

ARTIFICIAL INTELLIGENCE

and its use in
Academic libraries

presentation by Stefania Galea

CONTENTS



1

What is Artificial Intelligence?

2

Some definitions

3

AI and libraries

4

Responsible use of AI

5

Prompt engineering

6

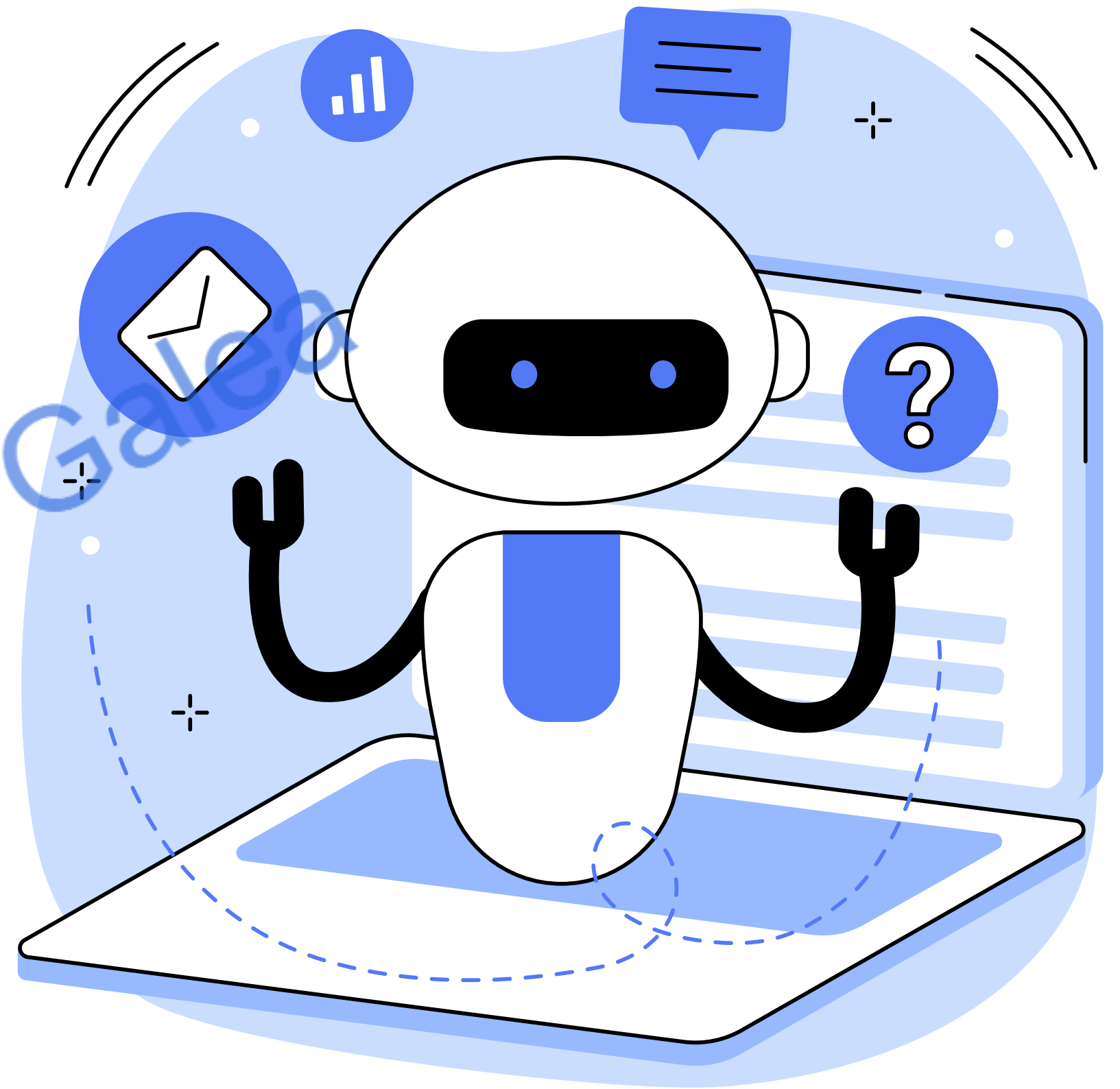
Using LLM tools for library workflows

AI powered applications

are being integrated in our phones, Internet browsers, email accounts, chatting services

We've all been using AI maybe even without knowing

Revolutionising the way we look up and retrieve information



ARTIFICIAL INTELLIGENCE

- A **technology** which is evolving rapidly
- Features and updates are rolled out frequently, but it still has notable **limitations**
- Our **role** and **aim** is to use it as it does make some workflows more efficient but we cannot forgo using our **human intelligence** especially our powers of **emotions, intuition, human judgement and knowledge from experience**

“People have a very high degree of trust in ChatGPT, which is very interesting, because AI hallucinates. It should be the tech that you don’t trust that much”

Sam Altman

(June 2025)









SOME DEFINITIONS

Artificial intelligence (AI)

Technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy

1950's	 Artificial intelligence (AI) <i>Human intelligence exhibited by machines</i>
1980's	 Machine learning <i>AI systems that learn from historical data</i>
2010's	 Deep learning <i>Machine learning models that mimic human brain function</i>
2020's	 Generative AI (Gen AI) <i>Deep learning models (foundation models) that create original content</i>

Source:
<https://www.ibm.com/think/topics/artificial-intelligence>

SOME DEFINITIONS

Generative AI (GenAI)

Refers to deep learning models that can create complex original content such as long-form text, high-quality images, realistic video or audio etc. in response to a user's prompt or request



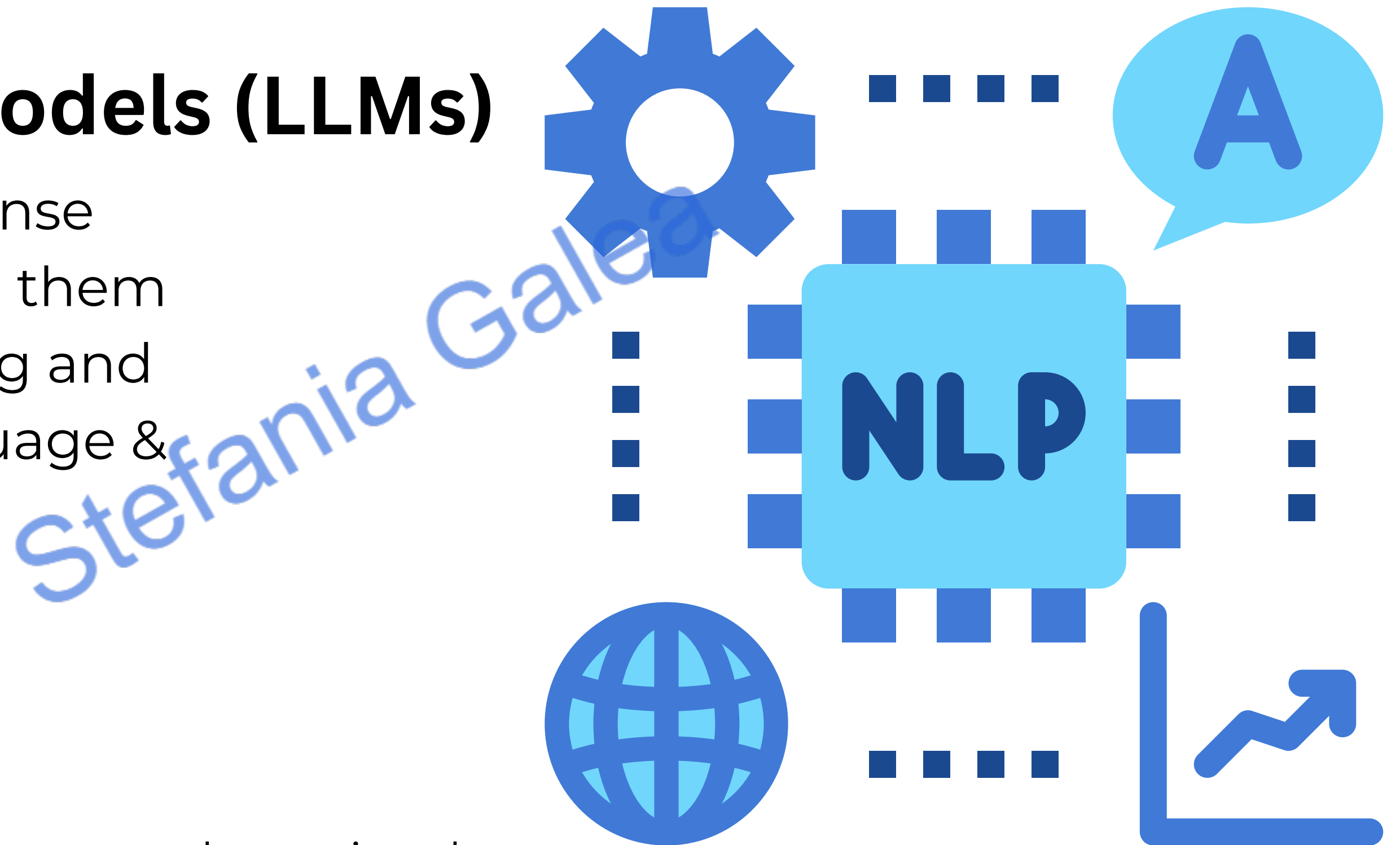
SOME DEFINITIONS

Large language models (LLMs)

Models trained on immense amounts of data making them capable of understanding and generating natural language & other types of content

Some applications...

- Text generation
- Content summarisation
- AI assistants (chat bots)
- Sentiment analysis (analyse text to determine the tone used)
- Language translation



AI AND LIBRARIES

Over time, librarians have adapted well to technological innovations which changed the way patrons look for and access information



Google!
B E T A

Search the web using Google

Google Search

I'm feeling lucky

[More Google!](#)

Copyright ©1999 Google Inc.

- Encouraging us to have conversations which give us ‘tailored’ specific answers to our questions
- GenAI is not just able to access information for us but also **create content**.

Can you help me write a literature review?

Absolutely, I'd be happy to help you write a literature review. To get started, could you please tell me more about:

1. **The topic or research question** you're focusing on.
2. **Your purpose:** Are you aiming to summarize, synthesize, critique, or identify gaps in the literature?
3. **Any key sources or authors** you've already identified (if any)?
4. **Word count or format requirements** (e.g., for a thesis, journal article, or coursework)?
5. **Deadline** (if applicable)?

Once I have those details, I can help you structure the review and begin drafting it.



UM LIBRARIANS' USE OF AI

WRITING TOOLS

writing emails, rephrasing, refine writing pieces, writing reports, shortening/organizing meeting notes, writing scripts

Retrieving information quickly

Transcription (audio to text)

Translation

Testing platforms for digitisation work

Subject headings, cataloguing, classification

Learning assistant

Project planning

Image generation

Transkribus

Data analysis

Building presentations

Generating ideas

IT support

OCR aid

Summarising complex topics

Research aids

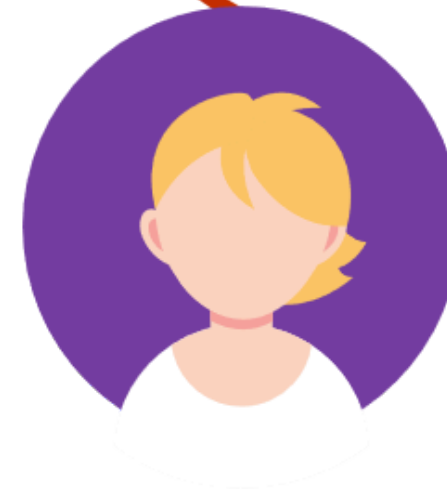
literature searching and coming up with search strategies

UM LIBRARY STAFF PERSPECTIVES...

AI technologies will take over certain minor tasks, enabling librarians to concentrate on responsibilities that require human expertise



Not all library staff knows all about AI, what benefit it will give in library services. I have no idea.



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PRACTICAL USES OF AI IN ACADEMIC LIBRARIES

AI in Discovery tools



AI powered results in databases e.g. ProQuest Research Assistant, Web of Science Research Assistant



Chatbots



Virtual personalised recommendations based on user data
e.g. suggestions of books and resources catered to a patron's interests and past browsing data



Voice assistants (for searching) & translation tools

These tools increase accessibility to non-English speakers and people with disabilities

PRACTICAL USES OF AI IN ACADEMIC LIBRARIES



Interactive tutorials

Supporting outreach & training services by teaching users about collections, resources and services



Cataloguing & indexing aids

Extracting bibliographic information, creating metadata and recommending subject headings for print and other media



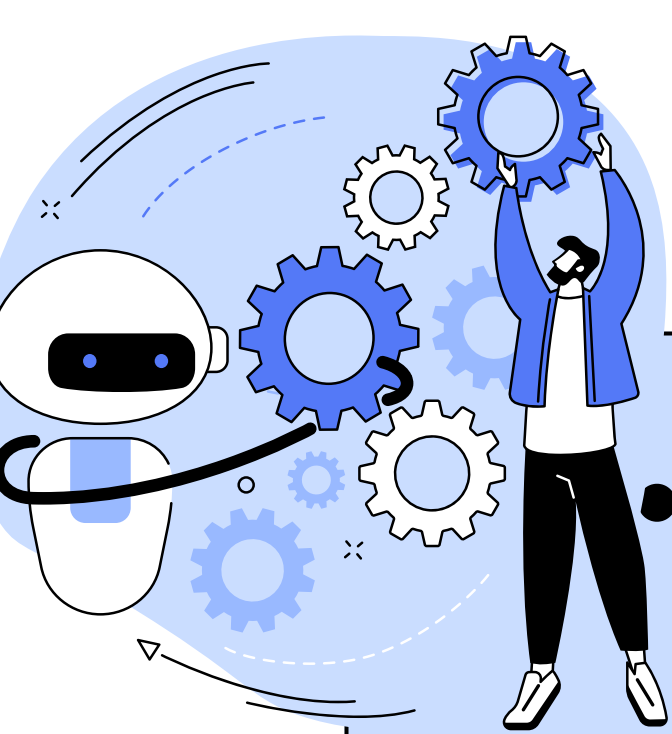
Using AI search engines for information retrieval



Using AI tools to inform collection development decisions



Using AI for image-based research projects



- **GenAI is beneficial but it's important to keep in mind that it isn't necessary to incorporate it in all workflows**
- **AI will enhance and adapt our roles but it will not take our jobs**
- **In a future scenario, people who are AI literate are more likely to have better job opportunities (in certain areas) than people who do not use AI**

RESPONSIBLE USE OF AI

- Hallucinations
- Data privacy
- Bias
- Environmental impact



HALLUCINATIONS

- LLM tools are very confident
- **Hallucinations** : responses which contain incorrect, misleading or non-factual information presented as facts



Chicago Sun-Times confirms AI was used to create reading list of books that don't exist

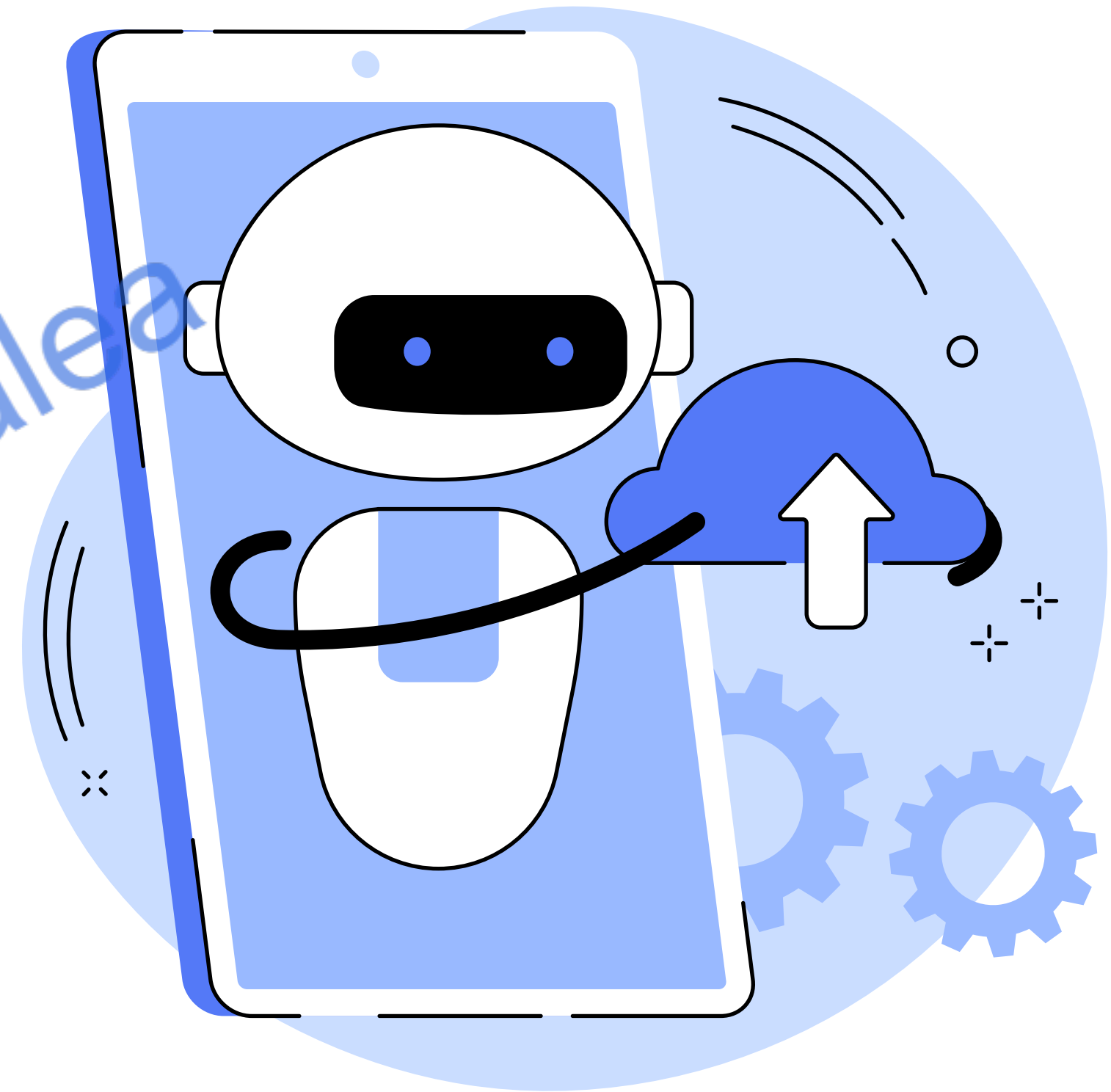
Outlet calls story, created by freelancer working with one of the newspaper's content partners, a 'learning moment'



Source: The Guardian

DATA PRIVACY

- Open source tools use any inputted information to train the model in providing future answers to others
- Be careful with inputting confidential information unless you are certain that the information will not be used to train the model
- Read the tool's privacy policy



BIAS

- AI language models are trained on billions of sentences available on the web
- Bias can be:
 - Gender
 - Racial
 - Cultural
 - Ideological
- Reflect societal prejudices and inequities

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BIAS

Women are...

...the future

...more likely to suffer from chronic pain

...on average, paid less than men

...dumb

ENVIRONMENTAL IMPACT

- Environmental consequences of GenAI models include increased electricity demands and water consumption
- GenAI training might consume 7 or 8 times more energy than typical computing workload
- Do I have to use GenAI for this task?



PROMPT ENGINEERING ...

WRITING BETTER PROMPTS FOR BETTER ANSWERS

Good prompts...

- Improve accuracy of results
- Save time
- Facilitate complex tasks (by breaking them down)
- Improve user experience by enabling better outcomes

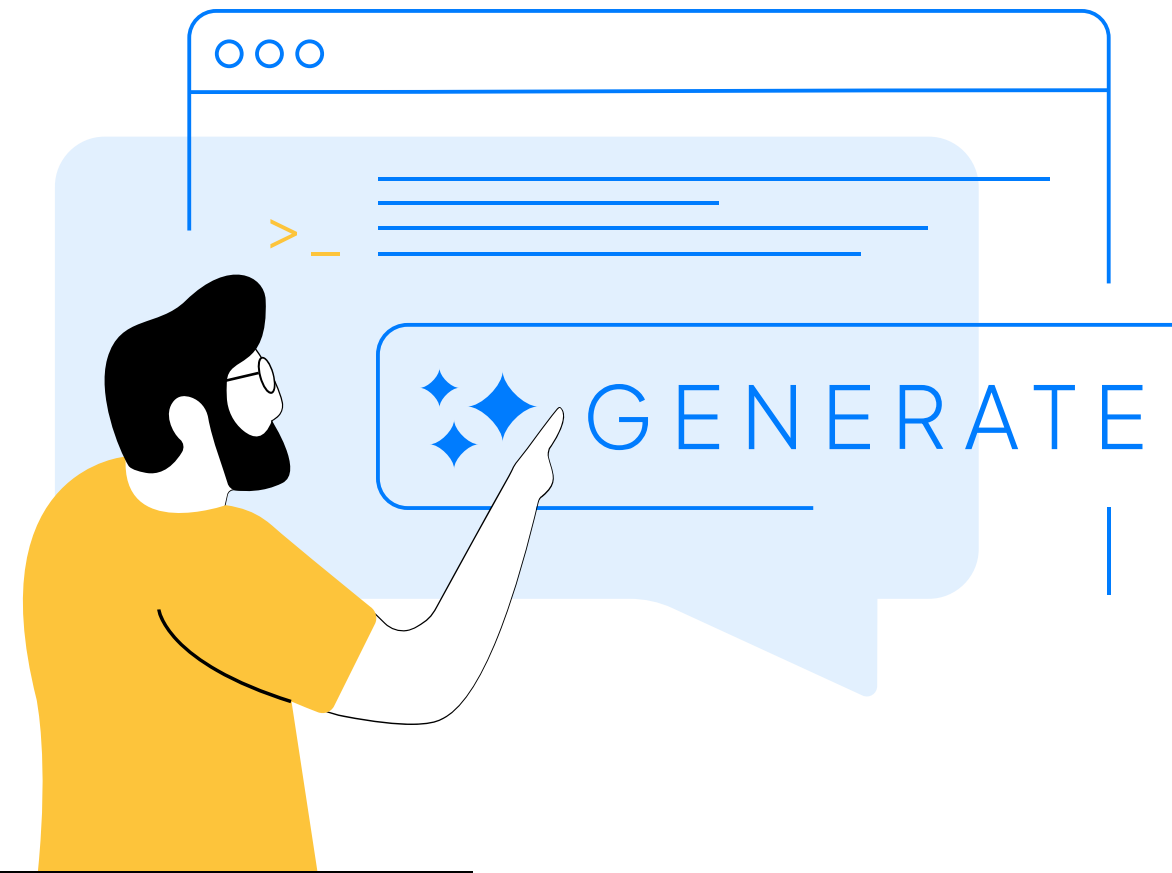


PROMPT ENGINEERING ...

WRITING BETTER PROMPTS FOR BETTER ANSWERS

Weak prompts

- Generate an image
- Create a marketing plan
- What were the biggest breakthroughs in AI in 2024?
- Write a welcome email
- Best subject line for a newsletter



PROMPT ENGINEERING ...

WRITING BETTER PROMPTS FOR BETTER ANSWERS

Tips

1. Be clear and specific
2. Provide context
3. Use examples
4. Ask open ended questions
5. Limit scope
6. Experiment with different formats
7. Iterate and refine
8. Use keywords strategically
9. Keep it concise
10. Test and learn

PROMPT ENGINEERING ...

WRITING BETTER PROMPTS FOR BETTER ANSWERS

Tips

- Role
- Task
- Format
- Audience
- Style

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Act as a **Role** to create a **Task** and show in a particular **Format** for a specific **Audience** in a particular **Style**

PROMPT ENGINEERING ...

WRITING BETTER PROMPTS FOR BETTER ANSWERS

Role e.g. Librarian, CEO, investor, analyst, teacher, therapist, journalist, technical support etc.

Task e.g. Create a headline, essay, recipe, article, social media post, YouTube script

Format e.g. list, bullet points, HTML, poem, summary

Audience e.g. specialists, children, librarians, library users, students

Style e.g. factual, funny, informative, serious, casual, academic

PROMPT ENGINEERING ...

WRITING BETTER PROMPTS FOR BETTER ANSWERS

Some examples

- As a **librarian** (*R*), **create an article** (*T*) in a **list** (*F*) **format** for **librarians** (*A*) that outlines the top 10 practices for digital archiving. Make it **informative** (*S*)
- As a **social media content creator** (*R*) generate a **fun and engaging** (*S*) **list of poll questions** (*F*) aimed at **student users of an academic library** (*A*) to **gauge their user needs and library use satisfaction level** (*T*).

PROMPT ENGINEERING ...

WRITING BETTER PROMPTS FOR BETTER ANSWERS

Other possible options to include in a prompt

- **Objective** : What is the ultimate goal of the task? e.g. To educate on the use of AI in academic librarianship
- **Tone**: emotional resonance (different from style) e.g. Authoritative (Style: Informative)
- **Length**: a quick answer or a detailed analysis? e.g. approximately 200 words
- **Medium**: where will the content be used? e.g. website
- **Sources**: Should the content reference external sources for credibility? e.g. At least 3 peer-reviewed articles

Prompts for image generation

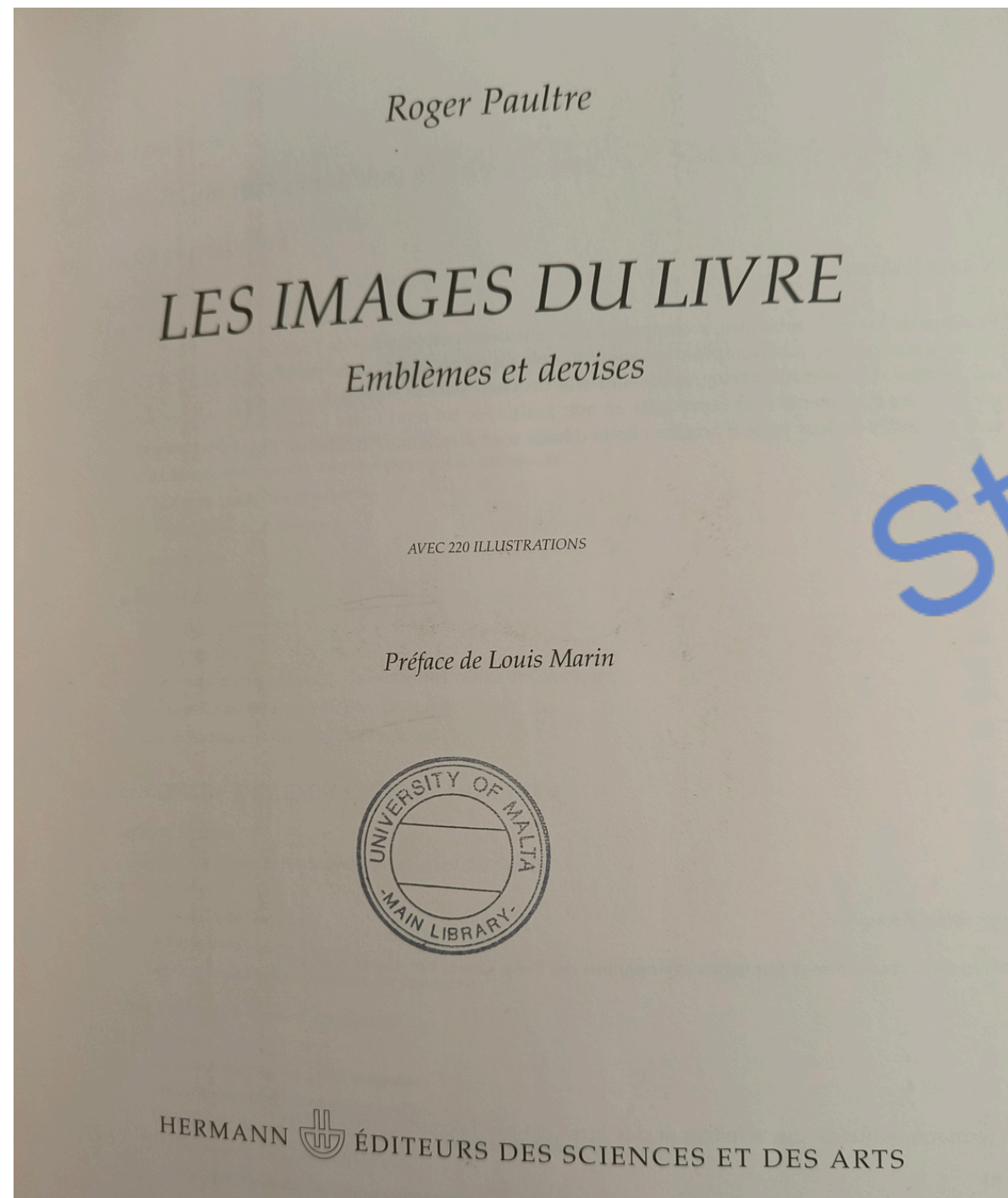
- Describe what you need in as much detail as you have
- Watch out for any typos or inconsistent information e.g misspellings or garbled text!

Create a minimalist poster image for a library AI workshop using the colours red and white. The workshop will be called "Making effective use of AI tools in research" and it will be held on October 20 at 10am. Also insert the text "Click the link in the bio to register"



Prompts for image to text

- Useful in cataloguing or metadata extraction exercises
- Be careful of errors/inconsistencies (although a chatbot like ChatGPT may look like it's using OCR, it is not an OCR tool, but relies on external tools and breaks the image down into patterns)



Extract the text from this image. As a cataloguer use the information to structure a bibliographic record in a MARC21 format. Provide a translation of the title in English as a note field.

plaintext

=LDR 00000nam a2200000 i 4500

📄 Copy ✎ Edit

=001 190074

=003 UM-Main

=005 20250806121738.0

=008 250806s19uu fr a b 000 0 fre d

=040 \\\$aUM-Main\$bfre\$erda

=100 1\\\$aPaultre, Roger.

=245 13\$aLes images du livre :\$bemblèmes et devises /\$cRoger Paultre ; préface de Louis Marin.

=260 \\\$a[Paris] :\$bHermann, Éditeurs des sciences et des arts,\$c[19--?]

=300 \\\$a[xx], [various pagings] :\$billustrations ;\$c28 cm

=500 \\\$aAvec 220 illustrations.

=500 \\\$a"Préface de Louis Marin."

=546 \\\$aText in French.

=500 \\\$aStamped: "University of Malta - Main Library".

=500 \\\$aAccession number: 190074.

=520 \\\$a[English translation of title and subtitle] The Images of the Book: Emblems and Mottos.

=700 1\\\$aMarin, Louis,\$ewriter of preface.

=710 2\\\$aUniversity of Malta.\$bLibrary.

=710 2\\\$aHermann (Firm)

- Spend time using these tools
- Subscription to some tools unlocks access to newest features, unlimited prompting, file uploads, image generation etc.
- If you're unsure how to use a tool...ask it for a description of itself and how it can help you e.g. "Can you describe to me what you are, and how you can help me in my role as librarian?"
- Spend time experimenting with different prompts (even changing a word or two can affect the results you get).
- Ask the chatbot for advice even on prompts! Tell it what you want to get and what sort of prompt you need.

USING LLM TOOLS IN LIBRARY WORKFLOWS

General purpose

Answer questions, produce written content, summaries, translations etc.,
cataloguing, classification & subject headings



ChatGPT



Copilot



Gemini



Claude

Stefania Galea

USING LLM TOOLS IN LIBRARY WORKFLOWS

Research assistants

Tools tailored around analysing papers, providing literature reviews and citations

 NotebookLM

 Docalys

 Elicit



Consensus

 perplexity

Scite AI

scite_

USING LLM TOOLS IN LIBRARY WORKFLOWS

Data analysis

**Understand & chat with data sets, including stock taking reports
(no need for advanced Excel skills!)**

Julius

USING LLM TOOLS IN LIBRARY WORKFLOWS

Images & videos

Create images, social media posts, artwork, posters, videos.



ChatGPT



invideo



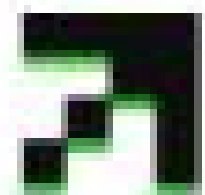
Gamma



sora



KlingAI



Infography



submagic

USING LLM TOOLS IN LIBRARY WORKFLOWS

AI tools directories

Access databases of AI tools for all requirements



Toolify.ai



SUPER AI



Futurepedia

whatplugin.ai

Thank you for your attention!



Please take a minute
to leave feedback

<http://bit.ly/45bTXQO>



stefania.galea@um.edu.mt