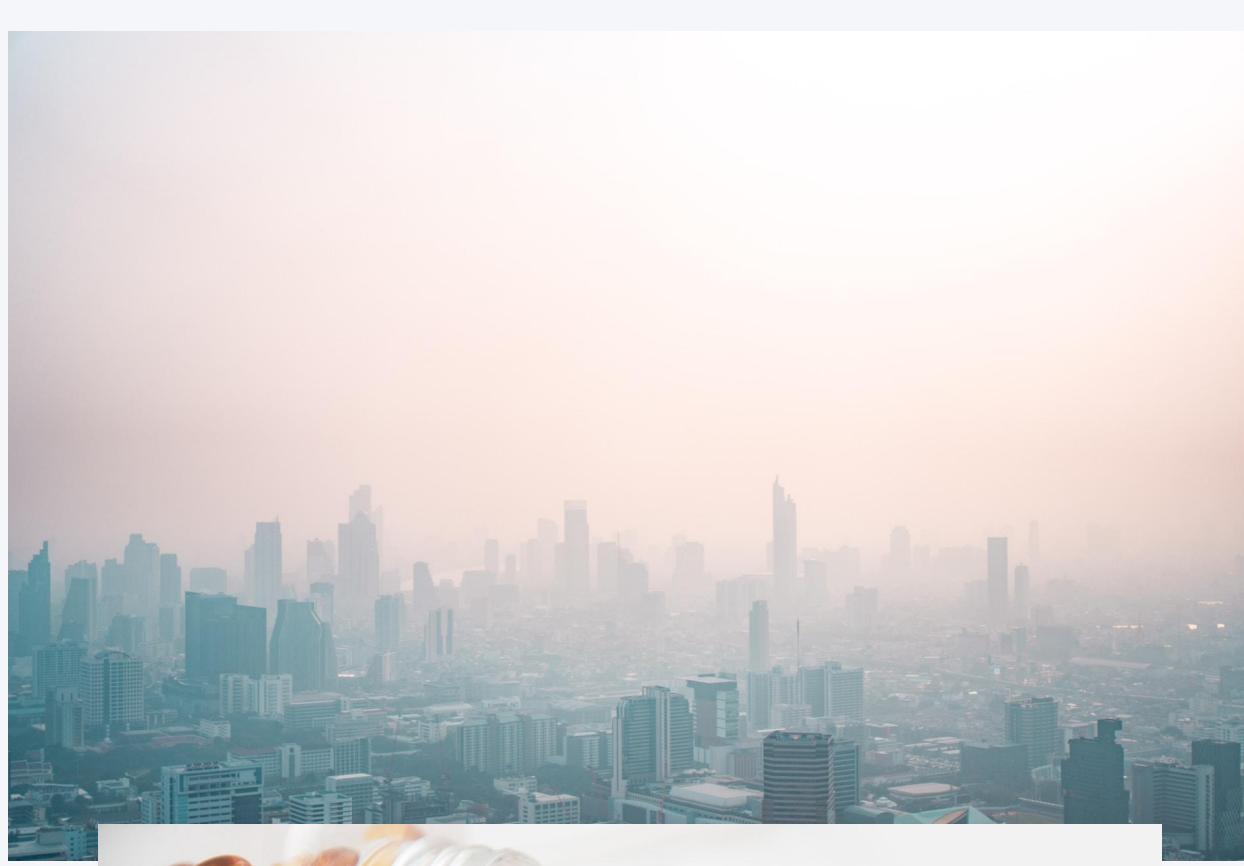
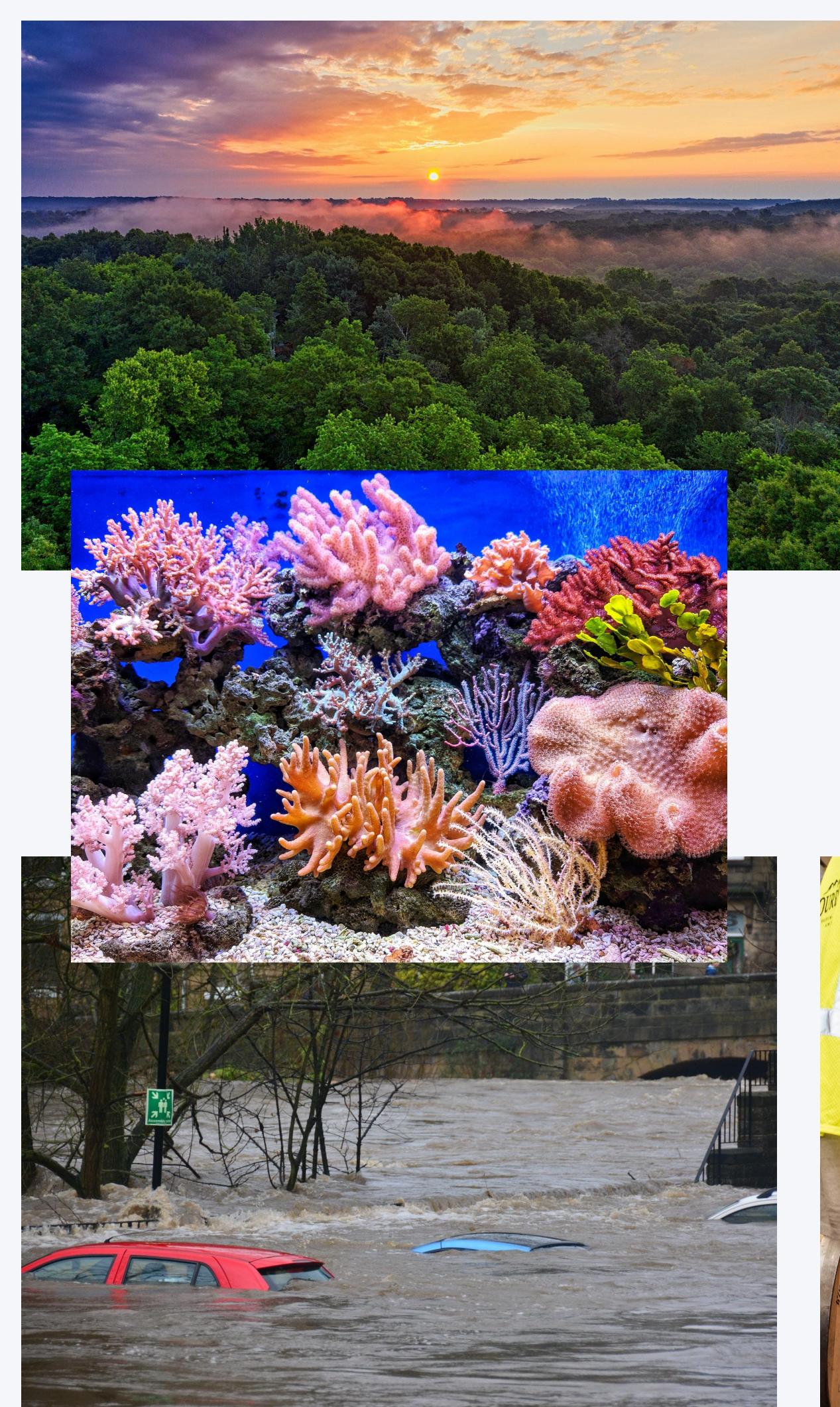


Image: IMDB

# TONS of AI Use Cases





# AI For Good



# Activity

## Build vs Buy vs Hybrid

**Use case:** Build an **Employee Knowledge + Workflow Assistant** that helps employees get fast, consistent answers from internal docs and complete common tasks (e.g., policy Q&A, summarize key docs, start tickets/requests).

**Goal:** reduce time-to-answer and repetitive tickets while improving process consistency and employee experience.

**Question:** Should we **Build, Buy, or Hybrid**—and why?

**\*\*\* Do not use your laptops or phones for assistance**

**\*\*\* Follow guidance on activity steps**

# Appendix

# Recommended Books

## Class Supplements (in order of recommendation)

1. [The Hundred-Page Machine Learning Book](#) (paid, I highly recommend buying this book)
2. [Machine Learning Yearning](#) (free)
3. [Neural Networks and Deep Learning](#) (free)
4. [Dive into Deep Learning](#) (free)
5. [An Introduction to Statistical Learning](#) (free)

## Additional Reading

- [Deep Learning](#) (free)
- [Machine Learning Engineering](#) (paid)
- [The Master Algorithm](#) (paid)
- [The Book of Why](#) (paid)
- [AI for People and Business](#) (paid)

# Cognition

The mental action or process of acquiring knowledge and understanding through thought, experience, and the senses

– Oxford Dictionary

Attention  
Memory / Remember  
Language  
Perception / Recognition / Interpretation  
Think / Reason / Rationalize  
Awareness / Sentient  
Learn / Knowledge  
Understand / Comprehend  
Mind / Consciousness  
Sense / Feel / Emotion  
Empathy / Compassion  
Intuition  
Imagine / Wonder / Dream  
Interest / Curious / Intrigue  
Conceptualize / Envision / Visualize

# Cognition Enables:

Common Sense  
Understanding / Abiding by Norms  
Critical Thinking / Problem Solving  
Decision Making  
Thinking “Outside of the Box”  
Exploring the “unknown”  
Taking Risks  
Ideation / Innovation / Invention  
Formulating and Asking Questions  
Asking “What If” / Understanding  
Causality  
Creating Hypotheses  
Making Analogies  
Perceiving Abstract Similarities  
Storytelling / Crafting Narratives  
Adaptability / Flexibility / Free Will  
Motivation

# 1955 - 1956

John McCarthy Coins Term AI

AND

Dartmouth Summer Research  
Project on AI

Early days: Expert/Rules-Bases Systems

## Related Fields

- Neuroscience
- Psychology
- Philosophy
- Mathematics
- Statistics
- Computer Science