

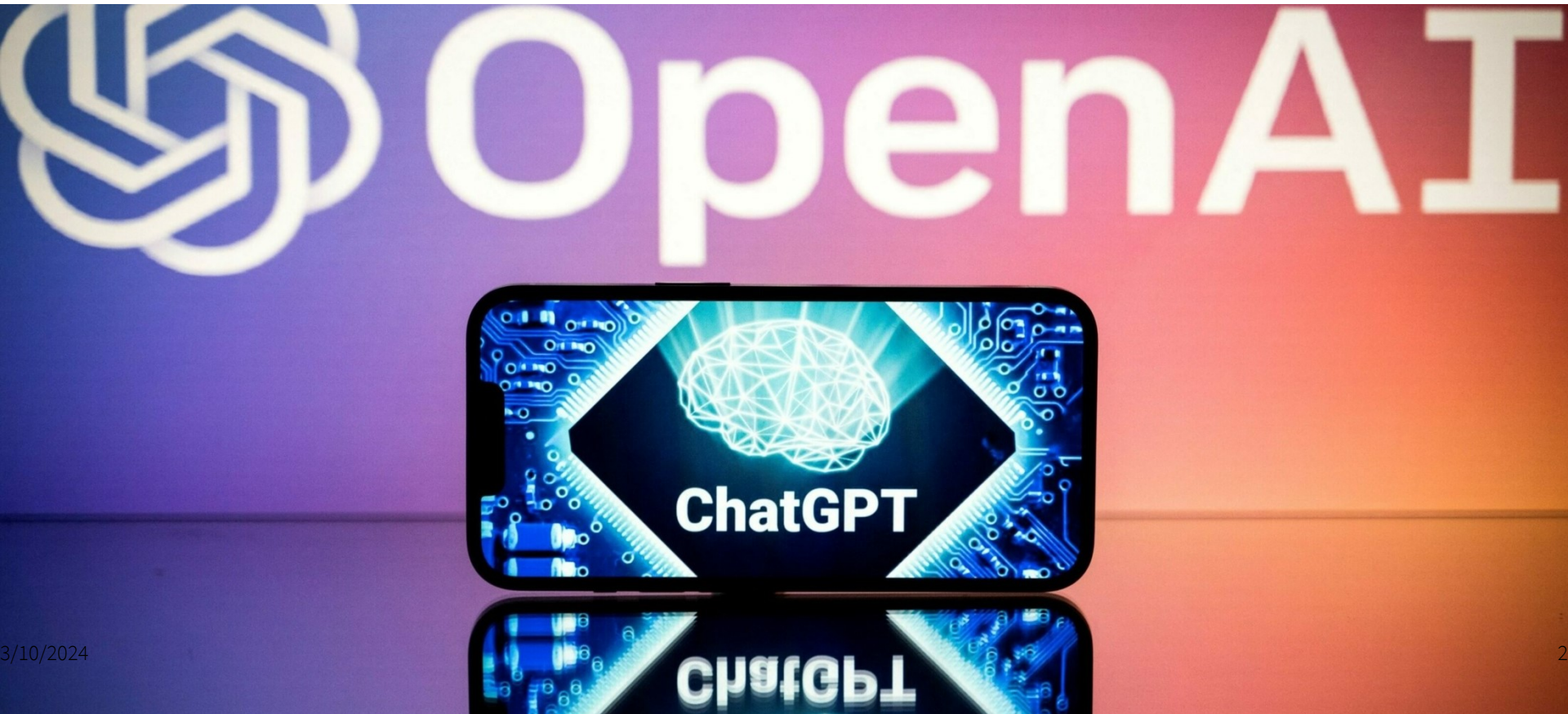
Large language models for terminology work in/for specialised translation

Terminologifrämjandet: 3 Oct. 2024

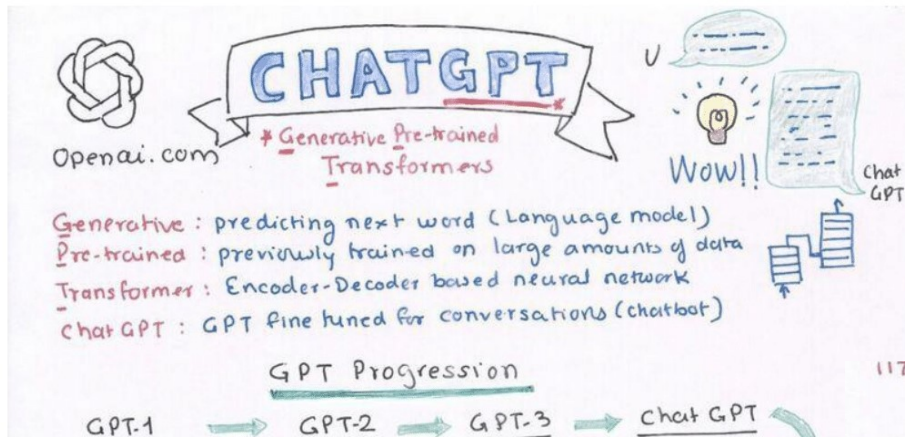
Barbara Heinisch, Centre for Translation Studies, University of Vienna

ChatGPT and large language models in general

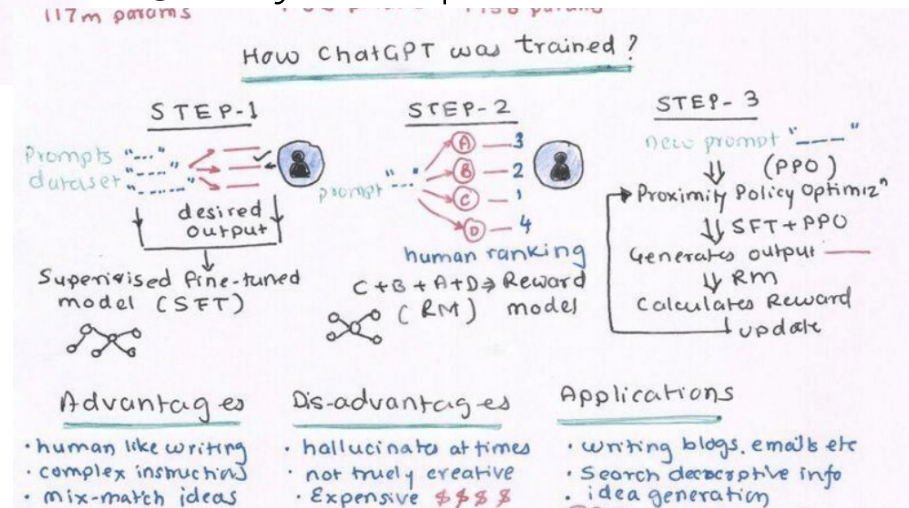
AI, language model, chatbot



ChatGPT as disruptive technology



- Completes broad range of tasks
- Intuitive
- Based on vast amounts of data
- Quality and speed



Source: Cuellar & Depovic 2023



Daybreak
Insights

TEXT GENERATIVE AND CONVERSATIONAL AI LANDSCAPE*

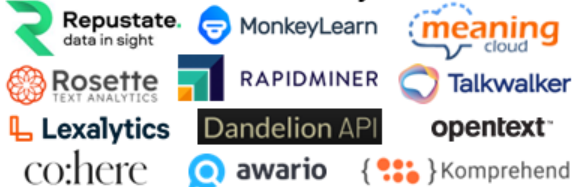
Companies with ChatGPT-like Functions

Text Analysis

Text Summarization



Sentiment Analysis



Text Translation



Conversational AI

Virtual Assistants



Chatbot Building Platforms



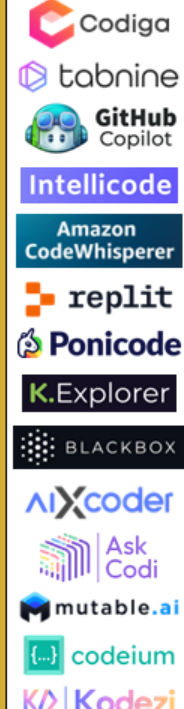
Chatbot Frameworks & NLP Engines



Writers



Coders



Search



Language Models



*Source: [DaybreakInsights.com](https://daybreakinsights.com), March 2023. This graphic shows only a sampling of companies from our full Text Generative and Conversational AI research.

Technology and terminology (management)

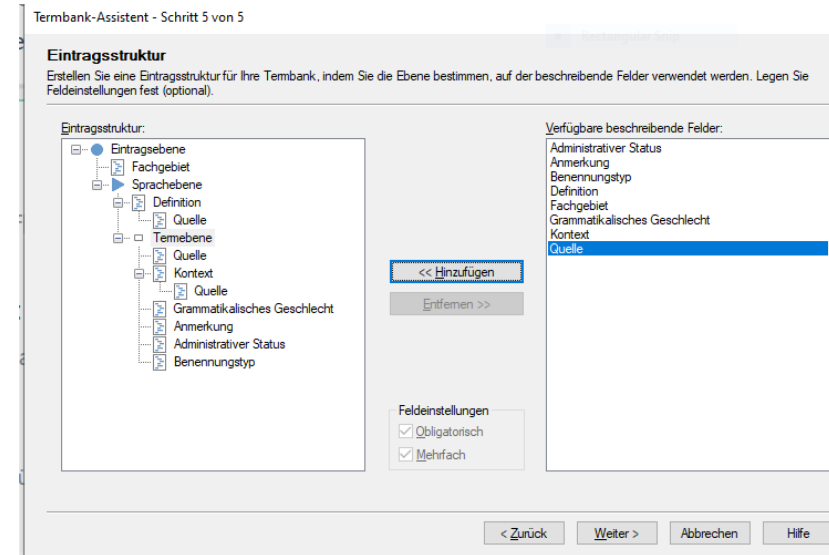
- Hype surrounding large language models (LLMs)
- Technology was and is crucial in terminology work
 - Term extraction tools
 - Corpus analysis tools



Source: SketchEngine

Technology and terminology (management)

- Hype surrounding large language models (LLMs)
- Technology was and is crucial in terminology work
 - Term extraction tools
 - Corpus analysis tools
 - Terminology management/workflow systems
- These systems guarantee consistent and predictable outputs (Massion 2024)
- LLMs allow for new ways of conducting terminology work and management



Source: SDL MultiTerm 2019

For what are you using ChatGPT and other LLMs?



srs.univie.ac.at

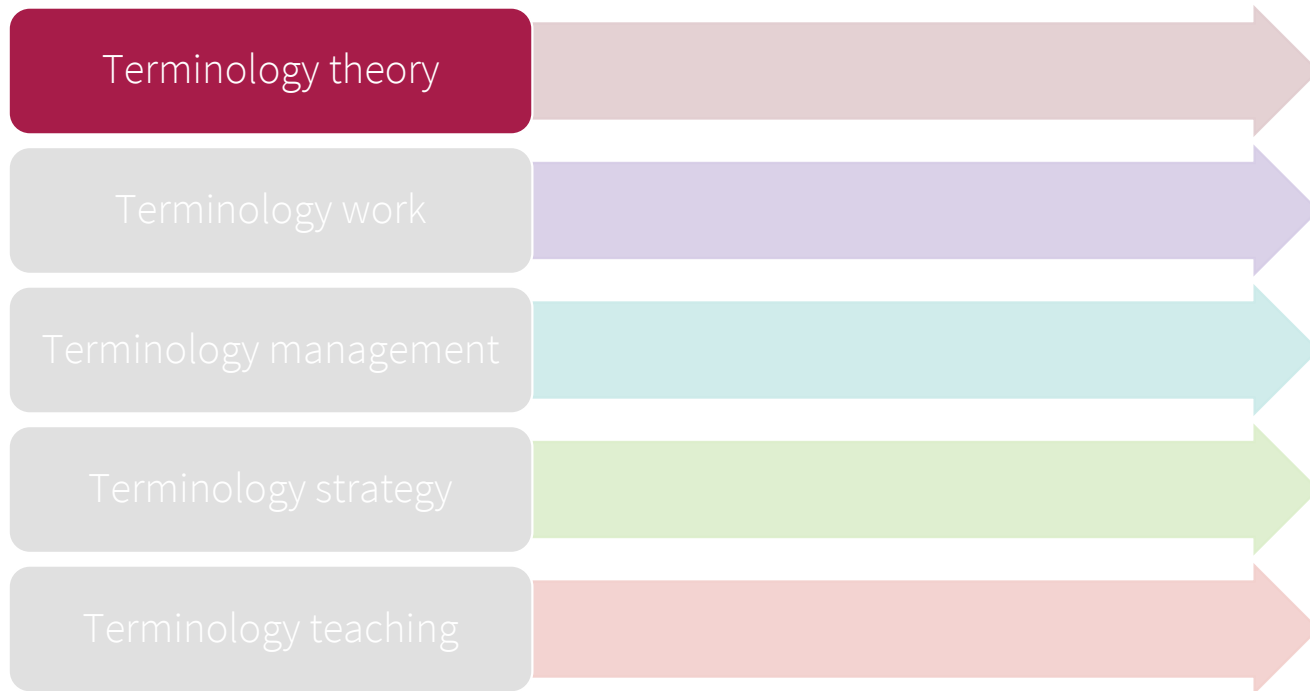
4877 9443



LLMs and their role in different fields of terminology



LLMs and their role in different fields of terminology



Terminology theories

General Theory of
Terminology
(Wüster)

Communicative
Theory of
Terminology
(Cabré)

Frame-based
terminology (Faber)

Socio-cognitive
approach to
terminology
(Temmerman)

Etc.

LLMs and terminology theory

- Dichotomy between concept and context
 - Same concept may have different interpretations
 - Depending on the context
- Different concept systems (in different languages)
 - Relations between concepts
 - Representation of knowledge
 - In different cultures
 - In different contexts

Source: Massion 2024

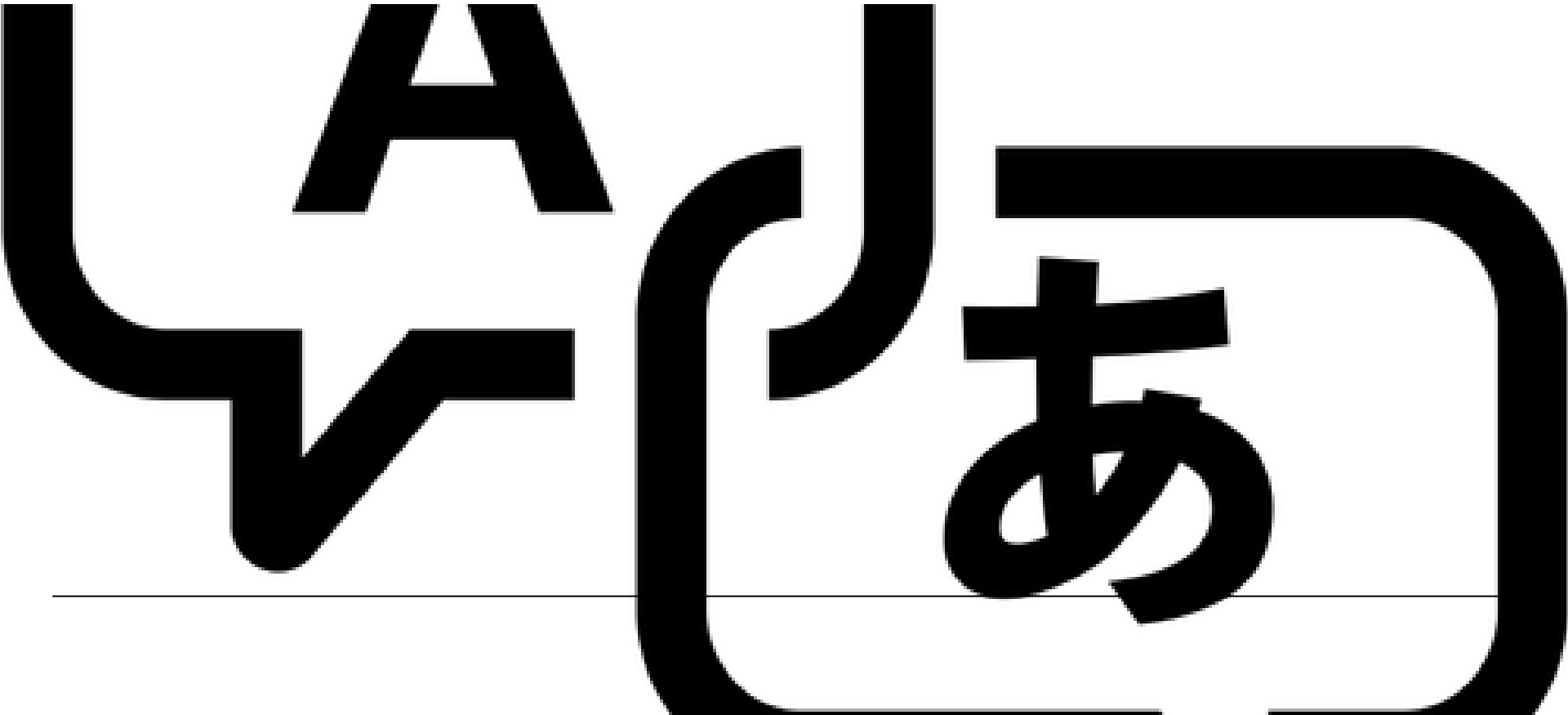
How LLMs will change terminology theory

- Terminology work: communicative interaction between various human and artificial actors
- LLMs do not have a conceptual understanding
 - But work with statistical associations
 - Shift towards (proto)typical context of use for terms
 - Designing relations between concepts that can be interpreted by both LLMs and humans

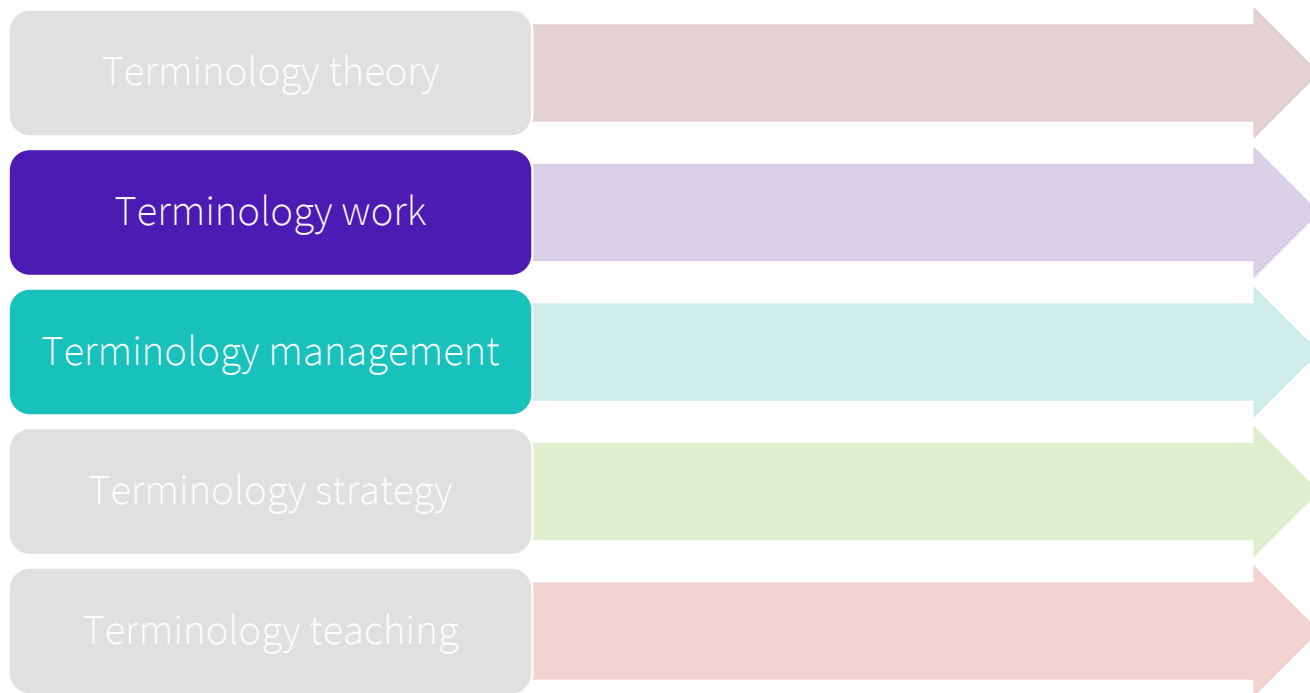
Source: Massion 2024

ChatGPT and (multilingual) terminology work and management

Large language models for terminology



LLMs and their role in different fields of terminology



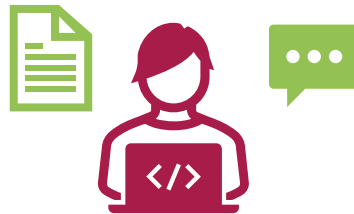
ChatGPT for translation purposes

Contextual interpretation of multi-word expressions

Explanation of culture-specific expressions

Revision of translation style

Explanation of terminology



Content-aware suggestion of synonyms

Error detection

Generation of multiple translation suggestions

Simplification of content

Interactive translation

Source: Siu 2023

ChatGPT for translation purposes

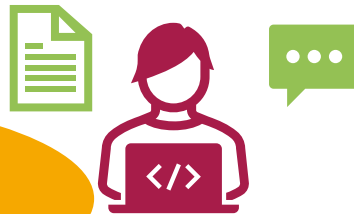
Contextual interpretation of multi-word expressions

Explanation of culture-specific expressions

Adaptation to purpose and target audience

Revision of translation style

Explanation of terminology



Content-aware suggestion of synonyms

Translation quality assessment

Summarisation of (source) texts

Error detection

Generation of multiple translation suggestions

Simplification of content

Interactive translation

Consideration of (language) varieties

etc.

Source: Siu 2023

ChatGPT and translation: Generation of multiple translation suggestions and source of inspiration

- Proposing different ways to translate a text
- As source of inspiration

Table 5 Generation of multiple translation suggestions

Input/output	Content
User	Please suggest three ways to translate the following into English: 我們會在今年推出「基層醫療健康藍圖」，以地區康健中心作為樞紐，統籌為市民提供的基層醫療服務，與私營醫療界別共同推廣「一人一家庭醫生」理念，並協調不同醫療專業，在社區內提供全面、持續、以人為本的基層醫療服務。
Reference Translation	We will publish the Primary Healthcare Blueprint within this year. With District Health Centres (DHCs) as the hub for co-ordinating primary healthcare services for our people, we will partner with the private healthcare sector to promote the concept of "family doctor for all" and collaborate with various healthcare professions to provide comprehensive, sustainable and people-centric primary healthcare services in the community. (HKSAR Government 2022a)
ChatGPT	Here are three possible translations of the Chinese text into English: <ol style="list-style-type: none"> 1. We will launch a "Primary Healthcare Blueprint" this year, which will use community health centers as the hub to coordinate and provide comprehensive, continuous, patient-centered primary healthcare services to citizens. We will also work with the private healthcare sector to promote the idea of "one person, one family doctor," and coordinate different medical specialties to provide high-quality primary healthcare services in the community. 2. This year, we will introduce a "Primary Healthcare Blueprint" that uses community health centers as the central hub to coordinate and provide primary healthcare services to citizens. We will work closely with the private healthcare sector to promote the concept of "one person, one family doctor," and collaborate with different medical specialties to offer comprehensive, sustainable, and people-centered primary healthcare services in the community. 3. In the coming year, we will unveil a "Primary Healthcare Blueprint" that utilizes community health centers as a hub for the coordination and provision of primary healthcare services to citizens. We will collaborate with the private healthcare sector to promote the "one person, one family

Source: Siu 2023

ChatGPT and translation: Error detection

Table 7 Examples of Error Detection

Input/output	Content
User	<p>Consider the following text and its English translation: Text: 香港 2019 年人口 751 萬。 Translation: Hong Kong's population in 2018 was 751 million. Comment on the accuracy and grammar of the translated text. Use bullet points to highlight any errors and provide a revised version when appropriate.</p>
ChatGPT	<p>Accuracy and grammar of the translated text:</p> <ul style="list-style-type: none"> • The translated text states that Hong Kong's population was 751 million in 2018, which is incorrect as it is an order of magnitude higher than the actual figure. • The translated text uses the wrong year, as it says "2018" instead of "2019." • The translated text does not convey the unit of measurement for the population, which is "million" in the original text. <p>Revised version: Hong Kong's population in 2019 was 7.51 million.</p>

Source: Siu 2023

ChatGPT and translation: Explanation of terminology and simplification of content

Table 3 Explanation of medical terminology

Input/output	Content
User	<p>Consider the following text: Coronary heart disease (CHD) is a major cause of death in the UK and worldwide. CHD is sometimes called ischaemic heart disease or coronary artery disease. Extract medical terms from the above text and explain them in plain English.</p>
ChatGPT	<p>Medical terms extracted from the text:</p> <ul style="list-style-type: none"> • Coronary heart disease (CHD) • Ischaemic heart disease • Coronary artery disease <p>Plain English explanations:</p> <ul style="list-style-type: none"> • Coronary heart disease (CHD) is a condition where the heart's blood vessels become narrowed or blocked, which reduces blood flow to the heart muscle and can lead to chest pain, heart attacks, and other complications. • Ischaemic heart disease is another term used to describe the same condition as CHD, where the reduced blood flow to the heart muscle can cause damage and lead to various heart problems. • Coronary artery disease refers to the specific type of CHD where the blood vessels that supply the heart muscle (coronary arteries) become narrowed or blocked, which can lead to heart attacks and other complications.

Source: Siu 2023

Prompting for (specialised) translation purposes

- Provide context
 - "Translate [text to translate in Filipino] to English from the perspective of a native Filipino speaker" should try to maintain as many cultural connotations as possible in a translation.
 - "Translate [text to translate] to English from the perspective of someone discussing the COVID-19 pandemic" should use appropriate medical terms instead of generic words.
 - "Translate [text to translate] to English. The text discusses a battle during WWII" should use appropriate military and historical terms.
- Declare type of text
 - Translate the [Financial report | poem | song | Bible portion | proverb] in quotes to [target language]
 - Translate [text to translate] to [target language]. The text to be translated is a [military report | medical document | drug prescription]
- Use style transfer
- Account for regional differences
 - Translate [text to translate] to [target language] in layman's terms.
 - Translate [text to translate] to [target language] for a [grade 5] audience
 - Translate [text to translate] to [target language]. Use style transfer to make the translated text suitable for a [target audience]

Source: Timothy 2023

Example: Translation brief and persona prompts

Prompts	Content
Basic	Please translate the following text from English into Chinese Mandarin. The translation is intended for professional use. Top_p=0.5
TransBrief	Please translate the following text from English to Chinese Mandarin. The paragraph is taken from a popular scientific article published in <i>Discover Magazine</i> . The translated version will be published on the <i>Scientific American</i> website in 2023 for professional use. The author of the original text is a well-known science writer, and the target audience for the translation consists of educated individuals interested in popular science. The original text aims to communicate recent research in mathematics that explores the fundamental principles of time travel. Top_p=0.5
Author	You are a professional popular science author. Please translate the following text from English into Chinese Mandarin. The translation is intended for professional use. Top_p=0.5
Translator	You are a professional popular science translator. Please translate the following text from English into Chinese Mandarin. The translation is intended for professional use. Top_p=0.5

Table 1. Prompt Overview.

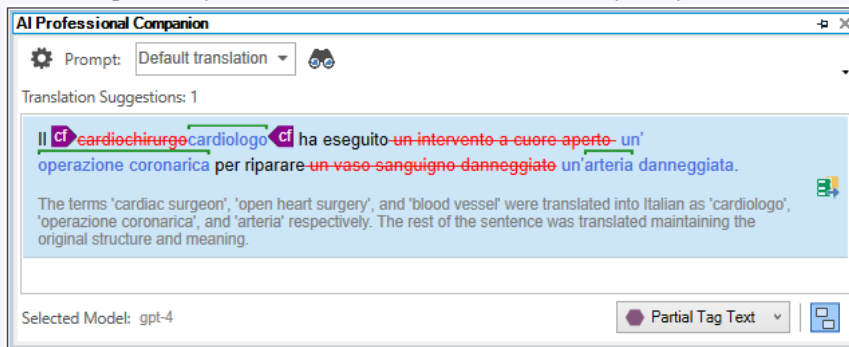
- Persona prompt works best:
 - Assigning role of a translator
 - (for translation “English to Chinese Mandarin”) (He s.a.)
- Including purpose and target of translation
 - Increased translation quality
 - (for translation English ~ Japanese) (Yamada 2023)

Source: He s.a.

LLM plug-ins for CAT tools

AI Companion - Your Sidekick in Translation

Every superhero needs a sidekick, right? Well, meet your trusty translation sidekick - the AI Companion. This little marvel resides in the Editor view and is packed with superpowers to simplify the translation process with its ability to customize the Translation Suggestions with specific prompts and settings. Not only can it highlight translated terms, but also provide a visual representation of comparison changes, making it easier for you to identify and track modifications made during the translation. It's like having a team of linguists brainstorming ideas for you, minus the office drama and coffee stains on your keyboard.



Terminology-aware

The Translation Provider & AI Companion also bring terminology awareness to the table. They can incorporate terminology context with the prompt when requesting translations, resulting in more precise and contextually relevant suggestions. Say goodbye to those cringe-worthy moments when you realize your translation didn't quite hit the mark. This smart integration ensures consistency and precision in all your translated content.

Source: <https://community.rws.com/product-groups/trados-portfolio/trados-studio/b/weblog/posts/unleash-the-power-of-translation-with-ai-professional-plugin-for-trados-studio>

Large language models in terminology work

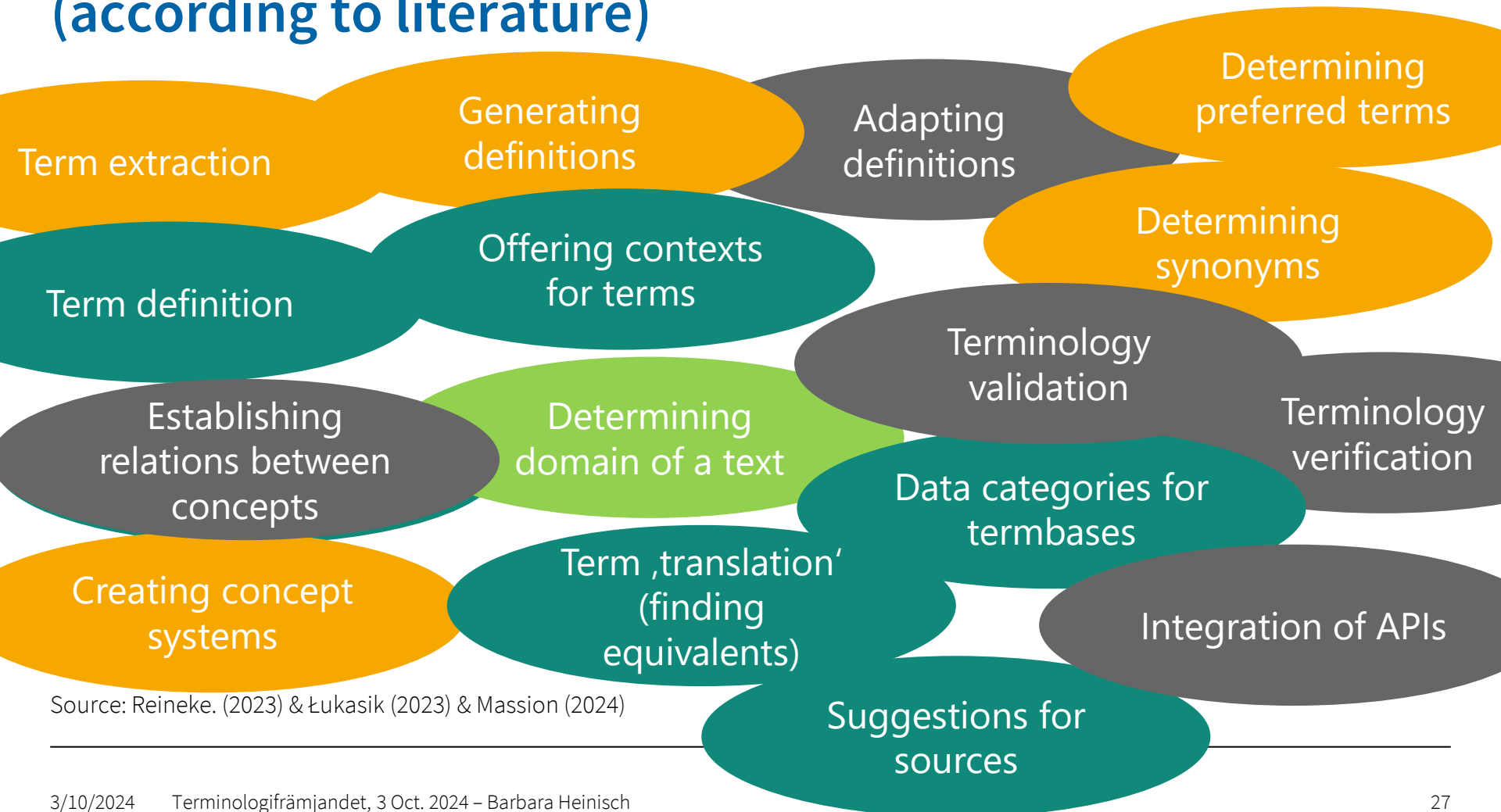
LLMs for terminology purposes

C2 · noun · feminine · regular · -, -en-

 die **Terminologie**

Terminologie
Terminologien

ChatGPT for terminology purposes (according to literature)

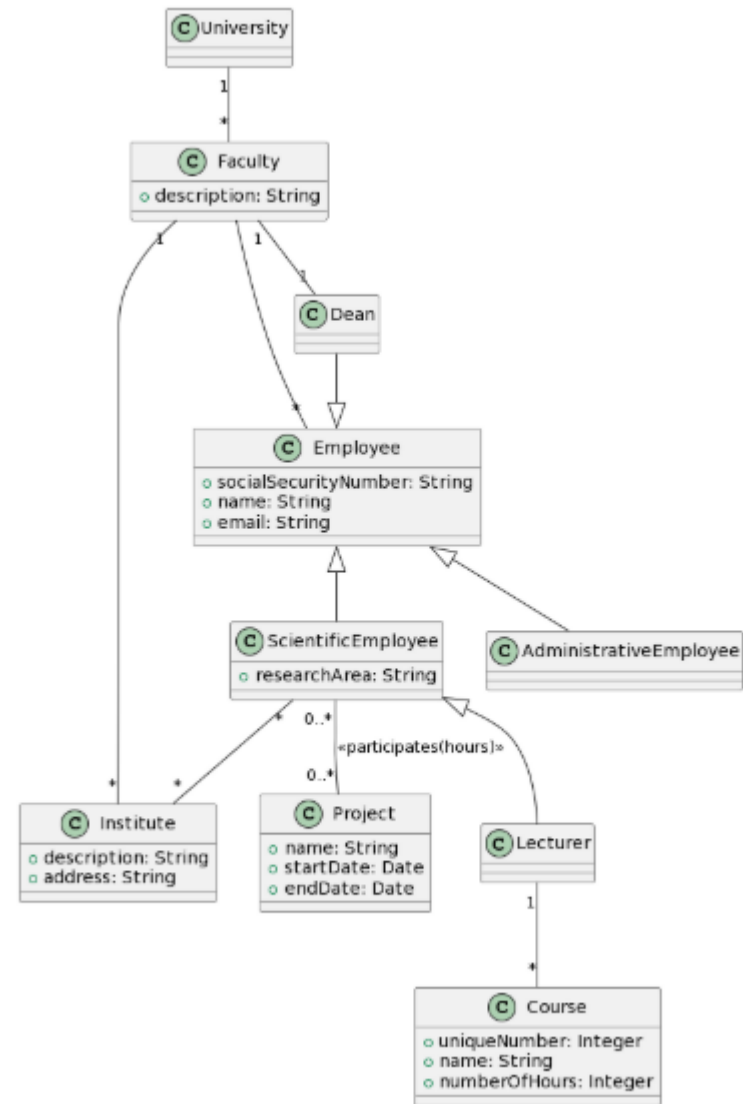


Source: Reineke. (2023) & Łukasik (2023) & Massion (2024)

Concept systems (and similar visualisations)

Task Definition 3

A university consists of multiple faculties, which are composed themselves of multiple institutes. Every faculty and each institute have a description. Each institute has an address. Every faculty is led by a dean, who is an employee of the faculty. The total number of employees is known. Each employee has a social security number, a name and an email address. It is distinguished between scientific and administrative employees. Scientific employees are assigned to at least one institute. For each scientific employee, his research area is known. In addition, scientific employees can participate in projects for a particular number of hours. For the projects, the name and the start and end date are known. Some scientific employees give courses. Then they are denoted as lecturers. Courses have a unique number, a name, and a number of hours.



Source: Fill et al. 2023

Terminology work with actual sources

Search for 3 different definitions for "degree programme" on websites ending with .ac.uk

Sources

- Module and Curriculum Design - The Economic... economicsnetwo... - 1
- THE PRACTICAL IMPLEMENTATION OF... oecd-library - 2
- [PDF] Designing Undergraduate Degree... economicsnetwo... - 3
- View 2 more

Answer

Based on the search results from websites ending with .ac.uk, here are three different definitions for "degree programme" in the domain of university studies:

- Degree Programme:** A degree programme, also referred to as a program, encompasses the entirety of study undertaken by a student over a typical three-year period. It is structured into parts, with each part representing the material studied during a year of full-time study. These parts are further divided into units or modules, which are the building blocks of the curriculum ¹.
- Undergraduate Degree Programme:** An undergraduate degree programme is a comprehensive educational pathway designed for undergraduate students, typically running over three years in England, Wales, and Northern Ireland. In some disciplines like Engineering, a four-year integrated undergraduate Master's degree is common. Universities in Scotland operate four-year degree programmes, reflecting variations in pre-university education systems ³.
- Integrated Masters Programme:** An integrated Masters programme combines undergraduate and postgraduate studies, offering an advanced academic curriculum that leads to the award of a master's degree. This type of programme typically spans four years and provides students with an in-depth exploration of a specific subject area ⁴.

These definitions highlight the structure and duration of degree programmes within the university context, emphasizing the distinction between undergraduate and postgraduate levels.



Source: Perplexity.ai

Tool

Prompt and
output

Actual source

The Handbook
for Economics Lecturers

Designing Undergraduate Degree Programmes

Dr Rebecca Taylor, University of Portsmouth
Edited by David Newlands, University of Aberdeen

1	Introduction	2
1.1	Definitions and coverage	2
1.2	Key considerations in the preparatory stages of course design	2
1.3	Centralisation of the course design process	5
2	Undergraduate degree programmes	6
2.1	The programme structure	6
2.2	Course design	6
2.3	Unit/module provision and progression	12
2.4	Making programmes more inclusive	17
	Appendix BA Economics: an example of a programme specification	18
	References and bibliography	26

Terminology work with actual sources

Search for a definition of "prüfungsaktiv" on websites of universities in Austria and provide a link to the definition found.

Sources


[PDF] Die Vermessung der Prüfungsaktivität an... netlibrary.aau · 1	Prüfungsaktivität bmbwf.gv · 2	Begriffs-ABC - Studieren - Universität Wien studieren.univie · 3	View 2 more
------------------------------------------------------------------------	-----------------------------------	---------------------------------------------------------------------	-------------

Answer

The term "prüfungsaktiv" refers to being actively engaged in examinations or examination-related activities within the academic context. It signifies involvement in exam processes, such as taking exams, preparing for assessments, or participating in examination-related tasks at universities in Austria.

You can find more information about this term at the following link: [Begriffs-ABC - Studieren - Universität Wien](#)

Share Rewrite



DE Suche

Studienangebot | Zulassung | Aufnahmeverfahren | Studienbeitrag

Prüfungs-/Lehrveranstaltungsbeginn

Prüfungsaktivität

Studierende, die im Studienjahr in einer Studienrichtung mindestens 16 ECTS-Punkte erbringen, gelten als prüfungsaktiv. Die Prüfungsaktivität wird bei Bachelor-, Diplom- und Masterstudien gemessen. Doktoratsstudien sind ausgenommen. Für die Berechnung der Prüfungsaktivität werden nur positive ECTS-Punkte herangezogen. ECTS-Punkte aus Anerkennungen fließen nicht in die Berechnung ein. Gezählt werden alle prüfungsaktiven Studien. Je höher die Anzahl der prüfungsaktiven Studien ist, desto mehr finanzielle Mittel stehen der Universität für Lehre und Forschung zur Verfügung. Außerdem kann der Nachweis der Prüfungsaktivität Voraussetzung für Beihilfen, wie z.B. die österreichische Familienbeihilfe, sein.

Weiterführende Links:

- Mindeststudienleistung
- Prüfungsaktivität

Verwandte Einträge:

- Mindeststudienleistung

Prüfungsantritt

prüfungsimmanente Lehrveranstaltung (pi LV)

Prüfungspass

Prüfungstypen

Tool

Prompt and
output

Actual source

Prompt engineering

Principles



prompt:

Prompt engineering

- A prompt is an input query or instruction that can be interpreted by a large language model in natural language (Massion 2024)
- Communicating the user's intent to a language model (Ekin, 2023)
- A good prompt
 - can increase the effectiveness of a large language model
- resulting in the generation of an output that is of high quality and contextual relevance for the user (Korzynski et al., 2023)

Prompt engineering – general guidelines

• Prompt Engineering Guide

Techniques

- Zero-shot Prompting
- Few-shot Prompting
- Chain-of-Thought Prompting
- Self-Consistency
- Generate Knowledge Prompting
- Prompt Chaining
- Tree of Thoughts
- Retrieval Augmented Generation
- Automatic Reasoning and Tool-use
- Automatic Prompt Engineer
- Active-Prompt
- Directional Stimulus Prompting
- Program-Aided Language Models
- ReAct
- Reflexion
- Multimodal CoT
- Graph Prompting

Table 2 | Prompting strategies and examples

Strategy	Example
Guide the model to solutions	Instead of 'Translate the text into Chinese', use 'First translate literally to preserve meaning, then refine the translation to align with Chinese linguistic conventions'
Add relevant context	Instead of a generic cover letter, provide the job advertisement and your CV for context
Be explicit in your instructions	Instead of 'Revise the text', use 'Act as a top editor for top journals to improve the clarity and flow of the text'
Ask for lots of options	Ask for three analogies to explain a concept or twenty names for a function
Assign characters	Instruct the model to act as a typical reader of your audience for feedback on writing
Show examples, do not just tell	Instead of 'Create a chart for this data', say 'Create a bar chart for this data, similar to figure 3 in the attached paper'
Declare the preferred response format	Instead of 'Summarize the key findings', specify 'Summarize the key findings in bullet points and use language a high-school student would understand'
Experiment, experiment, experiment	Add specific phrases such as 'let's think step by step' to improve LLM performance

Six strategies for getting better results

Write clear instructions

These models can't read your mind. If outputs are too long, ask for brief. If you dislike the format, demonstrate the format. If the model has to guess at what you want, the more likely you'll get it.

Tactics:

- Include details in your query to get more relevant answers
- Ask the model to adopt a persona
- Use delimiters to clearly indicate distinct parts of the input
- Specify the steps required to complete a task
- Provide examples
- Specify the desired length of the output

Source: <https://www.promptingguide.ai/>

Source: Lin 2024

Source: <https://platform.openai.com/docs/guidelines>

Prompt engineering – AI PROMPT recommendations

Table 3. Recommendations for the text-to-text AI prompts

Acronym	Recommendation	Description
A	Articulate the instruction	Clearly state the task to be performed, such as 'write,' 'classify,' 'summarize,' or 'translate,' and specify how the output should look (table, list, Python code).
I	Indicate the prompt elements	Show the model where the instructions and input data are and what the expected output format should be.
P	Provide ending cues and context	Offer the model clear ending cues, such as three dots for continuation or a colon, dot, or placeholder like 'answer:' for indicating a response is needed. Furthermore, ground the model by providing a context for the task (e.g. 'You are a manager of a tech team').
R	Refine instructions to avoid ambiguity	Give the model-specific instructions and a detailed description of the task to avoid any confusion or imprecision.
O	Offer feedback and examples	For conversational models, such as ChatGPT, feedback on the model's responses can help it better understand the desired output. Moreover, providing the model with a few examples of expected responses (few-shot learning) can help it adapt its style and way of responding.
M	Manage interaction	Treat the model as your sparring partner, asking it to provide counterarguments or point out flaws in your ideas.
T	Track token length and task complexity	Break complex tasks into smaller steps for better performance. Remember to control the token length, keeping the prompt and response under the token limits of the model (usually 4096 tokens for commercially available LLMs). The token length of a text can be checked here: https://platform.openai.com/tokenizer .

Source: own elaboration of AI prompts in ChatGPT and Bard.

Source: Korzynski et al., 2023

Overlap of prompt engineering competences and digital (terminology) competences

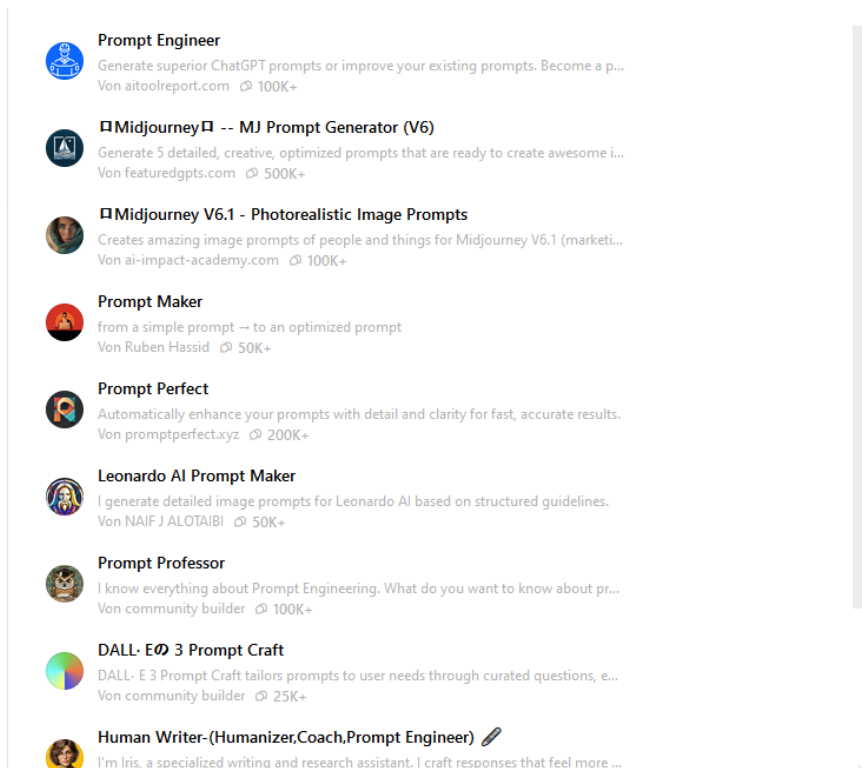
Table 1. AI prompt engineering's overlap with other digital competences

Area	Competence	AI prompt engineering
1. Information and data literacy	1.1. Browsing, searching, and filtering data, information, and digital content	✓
	1.2. Evaluating data, information, and digital content	✓
	1.3. Managing data, information, and digital content	✓
2. Communication and collaboration	2.1. Interacting through digital technologies	✓
	2.2. Sharing through digital technologies	✓
	2.3. Engaging in citizenship through digital technologies	
	2.4. Collaborating through digital technologies	✓
	2.5. Netiquette	
	2.6. Managing digital identity	
3. Digital content creation	3.1. Developing digital content	✓
	3.2. Integrating and re-elaborating digital content	✓
	3.3. Copyright and licenses	
	3.4. Programming	✓
4. Safety	4.1. Protecting devices	
	4.2. Protecting personal data and privacy	
	4.3. Protecting health and well-being	
	4.4. Protecting the environment	
5. Problem solving	5.1. Solving technical problems	✓
	5.2. Identifying needs and technological responses	✓
	5.3. Creatively using digital technologies	✓
	5.4. Identifying digital competence gaps	✓
	5.5. Learning in digital environments	✓

Source: Korzynski et al. 2023

Source: own elaboration based on Vuorikari Rina *et al.*, 2022.

Prompt engineer(ing) as a new job profile?



The screenshot shows a list of various AI prompt engineering services, each with a profile picture, a title, a brief description, and the creator's name and follower count. The services include:

- Prompt Engineer**: Generate superior ChatGPT prompts or improve your existing prompts. Become a p... Von aitoolreport.com 100K+
- Midjourney -- MJ Prompt Generator (V6)**: Generate 5 detailed, creative, optimized prompts that are ready to create awesome i... Von featuredgpts.com 500K+
- Midjourney V6.1 - Photorealistic Image Prompts**: Creates amazing image prompts of people and things for Midjourney V6.1 (marketi... Von ai-impact-academy.com 100K+
- Prompt Maker**: from a simple prompt → to an optimized prompt Von Ruben Hassid 50K+
- Prompt Perfect**: Automatically enhance your prompts with detail and clarity for fast, accurate results. Von promptperfect.xyz 200K+
- Leonardo AI Prompt Maker**: I generate detailed image prompts for Leonardo AI based on structured guidelines. Von NAIF J ALOTAIBI 50K+
- Prompt Professor**: I know everything about Prompt Engineering. What do you want to know about pr... Von community builder 100K+
- DALL·E 3 Prompt Craft**: DALL·E 3 Prompt Craft tailors prompts to user needs through curated questions, e... Von community builder 25K+
- Human Writer-(Humanizer,Coach,Prompt Engineer)**: I'm Iris, a specialized writing and research assistant. I craft responses that feel more ...

Source: ChatGPT 2024

- Terminology work might require rather complex prompts
- Prompt engineering competence required?
 - Not necessarily:
 - Prompt maker tools
 - Prompt ‘databases’

Prompt maker tools

Original prompt

You are a terminologist and you need to extract key terminology from the domain of automotive engineering from the following text. Focus on terminology from the domain of automotive engineering. Create a 4-column table including the extracted term in its basic form, the definition and the source of the definition as well as a context sentence that you derive from the text at hand:

Improved prompt



To upgrade your prompt, I'll ensure it aligns with best practices, making it more precise, detailed, and structured. Here's the enhanced version:

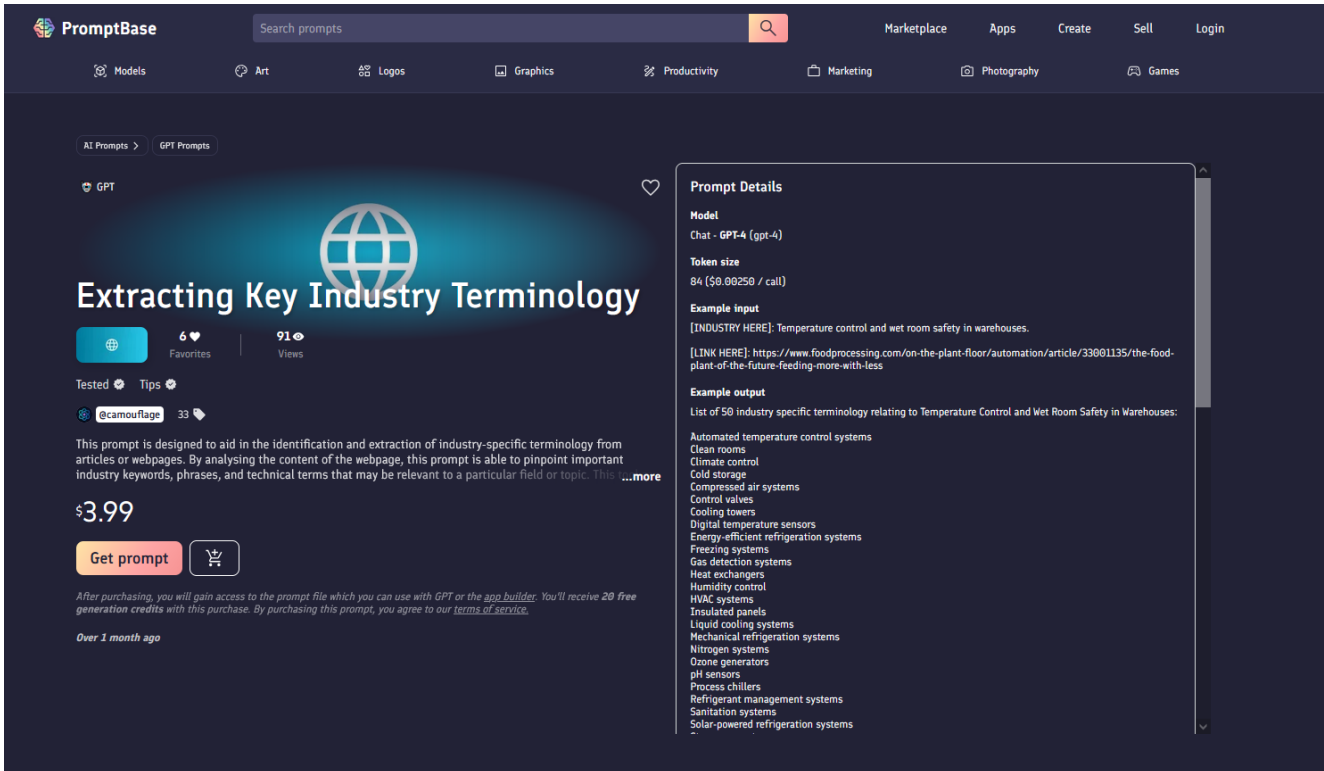
Act like a professional terminologist. You specialize in extracting and analyzing terminology, particularly in the domain of automotive engineering. You have been working in this field for 20 years and have an in-depth understanding of both technical terms and industry-specific language.

Objective: Your task is to extract key terminology from the domain of automotive engineering in the following text. The goal is to identify important terms, define them accurately, and provide relevant context.

Steps:

1. Review the entire text thoroughly, focusing specifically on the language related to automotive engineering.
2. Extract all key terms from this domain that are central to the text.
3. For each term:
 - Identify its base form.
 - Provide a clear and concise definition. This definition should come from a reliable source such as a dictionary, a technical paper, or industry standards.
 - Record the source from which you derive this definition (e.g., dictionary, textbook, or authoritative online resource).

Prompt databases



The screenshot shows the PromptBase interface. At the top, there is a search bar and navigation links for Marketplace, Apps, Create, Sell, and Login. Below the search bar, there are category tabs: Models, Art, Logos, Graphics, Productivity, Marketing, Photography, and Games. The main content area displays a prompt titled "Extracting Key Industry Terminology" by the user @camouflage. The prompt is priced at \$3.99 and has 6 favorites and 91 views. A "Get prompt" button is visible. The prompt description states it is designed to aid in the identification and extraction of industry-specific terminology from articles or webpages. A "Prompt Details" panel on the right shows the model used (GPT-4), the token size (84), and the example input and output. The example output is a list of 50 industry-specific terms related to temperature control and wet room safety in warehouses.

Prompt Details

Model
Chat - GPT-4 (gpt-4)

Token size
84 (\$0.00250 / call)

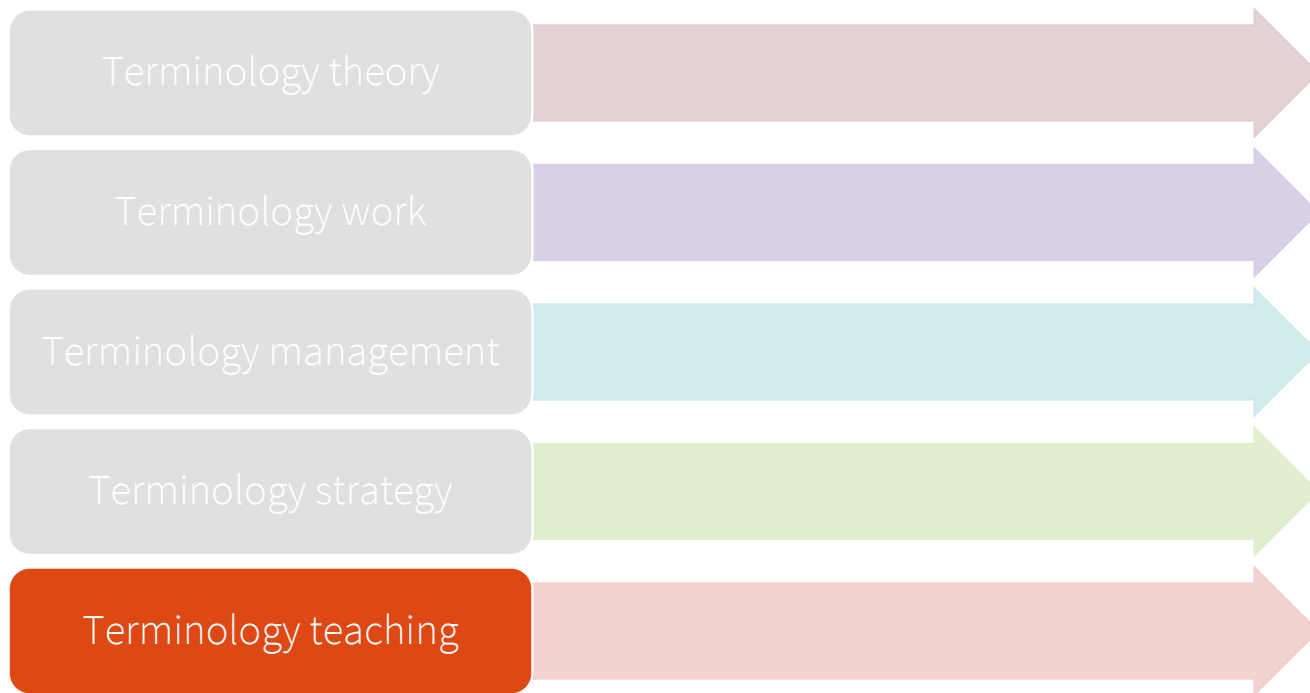
Example input
[INDUSTRY HERE]: Temperature control and wet room safety in warehouses.
[LINK HERE]: <https://www.foodprocessing.com/on-the-plant-floor/automation/article/33001135/the-food-plant-of-the-future-feeding-more-with-less>

Example output
List of 50 industry specific terminology relating to Temperature Control and Wet Room Safety in Warehouses:

- Automated temperature control systems
- Clean rooms
- Climate control
- Cold storage
- Compressed air systems
- Control valves
- Cooling towers
- Digital temperature sensors
- Energy efficient refrigeration systems
- Freezing systems
- Gas detection systems
- Heat exchangers
- Humidity control
- HVAC systems
- Insulated panels
- Liquid cooling systems
- Mechanical refrigeration systems
- Nitrogen systems
- Ozone generators
- pH sensors
- Process chillers
- Refrigerant management systems
- Sanitation systems
- Solar-powered refrigeration systems

Source: <https://promptbase.com/prompt/extracting-key-industry-terminology>

LLMs and their role in different fields of terminology



Large language models in (higher) education



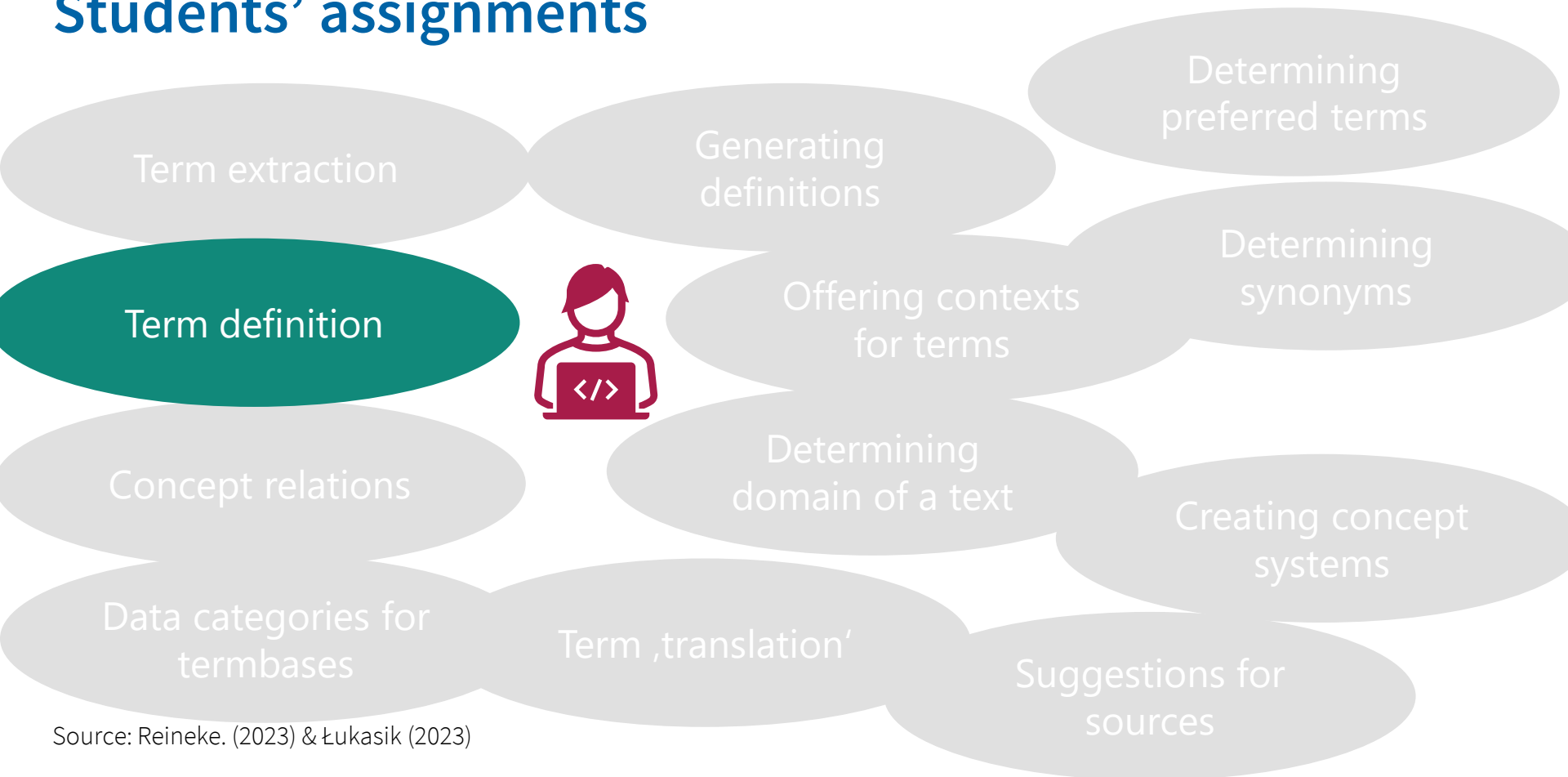
Source: Sabzalieva, E., & Valentini, A. (2023)

Large language models in higher education

Role ⁶	Description	Example of implementation
Possibility engine	AI generates alternative ways of expressing an idea	Students write queries in ChatGPT and use the Regenerate response function to examine alternative responses.
Socratic opponent	AI acts as an opponent to develop and argument	Students enter prompts into ChatGPT following the structure of a conversation or debate. Teachers can ask students to use ChatGPT to prepare for discussions.
Collaboration coach	AI helps groups to research and solve problems together	Working in groups, students use ChatGPT to find out information to complete tasks and assignments.
Guide on the side	AI acts as a guide to navigate physical and conceptual spaces	Teachers use ChatGPT to generate content for classes/courses (e.g., discussion questions) and advice on how to support students in learning specific concepts.
Personal tutor	AI tutors each student and gives immediate feedback on progress	ChatGPT provides personalized feedback to students based on information provided by students or teachers (e.g., test scores).
Co-designer	AI assists throughout the design process	Teachers ask ChatGPT for ideas about designing or updating a curriculum (e.g., rubrics for assessment) and/or focus on specific goals (e.g., how to make the curriculum more accessible).
Exploratorium	AI provides tools to play with, explore and interpret data	Teachers provide basic information to students who write different queries in ChatGPT to find out more. ChatGPT can be used to support language learning.
Study buddy	AI helps the student reflect on learning material	Students explain their current level of understanding to ChatGPT and ask for ways to help them study the material. ChatGPT could also be used to help students prepare for other tasks (e.g., job interviews).
Motivator	AI offers games and challenges to extend learning	Teachers or students ask ChatGPT for ideas about how to extend students' learning after providing a summary of the current level of knowledge (e.g., quizzes, exercises).
Dynamic assessor	AI provides educators with a profile of each student's current knowledge	Students interact with ChatGPT in a tutorial-type dialogue and then ask ChatGPT to produce a summary of their current state of knowledge to share with their teacher/for assessment.

Source: Sabzalieva, E., & Valentini, A. (2023)

ChatGPT for terminology purposes – Students' assignments



Source: Reineke. (2023) & Łukasik (2023)

Example: ChatGPT to define/explain terms

Second prompt asking for more precise definition → same length, but more terminology (for which I had to ask definitions as well)

Clear and unambiguous definitions. It provided correct definitions.

I had to read the specialised definition several times.

The simplified definition was easy to understand, yet still correct.



Example: ChatGPT to define/explain terms

Second prompt asking for more precise definition → same length, but more terminology (for which I had to ask definitions as well)

Clear and unambiguous definitions. It provided **correct** definitions.

I had to read the specialised definition several times.

The simplified definition was easy to understand, yet still **correct**.



The use of LLMs requires specialised knowledge

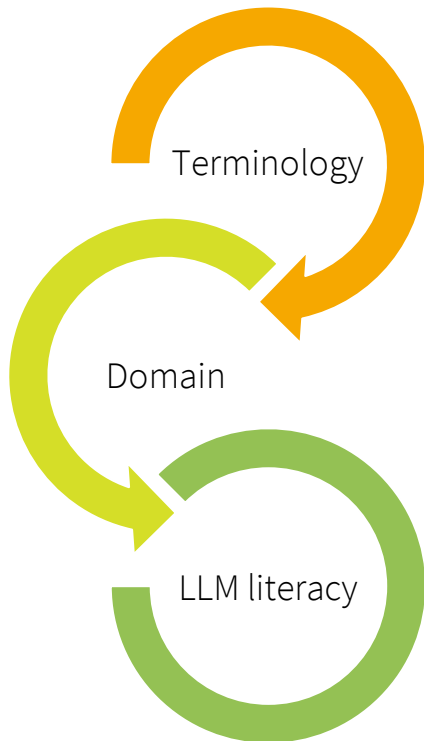
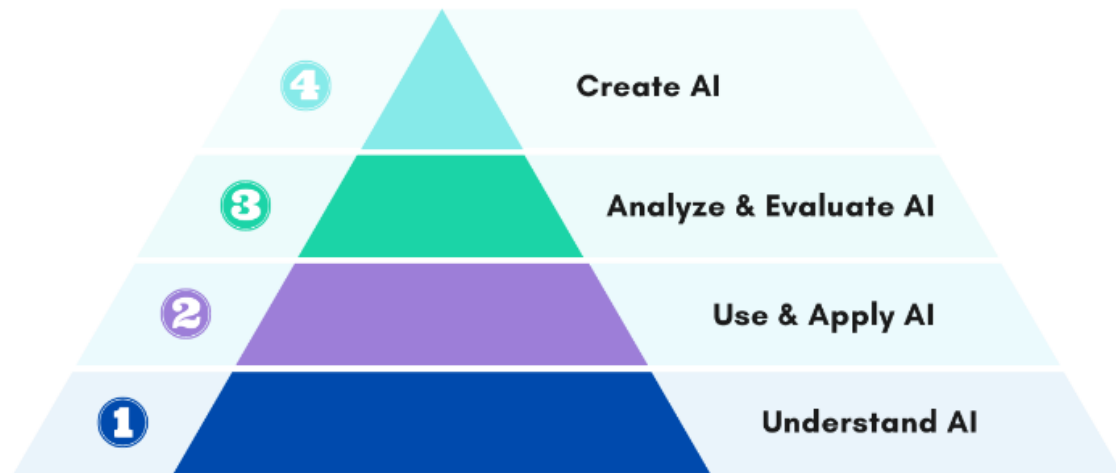


Figure 1. A Framework for AI Literacy



Credit: Melanie Hibbert. Used with permission.

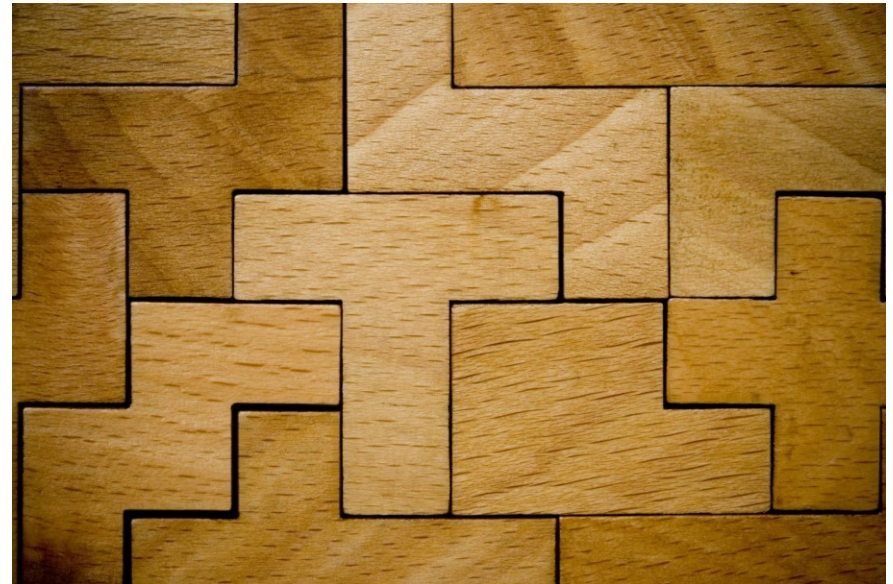
Source: Hibbert et al. 2024

LLMs and their role in different fields of terminology



Terminology strategy

- Terminology and language policies
 - Policy generation
 - Policy enforcement



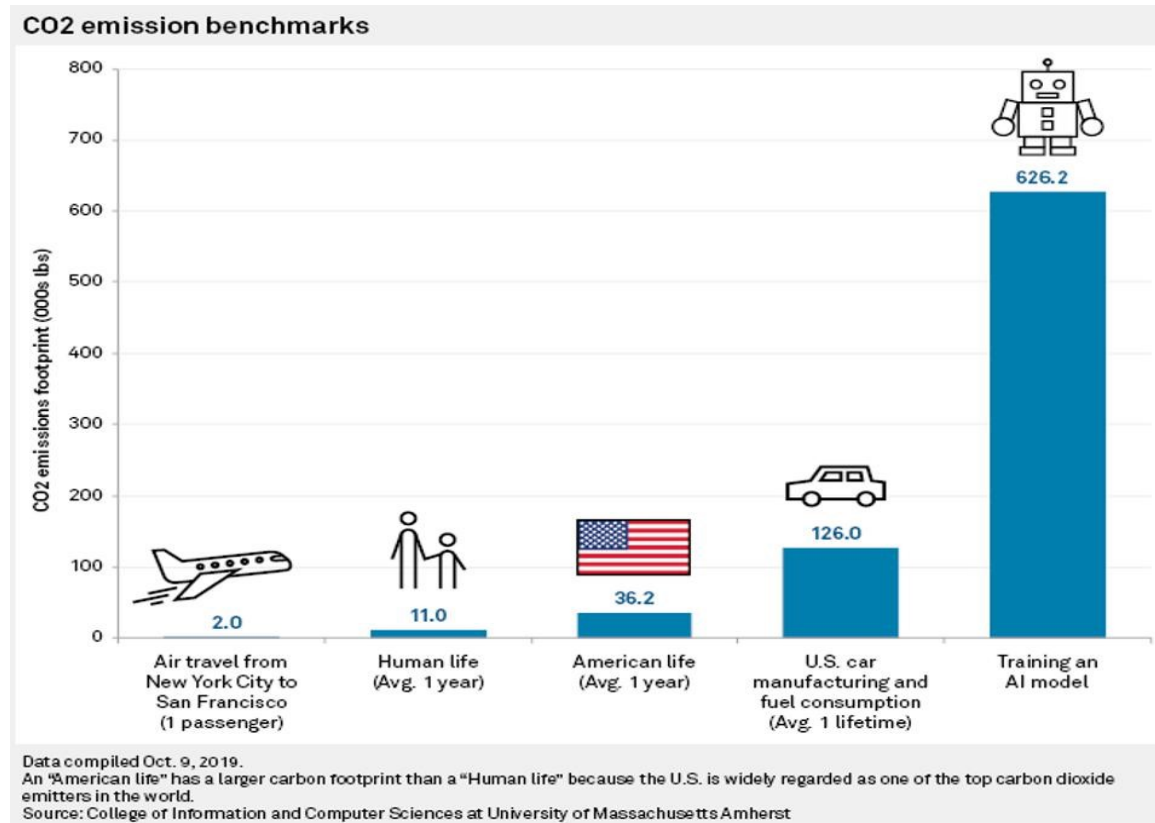
Large language models and sustainability

LLMs: Allies or adversaries of sustainability?



AI tools and sustainability

- Economic, social and ecological sustainability



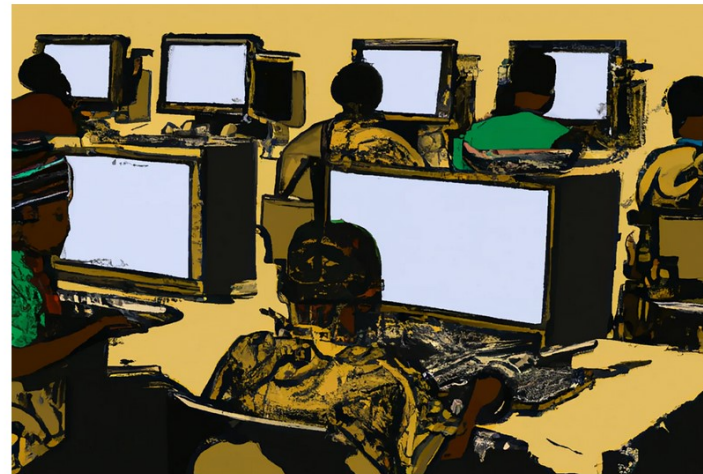
Source: Gow (2020)

AI tools and sustainability

- Economic, social and ecological sustainability

Exclusive: OpenAI Used Kenyan Workers on Less Than \$2 Per Hour to Make ChatGPT Less Toxic

15 MINUTE READ

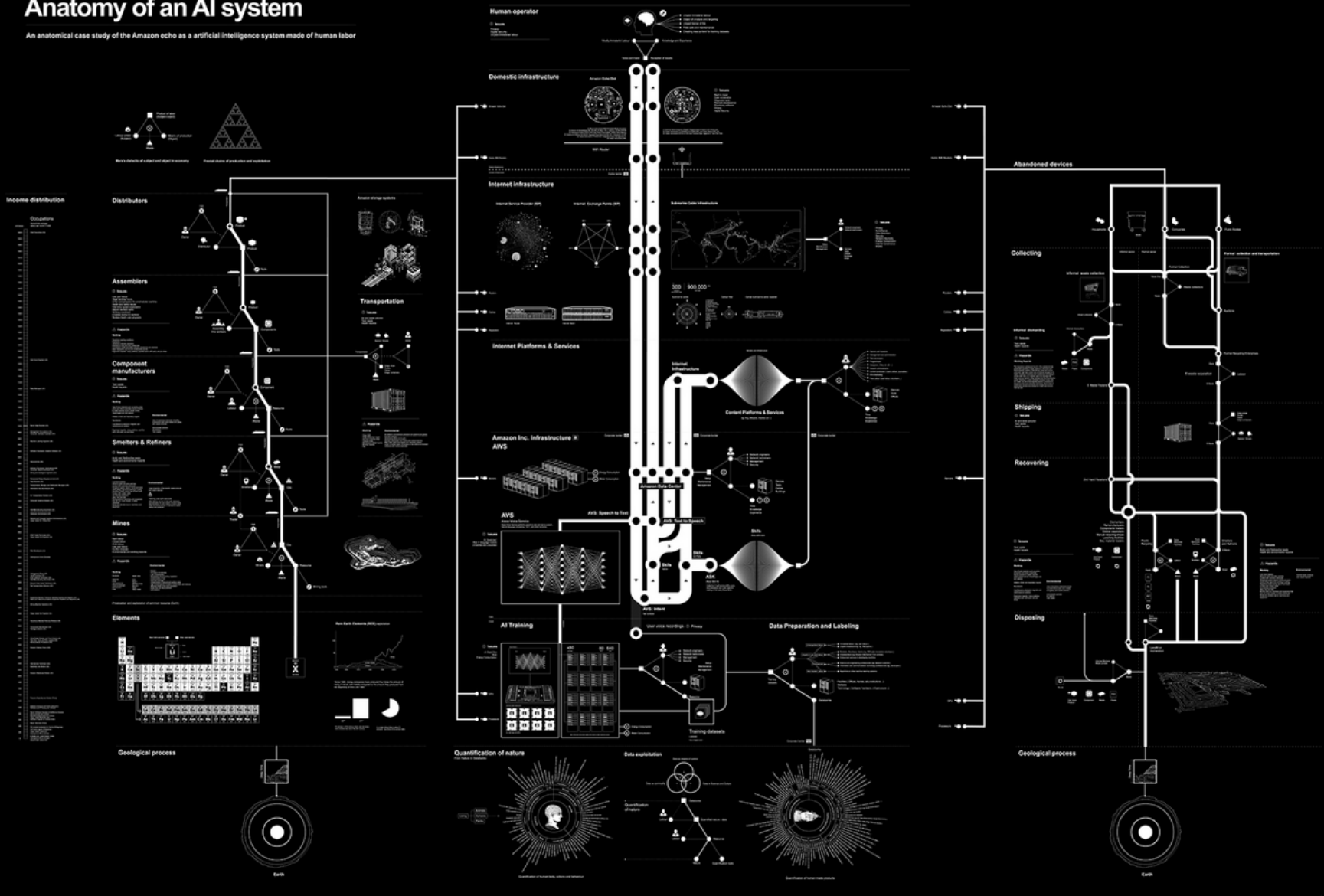


This image was generated by OpenAI's image-generation software, Dall-E 2. The prompt was: "A seemingly endless view of African workers at desks in front of computer screens in a printmaking style." TIME does not typically use AI-generated art to illustrate its stories, but chose to in this instance in order to draw attention to the power of OpenAI's technology and shed light on the labor that makes it possible. Image generated by Dall-E 2/OpenAI

Source: <https://time.com/6247678/openai-chatgpt-kenya-workers/>

Anatomy of an AI system

An anatomical case study of the Amazon Echo as a artificial intelligence system made of human labor



Source: Crawford & Joler 2018: <https://anatomyof.ai/index.html>

AI for good

KI als Katalysator für Inklusion?

Die Potenziale Künstlicher Intelligenz für die inklusive Bildung

Katharina Hamisch  Robert Kruschel  Philine Janus 

Sebastian Rossbach 

08.05.2023 / 6 Minuten zu lesen

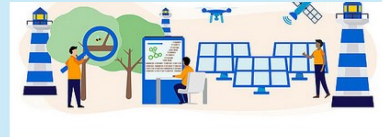


Inwiefern können KI-Technologien zum Abbau von Barrieren und zur Bildungsteilhabe beitragen? Darüber haben wir mit Katharina Hamisch und Robert Kruschel gesprochen.



Source: <https://www.bpb.de/lernen/digitale-bildung/werkstatt/520748/ki-als-katalysator-fuer-inklusion/>

Fünf-Punkte-Programm "Künstliche Intelligenz für Umwelt und Klima"



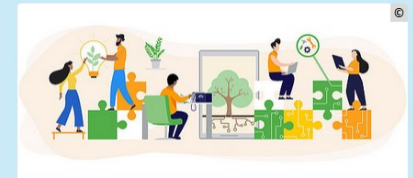
Punkt 1: KI für mehr Klimaschutz



Punkt 2: KI ressourcenschonend gestalten



Punkt 3: KI für mehr Ressourceneffizienz im Mittelstand



Punkt 4: KI für alle – gemeinwohlorientiert und umweltgerecht

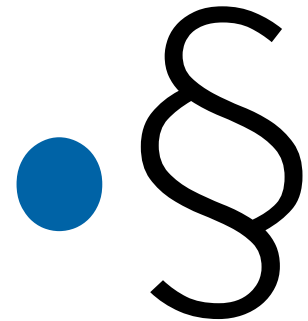


Punkt 5: KI für das öffentliche Umweltverständnis

Source: <https://www.bmu.de/themen/digitalisierung/kuenstliche-intelligenz-fuer-umwelt-und-klima>

Legal aspects: Copyright and liability

- Legal foundation (in Austria):
 - Only natural persons can be copyright holders of a work
- Terms of use of LLM providers:
 - No liability
- Use of AI-generated contents:
 - Licensing of the data with which LLMs were trained
- AI systems are further trained with users' prompts
 - Confidential information
 - Privacy
 - General Data Protection Regulation



Source: COPE Group 2023

Conclusion

Large language models for specialised translation and terminology work



The use of LLMs is very common but hardly documented

- Organisations are using LLMs for terminology purposes to a large extent
 - Language service providers
 - Companies
 - Universities
 - ...
- But there is hardly any literature or documentation available

LLMs and terminology: Pros and cons

Advantages

- Speed and costs
- Versatility and flexibility
- Source of inspiration and adaptability
- Providing context for translation (and terminology)

Disadvantages

- Quality
- Language support
- Output variability
- Security and stability
- Hallucination and bias
- No reliable or ‘real’ sources (Reineke 2023)

Source: Siu 2023

Terminology work (in new domains) with LLMs: The influence of LLMs on specialised language

- Hallucinations especially relevant in new fields of knowledge
- Biases (also regarding schools of thought)
- Copyright and plagiarism
- Ethical boundaries
- Final responsibility for the (revised) output (Teel, Wang, & Lund, 2023)
- ‘Synthetic’ data: LLMs re-using their own output
- LLMs contributing to language change → some phrases becoming more popular (Matsui 2024)
- Over-reliance on AI-generated content may result in loss of “originality, diversity and authenticity in language and communication” (Massion 2024)

Digital humanism

- Argues for technologies that are shaped
- According to human needs and values
- "instead of allowing technologies to shape humans" (Werthner et al., 2019)

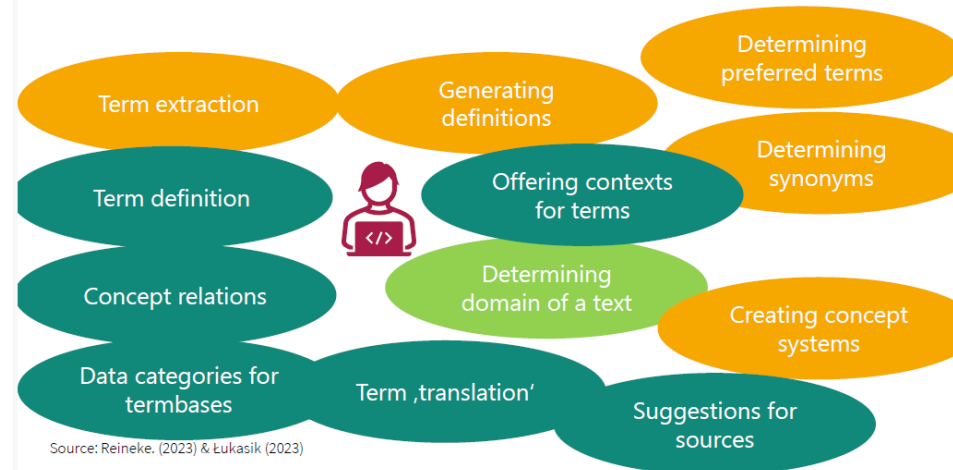


Source: digitalhumanism.at

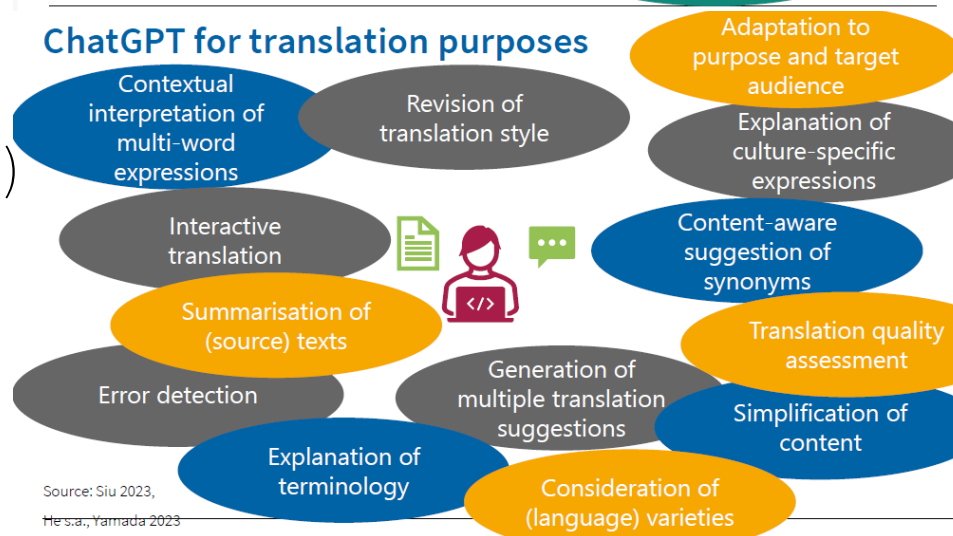
Conclusion

- Potential of AI-based tools for specialised translation and terminology work
 - Translation(-related) tasks
 - Terminology work and checks
 - Concept systems (visualisation)
 - Integration of external sources (API)

ChatGPT for terminology purposes



ChatGPT for translation purposes



References #1

- AlKhamissi, Badr; Li, Millicent; Celikyilmaz, Asli; Diab, Mona; Ghazvininejad, Marjan (2022): A Review on Language Models as Knowledge Bases. arXiv. Online verfügbar unter <https://arxiv.org/pdf/2204.06031>.
- Araújo, S., & Aguiar, M. (2023). Simplifying Specialized Texts with AI: A ChatGPT-Based Learning Scenario. In A. Mesquita, A. Abreu, J. V. Carvalho, C. Santana, & C. H. P. de Mello (Eds.), *Smart Innovation, Systems and Technologies. Perspectives and Trends in Education and Technology: Selected papers from* (Vol. 366, pp. 599–609). [S.l.]: Springer. https://doi.org/10.1007/978-981-99-5414-8_55
- Cuellar, Milena; Depovic, Ljubica (2023): ChatGPT and your Syllabus. La Guardia Center for Teaching and Learning, 2023. Available online at https://docs.google.com/presentation/d/1af1wl0CDBiSL_zHwX4gwgkj3goNDFxrGdrHORF5vG4k/edit#slide=id.g1898ee6b8d0_0_129.
- Fill, H.-G., Fettke, P., & Köpke, J. (2023). Conceptual Modeling and Large Language Models: Impressions From First Experiments With ChatGPT. Advance online publication. <https://doi.org/10.18417/EMISA.18.3>
- He, Sui: Prompting ChatGPT for Translation: A Comparative Analysis of Translation Brief and Persona Prompts. In arXiv e-prints. Available online at <https://arxiv.org/ftp/arxiv/papers/2403/2403.00127.pdf>.
- Hibbert, M., Altman, E., Shippen, T., & Wright, M. (2024). A Framework for AI Literacy. Retrieved from <https://er.educause.edu/articles/2024/6/a-framework-for-ai-literacy#:~:text=Footnote%20%20The%20framework%20is%20intended%20to%20meet%20people%20where>
- Korzynski, P., Mazurek, G., Krzyrkowska, P., & Kurasinski, A. (2023). Artificial intelligence prompt engineering as a new digital competence: Analysis of generative AI technologies such as ChatGPT. *Entrepreneurial Business and Economics Review*, 11(3), 25–37. <https://doi.org/10.15678/EBER.2023.110302>
- Li, X.-Y., Lin, H., & Gerke, H. H. (2018). *Frontiers in Hydropedology: Interdisciplinary Research from Soil Architecture to the Critical Zone*. Vadose Zone J., 17. Retrieved from file:///C:/Users/Workstation/Downloads/Frontiers_in_Hydropedology_Interdisciplinary_Resea.pdf
- Lin, Zhicheng (2024): How to write effective prompts for large language models. In: *Nature human behaviour*. DOI: 10.1038/s41562-024-01847-2.

References #2

- Łukasik, M. (2023). Terminology Work in the Era of AI-generated Content. A Case of ChatGPT. Presentation at 5th International Conference on Terminology: Scientific, Administrative and Educational Dimensions of Terminology. 19-20 Oct. 2023.
- Massion, F. (2024). Terminology in the Age of AI: The Transformation of Terminology Theory and Practice. *Journal of Translation Studies*, 1, 67–94. <https://doi.org/10.3726/JTS012024.04>
- Matsui, K. (2024). Delving into PubMed Records: Some Terms in Medical Writing Have Drastically Changed after the Arrival of ChatGPT. Advance online publication. <https://doi.org/10.1101/2024.05.14.24307373>
- Reineke, D. (2023). Terminologearbeit mit ChatGPT & Co. *Fachzeitschrift Für Terminologie*, 19(1), 25–28. Retrieved from <http://dttev.org/images/edition/ausgaben/edition-2023-1-e-version.pdf>
- Sabzalieva, E., & Valentini, A. (2023). ChatGPT and Artificial Intelligence in higher education: Quick start guide. Retrieved from UNESCO website: https://www.iesalc.unesco.org/wp-content/uploads/2023/04/ChatGPT-and-Artificial-Intelligence-in-higher-education-Quick-Start-guide_EN_FINAL.pdf
- Siu, S. C. (2023). ChatGPT and GPT-4 for Professional Translators: Exploring the Potential of Large Language Models in Translation. Preprints. <https://doi.org/10.2139/ssrn.4448091>
- Tang, Chen; Zhang, Hongbo; Loakman, Tyler; Lin, Chenghua; Guerin, Frank: Terminology-Aware Medical Dialogue Generation, S. 1–5. DOI: 10.1109/ICASSP49357.2023.10095697.
- Teel, Z., Wang, T., & Lund, B. (2023). ChatGPT conundrums: Probing plagiarism and parroting problems in higher education practices. *College & Research Libraries News*, 84(6). <https://doi.org/10.5860/crln.84.6.205>
- Timothy, Maxwell (2023): How to Use ChatGPT as a Language Translation Tool. Edited by MUO. Available online at <https://www.makeuseof.com/how-to-translate-with-chatgpt/>.
- Werthner, H., Lee, E. A., Akkermans, H., Vardi, M., & et al. (2019). Vienna Manifesto on Digital Humanism. Retrieved from https://caiml.dbai.tuwien.ac.at/dighum/dighum-manifesto/Vienna_Manifesto_on_Digital_Humanism_EN.pdf
- Yamada, Masaru (2023): Optimizing Machine Translation through Prompt Engineering: An Investigation into ChatGPT's Customizability. Available online at <https://arxiv.org/ftp/arxiv/papers/2308/2308.01391.pdf>.

Contact

Barbara Heinisch

Centre for Translation Studies,
University of Vienna

barbara.heinisch@univie.ac.at