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FORUM 2024  
Breaking Through New Horizons  
Digitalization, Innovation, and Technology in the GMS

# AI Tools for Education

Prof. Wanida Kanarkard, Ph.D.



# INTEGRATING AI INTO GMS EDUCATIONAL SYSTEMS

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## Prof. Wanida Kanarkard, Ph.D.

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  - Vice Dean of Research, Innovation and International Affairs, K.K.U.
  - Associate Director of A.I. Engineering Institute, CMKL
  - Head of Thailand A.I. University Consortium
  - Sub Committee of Policy and Strategy, Ministry of Higher Education (MHESI)
  - Advisory of A.I. Strategy Working Group, Thailand Science and Research Innovation (TSRI)
-



# Thailand National AI Strategy and Action Plan (2022 – 2027)

“Thailand has an effective ecosystem to promote AI development and application to enhance the economy and quality of life within 2027”

## Vision

### 3 Target objectives

#### Human capacity and Technology

- ▶ AI Reskill/ Upskill/ New skill for academic sector
- ▶ AI skill is used to enhance all work sectors
- ▶ New professional based on AI and digital skill

#### Economic growth

- ▶ Increase productivity with high value-added products and services using AI
- ▶ AI as a driver for Thailand national agenda
- ▶ AI innovation for Tech startups / SME / Digital Business

#### Social and environmental impact

- ▶ Enhance public access to government services using AI
- ▶ Bridging income, education, and healthcare gaps
- ▶ Better environment and efficient use of natural resources
- ▶ Enhance national security and safety

### 5 Strategies

#### Strategy 1

Preparing Thailand's readiness in social, ethics, law, and regulation for AI application

#### Strategy 2

Developing national infrastructure for sustainable AI development

#### Strategy 3

Increasing human capability and improving AI education

#### Strategy 4

Driving AI technology and innovation development

#### Strategy 5

Promoting the use of AI in public and private sectors

### 10 Target sectors

Food & agriculture

Healthcare & medical

Education

Security & safety

Energy & environment



Government service

Logistics & transportation

Creative economy & tourism

Manufacturing

Trade & finance

 Focus on phase 1 (2022 - 2023)  Additional focus on phase 2 (2024 - 2027)

# "สถาบันวิศวกรรมปัญญาประดิษฐ์" AI Sandbox แห่งแรกของไทย มุ่งพัฒนาทักษะ AI โดย 6 มหาวิทยาลัยชั้นนำ

09 May 2022





# AI Research Infrastructure

## CMU HPC Erawan



## LANTA



## MU AI Center



## KU Nontri AI



## Apex Cluster



### Public Research & Development (TSRI: 2020-2023)

- 1.31 Billion THB AI/GPU Infrastructure + Strategic research
- 804 Million THB Fundamental funds

CMU-Erawan : 15 PFs

KKU: 10 PFs

Lanta: 440 PFs (704 A100s)  
 CMKL-Apex: 30 PFs  
 MU-AI Center: 36 PFs  
 KU-NontriAI: 20 PFs  
 Chula: 10 PFs  
 KMITL: 20 PFs

Commercial  
 Siam.AI: 8 EFs (4,000 H100s)  
 GreenNode: 2 EFs

International  
 Azure Eagle: 28.8 EFs (14,400 H100s)  
 NVIDIA EOS: 9.2 EFs (4,608 H100s)  
 Meta: 49.1 EFs (24,576 H100s)  
 SG Aspire2A: 220PFs (352 A100s)

2025 Regional Capacity Estimate  
 TH: 10.6 EFs  
 SG: 18.2 EFs  
 MY: 15 EFs  
 VT: 16 EFs  
 ID: 13 EFs

PSU: 10 PFs



PFs = Petaflop/s FP16 for AI workload  
 EFs = Exaflop/s FP16 (1,000 PFs)



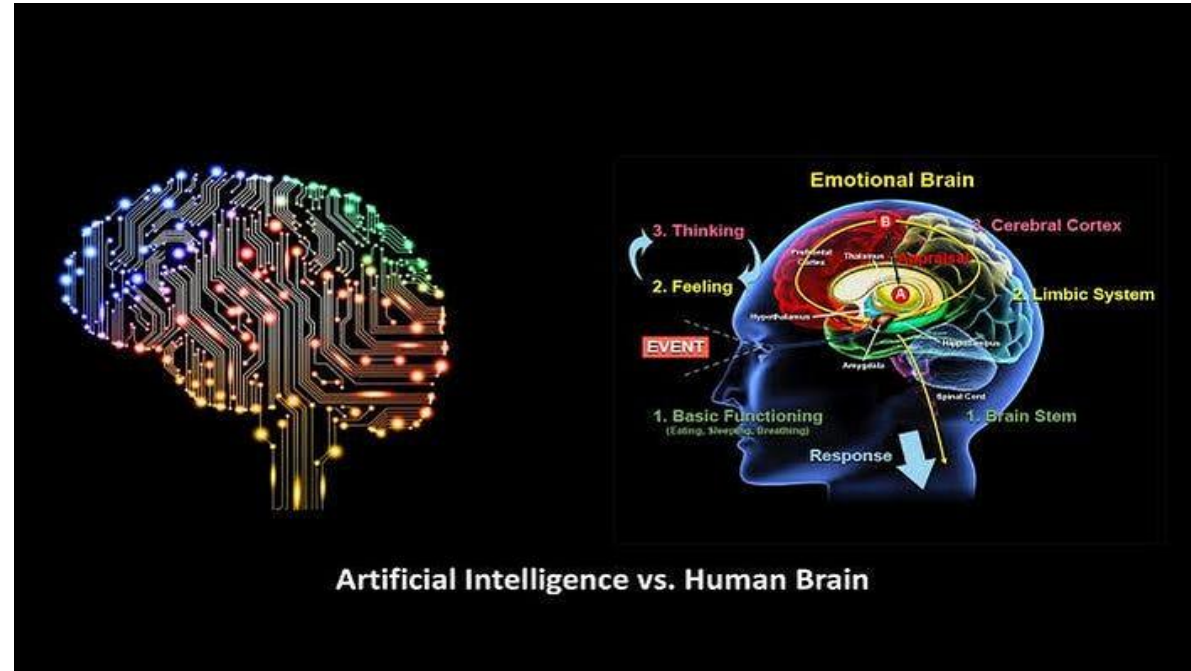
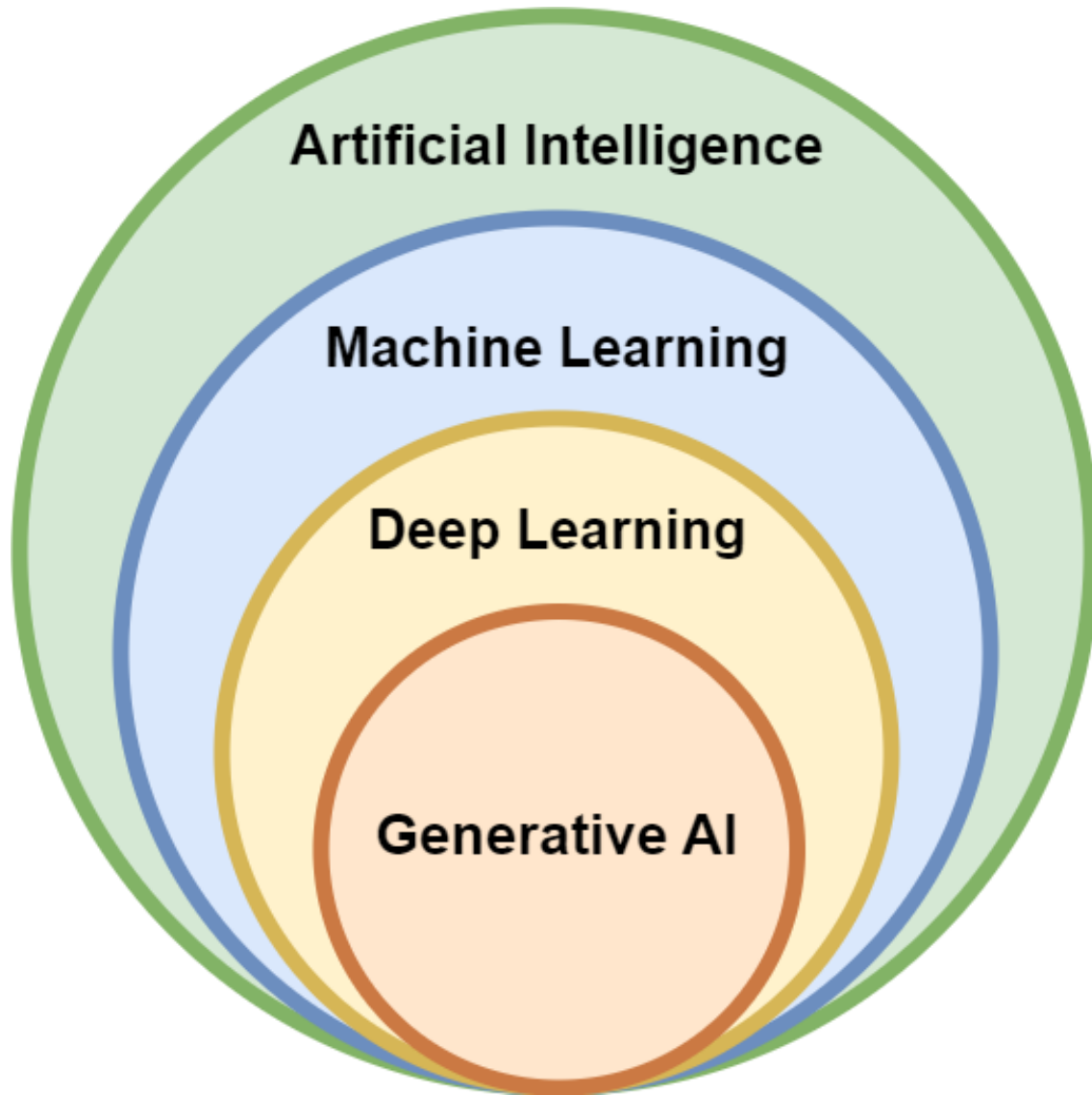
[Idea](#) >

# Use of AI in education: Deciding on the future we want

Artificial intelligence tools are being deployed rapidly in education systems across the globe. As much as they offer immense opportunities to enhance and expand learning, their rapid roll out also presents risks: They are being used in the absence of regulatory frameworks needed to protect learners and teachers, and ensure a human-centered approach to using these technologies in education. Stefania Giannini, UNESCO Assistant Director-General for Education, shares her insights on the various implications of AI in education.

16 May 2024 - Last update:29 May 2024





Source:

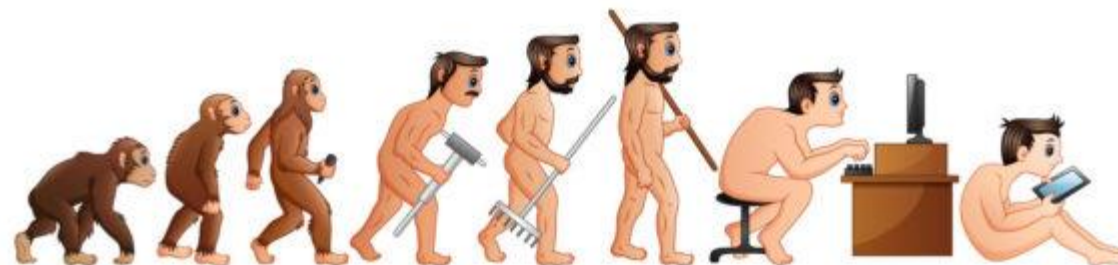
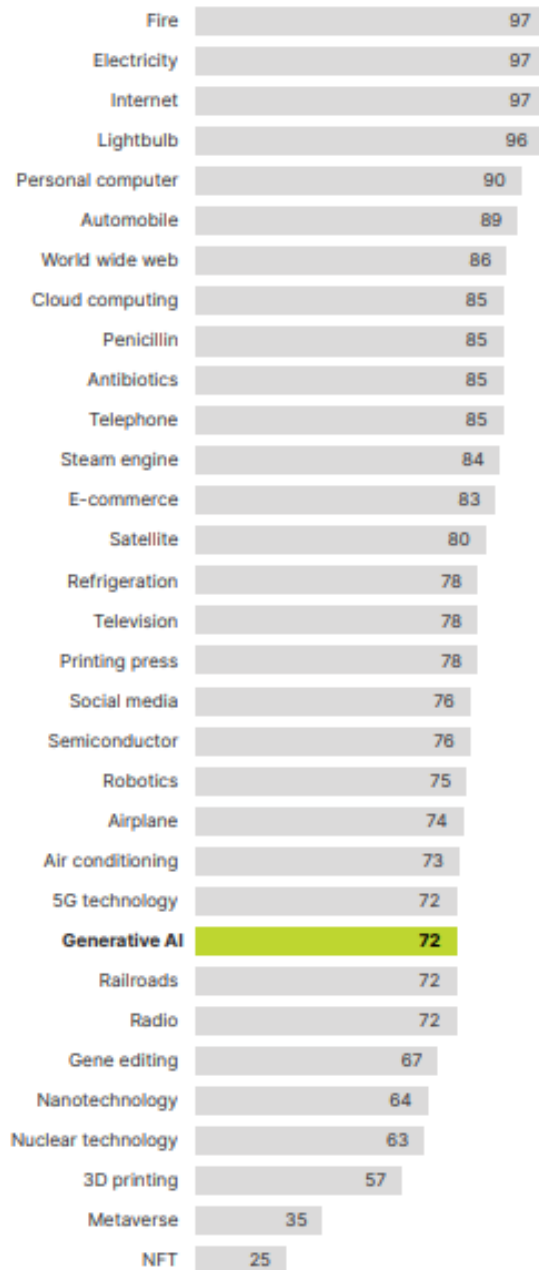
1. <https://static.packt-cdn.com/products/9781836202912/graphics/GoogleDoc/images/image8.png>
2. <https://images.theconversation.com/files/535929/original/file-20230705-23-hte9mu.jpeg?ixlib=rb-4.1.0&rect=0%2C0%2C6381%2C3444&q=45&auto=format&w=926&fit=clip>
3. [https://miro.medium.com/v2/resize:fit:640/format:webp/1\\*3usvEfQl3jAX-aQ90PdIng.jpeg](https://miro.medium.com/v2/resize:fit:640/format:webp/1*3usvEfQl3jAX-aQ90PdIng.jpeg)
4. [https://miro.medium.com/v2/resize:fit:720/format:webp/1\\*pjUSQEpjYPjGltY9O4YHVg.jpeg](https://miro.medium.com/v2/resize:fit:720/format:webp/1*pjUSQEpjYPjGltY9O4YHVg.jpeg)



# Generative AI

is Changing

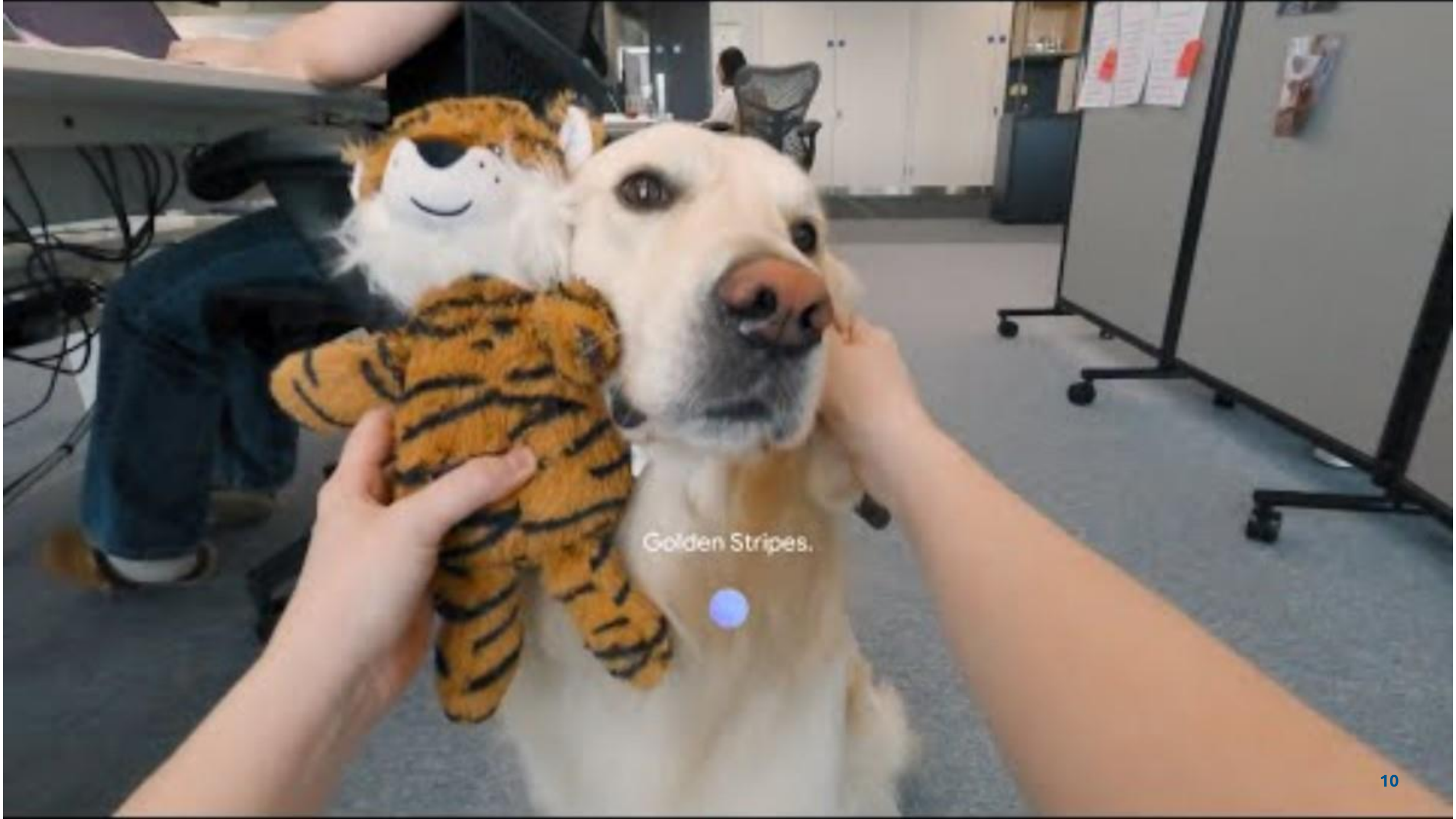
Everything,  
Everywhere,  
All at once



Note: Impact on humanity score 0-100

Source: ChatGPT 4.0

Source: <https://www.creativefabrica.com/wp-content/uploads/2022/04/26/Cartoon-Human-Evolution-Graphics-29636641-1-1-580x386.jpg>



Golden Stripes.

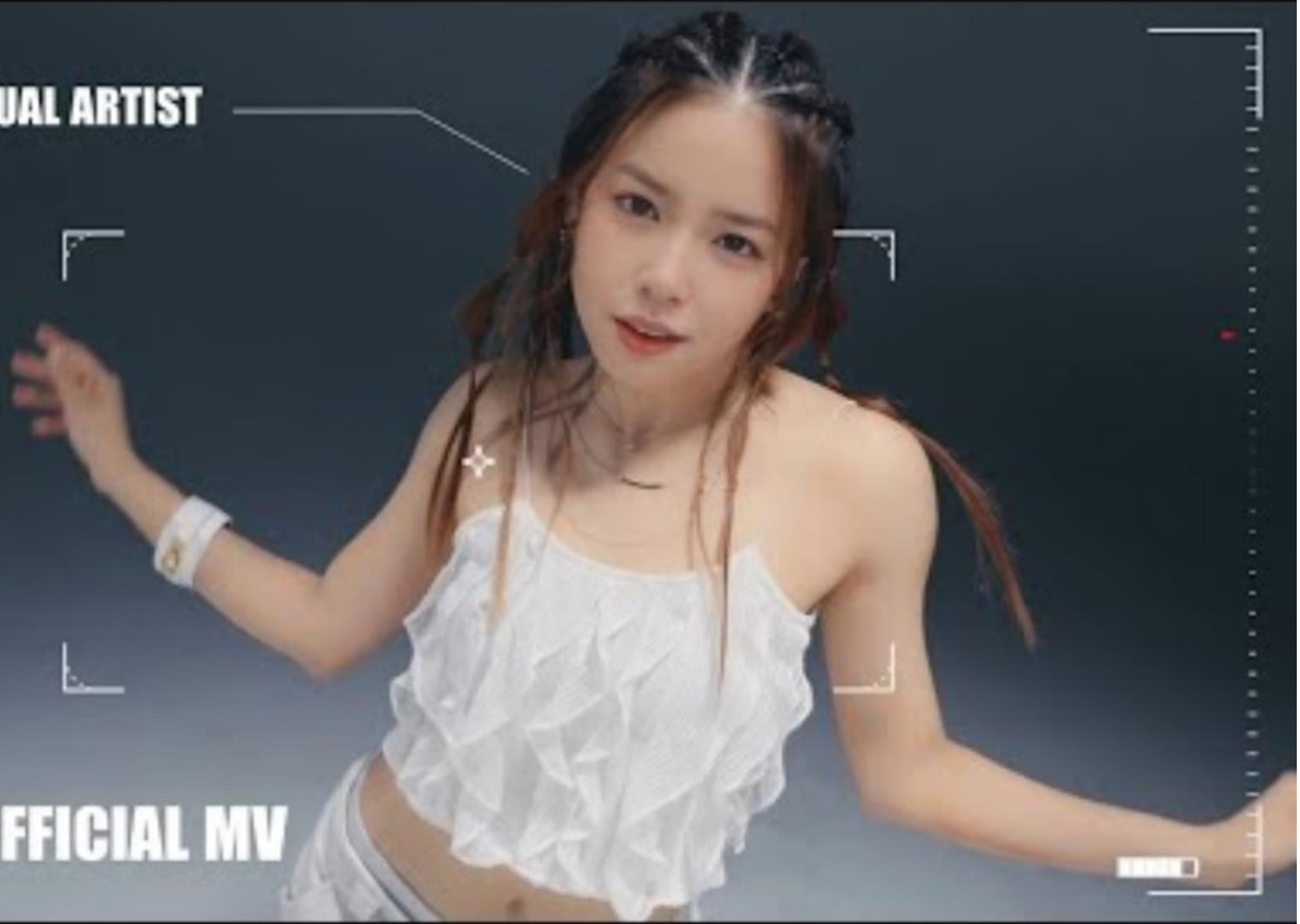


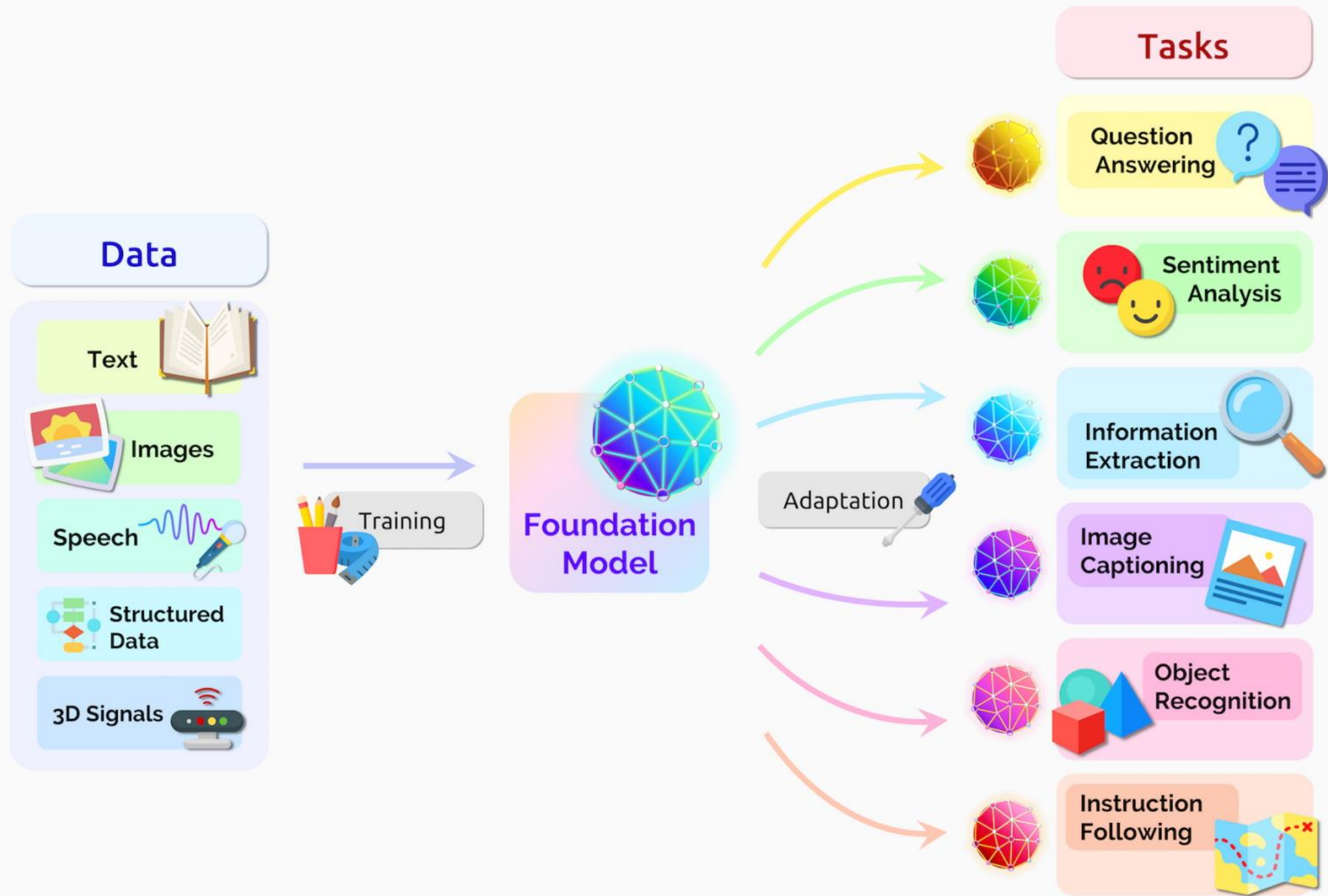
VIDEO

VAVA IS VIRTUAL ARTIST

T

TOWN OFFICIAL MV  
DIGITAL STUDIO



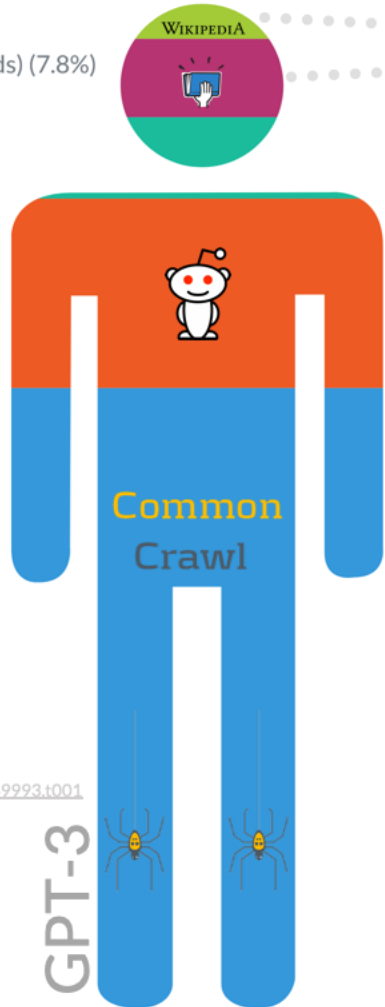




# CONTENTS OF GPT-3 & THE PILE V1

ELEUTHER'S GPT-NEO, GPT-J, GPT-NEOX, BAAI'S WUDAO 2.0, AND MORE...

- Wikipedia (facts) (3.49%)
- Books1/BookCorpus (Smashwords) (7.8%)
- Books2 (Libgen or similar) (8.1%)
- WebText (Reddit links) (18.86%)
- Common Crawl (www) (61.75%)



- WebText (Reddit Submission Corpus)**
- HuffPost (news)
  - The New York Times (news)
  - BBC (news)
  - Twitter (discussion)
  - The Guardian (news)
  - The Washington Post (news)
  - and 4.3M+ more domains...
- Common Crawl**  
(C4, cleaned/filtered, sorted by most tokens)
- Google Patents (papers)
  - The New York Times (news)
  - Los Angeles Times (news)
  - The Guardian (news)
  - PLoS - Public Library of Science (papers)
  - Forbes (news)
  - HuffPost (news)
  - Patents.com - dead link (papers)
  - Scribd (books)
  - The Washington Post (news)
  - The Motley Fool (opinion)
  - InterPlanetary File System (mix)
  - Frontiers Media (papers)
  - Business Insider (news)
  - Chicago Tribune (news)
  - Booking.com (discussion)
  - The Atlantic (news)
  - Springer Link (papers)
  - Al Jazeera (news)
  - Kickstarter (discussion)
  - FindLaw Caselaw (papers)
  - National Center for Biotech Info (papers)
  - NPR (news)
  - and 90.9M+ more domains...



- Enron Emails (discussion) (0.14%)
- NIH ExPorter (papers) (0.3%)
- PhilPapers (papers) (0.38%)
- YoutubeSubtitles (movies) (0.6%)
- HackerNews (discussion) (0.62%)
- EuroParl (formal discussion) (0.73%)
- Books1/BookCorpus (Smashwords) (0.75%)
- Ubuntu IRC (discussion) (0.88%)
- DM Mathematics (papers) (1.24%)
- Wikipedia (facts) (1.53%)
- OpenSubtitles (movies) (1.55%)
- Gutenberg (books) (2.17%)
- PubMed Abstracts (papers) (3.07%)
- USPTO Background (papers) (3.65%)
- Stack Exchange (discussion) (5.13%)
- FreeLaw (papers) (6.12%)
- Github (code) (7.59%)
- ArXiv (papers) (8.96%)
- WebText (Reddit links) (10.01%)
- Books3 (Bibliotik tracker) (12.07%)
- PubMed Central (papers) (14.4%)
- Common Crawl (www) (18.11%)

- Not to scale.  
- Effective size by weighting (as % of total).  
- Deduplication has been considered for Wikipedia.

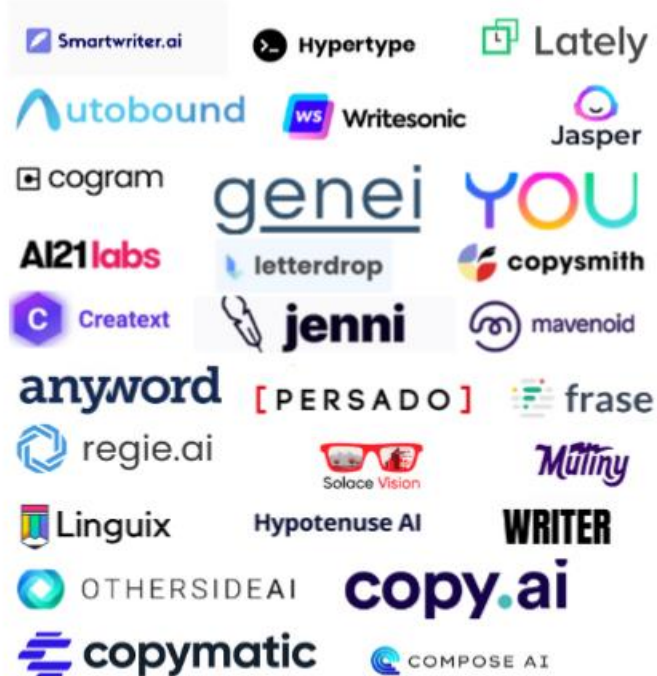
Sources:  
GPT3: <https://arxiv.org/abs/2005.14165>  
The Pile v1: <https://arxiv.org/abs/2101.00027>  
C4: <https://arxiv.org/abs/2104.08758>  
Domains: <https://doi.org/10.1371/journal.pone.0249993.t001>

Alan D. Thompson. July 2021.  
<https://life architect.com.au/ai/>

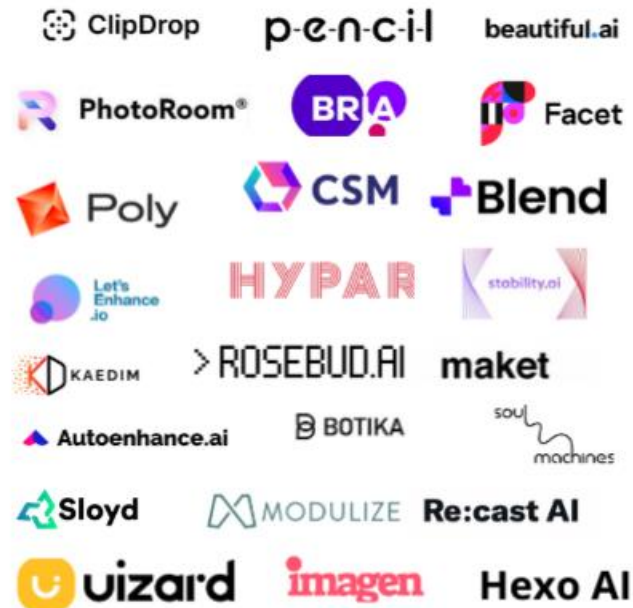


# THE *GENERATIVE AI* LANDSCAPE

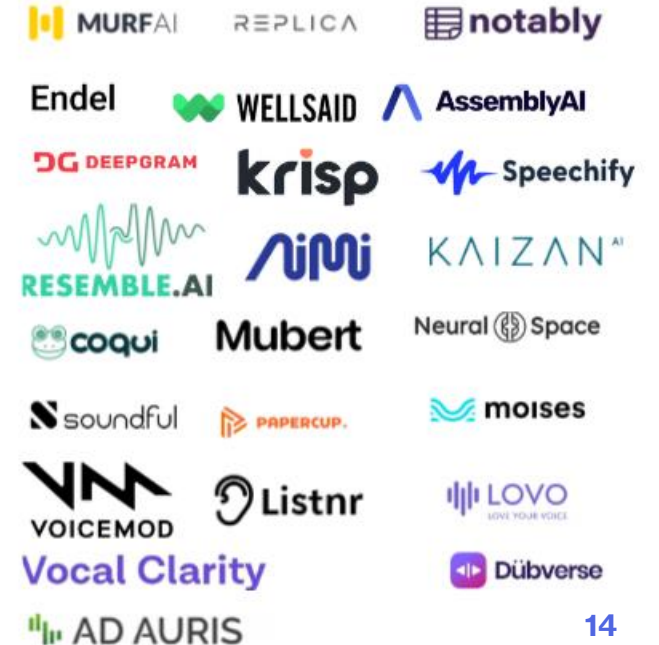
## TEXT



## IMAGE



## AUDIO





## CODE



## CHATBOTS



## VIDEO



## ML PLATFORMS



## SEARCH



## GAMING



## DATA





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Salt in Galvanic Cell

AI4Chem/ChemLLM-20B-Chat-DPO

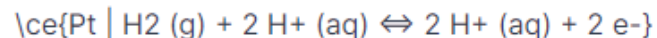
I am having problems understanding why we do need salt added to the water to make this shown galvanic cell work.

AI4Chem/ChemLLM-20B-Chat-DPO

The cell you described is a simple hydrogen electrode, which is a reference electrode. The electrode consists of a platinum wire in contact with a solution of hydrogen gas, typically bubbled through a solution of HCl. The electrode does not actually require the salt to operate. However, the salt solution is required to maintain a constant concentration of H<sup>+</sup> ions in the solution. The salt (NaCl) does not participate in the cell reaction.

The cell reaction is as follows:

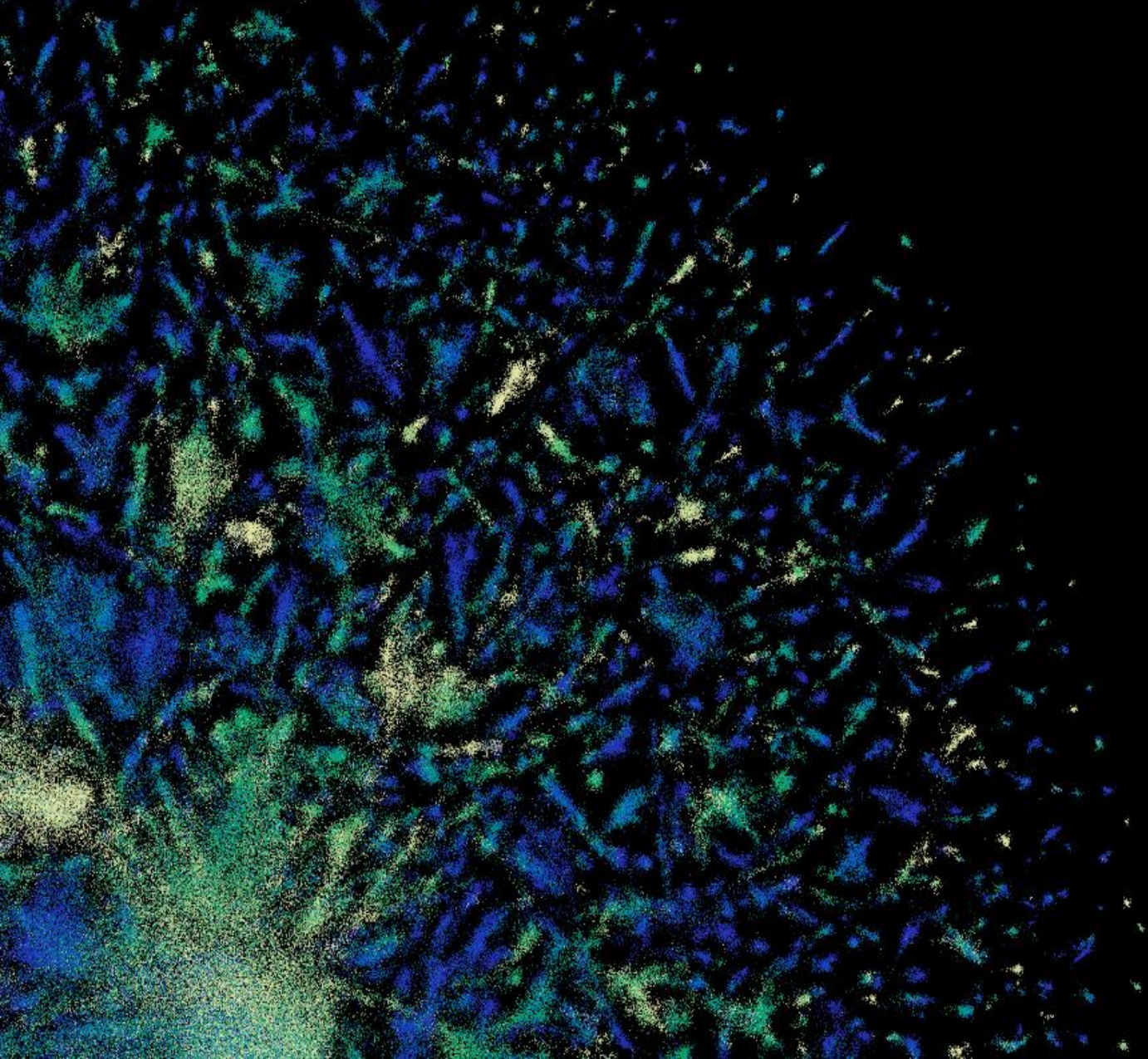
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\$\$

The salt solution is required to replace the hydrogen ions that are consumed by the cell reaction. If the concentration of hydrogen ions were allowed to decrease, the cell potential would decrease until the cell reaction stopped. The salt helps to maintain a constant concentration of hydrogen ions, ensuring that the cell will continue to operate.

To summarize, the salt is not required for the cell to operate, but it is required to maintain a constant concentration of hydrogen ions in the solution. The salt does not participate in the cell reaction.



# ESM Metagenomic Atlas

An open atlas of 772 million predicted metagenomic protein structures

Explore →

Fold sequence ↗

Read blog post ↗

Read research paper ↗






# Reading Coach Preview

Microsoft Corporation

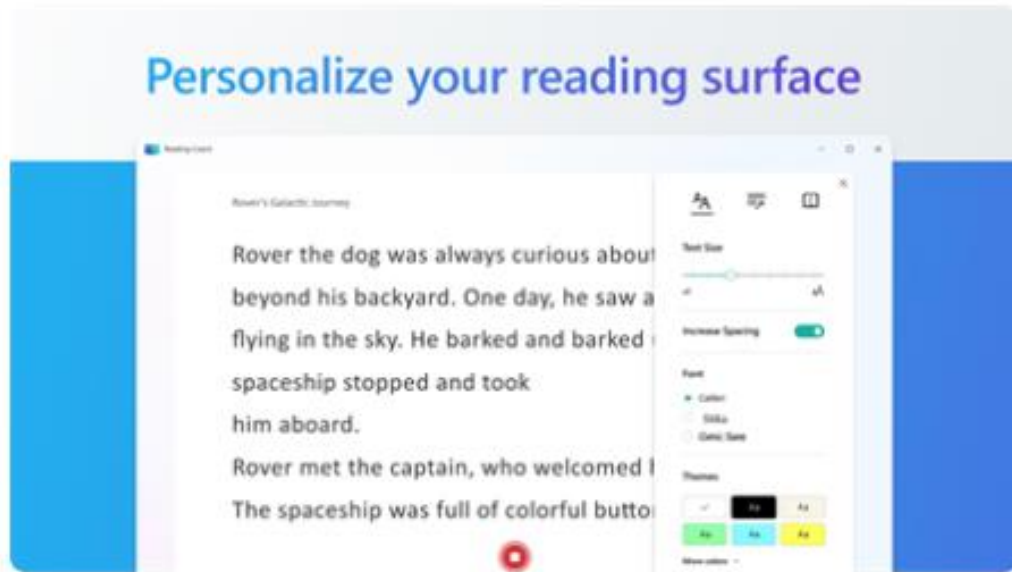
5.0 ★ | 1 ratings | Education

**Download**

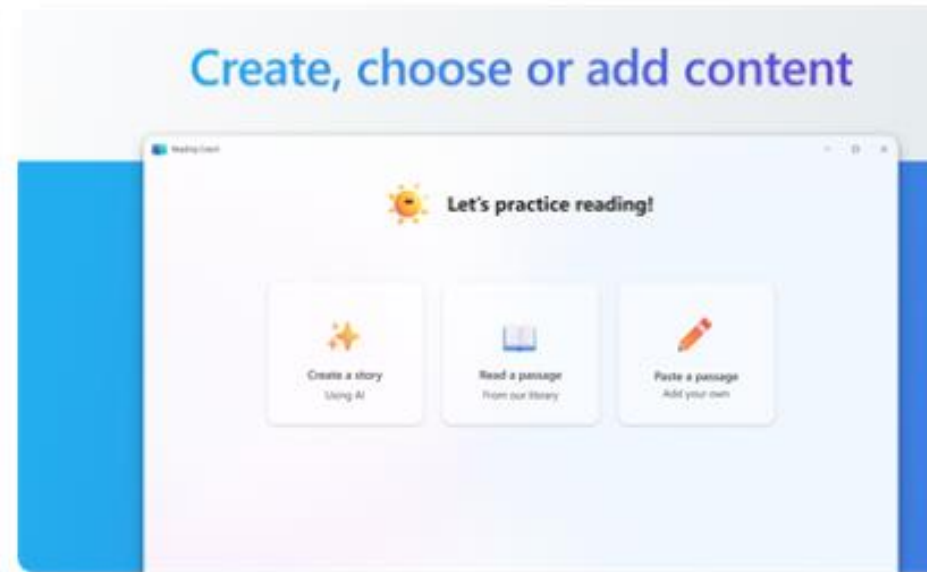
 **View in Store**

## Screenshots

### Personalize your reading surface



### Create, choose or add content



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PRODUCT HUNT

#1 Product of the Month

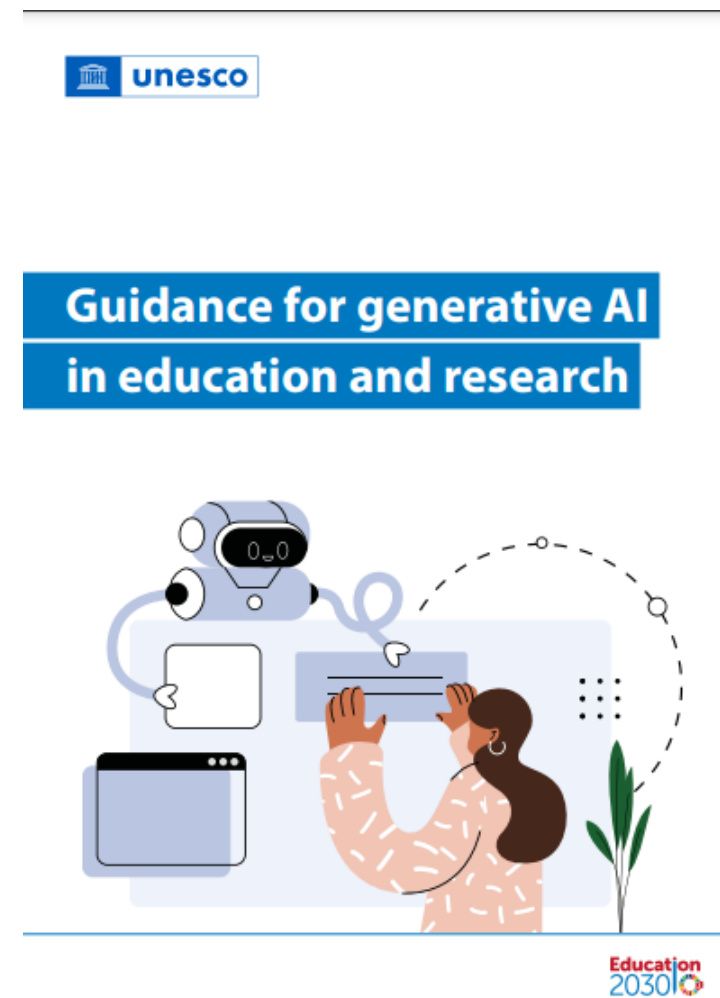
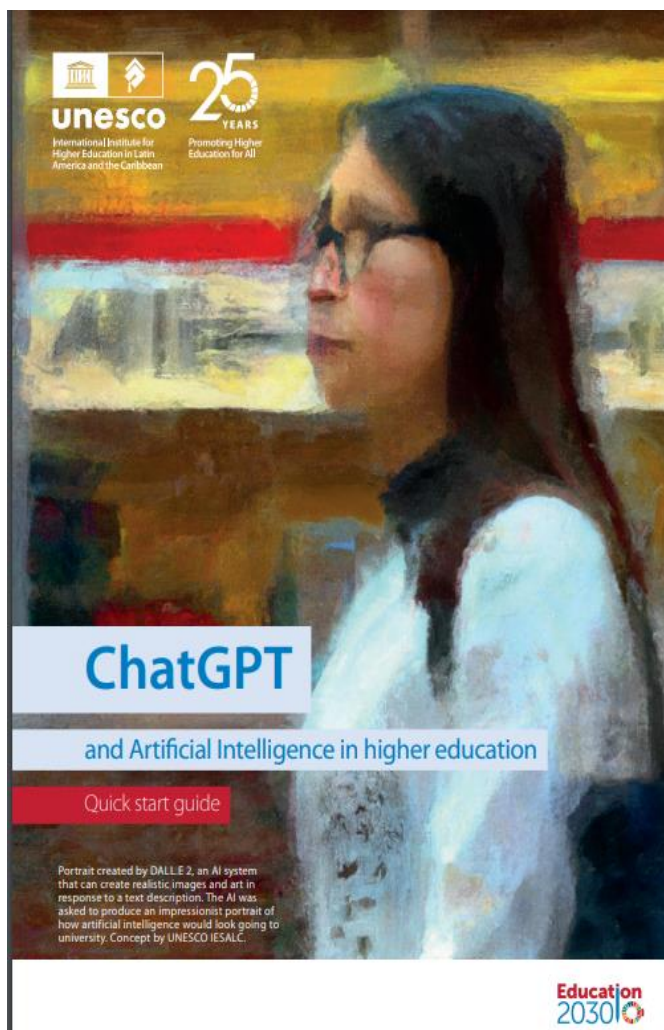




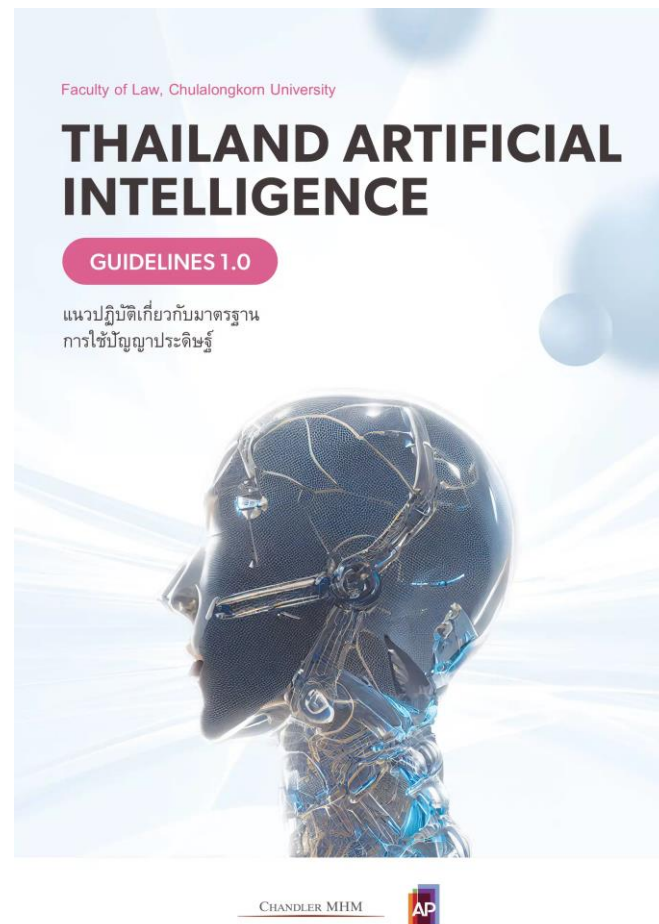
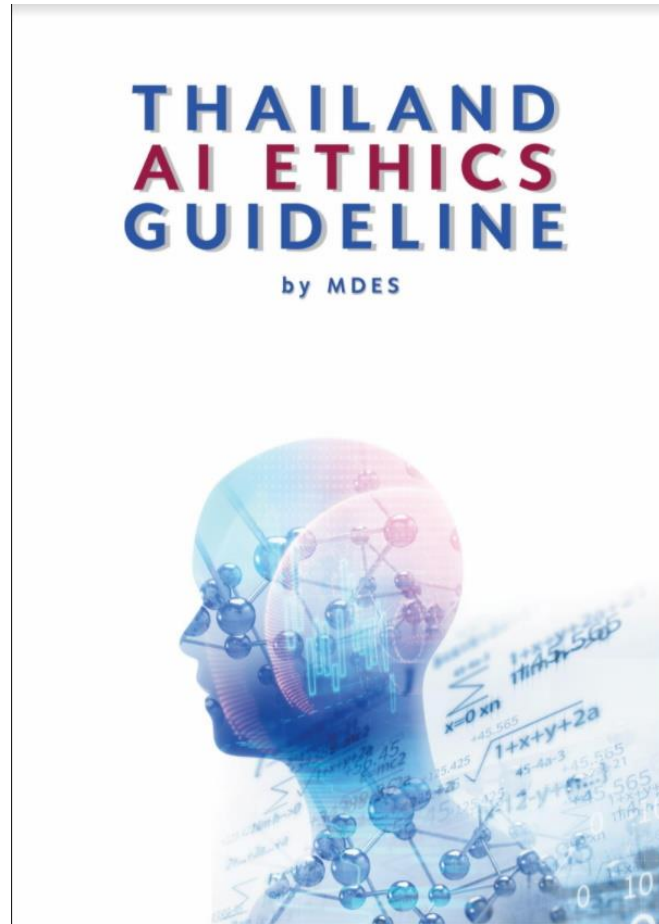
# Ethical Considerations and Compliance

# What are the **challenges** of Generative AI?

- **Security:** Some people can use Generative AI for fraudulent purposes like scamming people.
- **Overestimation of capabilities:** Generative AI algorithms require an enormous amount of training data to perform tasks. Yet, GANs cannot create entirely new images or texts. They only combine what they know in different ways.
- **Unexpected outcomes:** In some models of Generative AI like GANs, it is not easy to control their behavior. They perform unstably and generate an unexpected outcome.
- **Data privacy:** Health-related applications involve privacy concerns on individual-level data.







Source:

1. <https://drive.google.com/drive/mobile/folders/1kB7dxS5nXibeX3UwP8ABQMlrO44xm41f>
2. <https://www.law.chula.ac.th/wp-content/uploads/2023/03/TAIG-20230222.pdf>



# Acknowledging use of AI tools in assignments

Format:

I acknowledge the use of **[insert AI system(s) with link]** to **[how the AI was used]**.

Example:

I acknowledge the use of **ChatGPT** **[<https://chat.openai.com/>]** to generate ideas and material **for background research and project planning in the drafting of this assignment.** The following prompts were entered into ChatGPT on 30th July 2024:

# THE AI REVOLUTION IS HERE!

