

An Introduction to AI Chatbots

DH DAY /
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DH LAB /

AI Chatbots in practice

Definition

Systems trained on text data to generate dialogue in natural language.

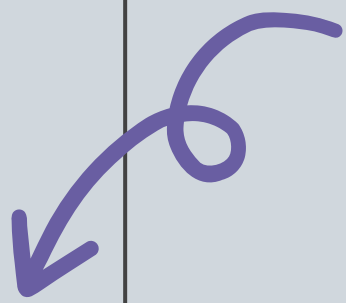
Capabilities

Answering, summarizing, brainstorming, translating.

Limits

Can generate inaccurate information, reflect biases in data, and lack critical evaluation.

"HALLUCINATION"

A hand-drawn purple arrow originates from the 'Limits' section and points towards the word 'HALLUCINATION'.

Why It Matters



AI chatbots are becoming **part of everyday life**, from education to work to communication.

Understanding their strengths and limits is essential to **using them effectively and responsibly**.

With clear instructions, they become flexible assistants for many **everyday tasks**.

→ drafting emails, summaries, notes

AI Tools Overview



ChatGPT is an AI-powered conversational tool developed by OpenAI that generates human-like text. It can answer questions, summarize information, draft or edit writing, and assist with many language-based tasks.

Best for: Creative writing, coding, ideation, conversational tasks.

Pricing: free version available.



Gemini is Google's family of AI models designed for conversation, reasoning, and content creation. It powers tools like Google Bard and integrates into Google products to assist with language, coding, and multimodal tasks.

Best for: real-time research, multimodal processing (text, images, video), and handling longer conversations. Integrates with Gmail, Drive, and YouTube.

Pricing: free version available.



Perplexity is an AI-powered answer engine that combines natural language processing with real-time web search. It generates responses by pulling data from live sources and large language models (LLMs). Every response includes citations, making it ideal for research and fact-based queries.

Best for: Research, fact-based queries, real-time answers, citations.

Pricing: free version available.



Chat AI on Academic Cloud provides secure access to generative AI for study, research, and teaching with various internal and external LLMs. It allows interaction with AI models via text, audio, or file input. It ensures data privacy by not storing or using content for training purposes.

Best for: Using AI for research without storing your data.

Pricing: free for MPG



Main Concepts



ChatGPT is an AI-powered conversational tool developed by OpenAI that generates human-like text. It can answer questions, summarize information, draft or edit writing, and assist with many language-based tasks.

Prompt

The input or question you provide to ChatGPT.

Response

The text generated by ChatGPT in reply to your prompt.

Priming

Providing context or specific instructions in your prompt to guide the response.

Persona

Assigning a specific role or character to ChatGPT to tailor its responses.



Prompts



Prompts are the foundation of your interaction with ChatGPT. A well-crafted prompt leads to more accurate and useful responses.

Be Clear and Specific

Clearly state what you want. Vague prompts can lead to ambiguous answers.

Provide Context

Include necessary background information to help ChatGPT understand your request.

Ask Direct Questions: Direct questions are more likely to yield precise answers.

Use Complete Sentences

This helps in minimizing misunderstandings.



Priming



Priming involves setting up the context or providing specific instructions before asking your main question. This helps guide ChatGPT to generate more relevant and accurate responses.

How to Prime

Provide Background Information: share relevant details that can influence the response (e.g. provide a target audience, a context).

Set the Tone or Style

Specify if you want the response in a formal, casual, or specific tone.

Define the Format

Indicate if you need the answer in bullet points, paragraphs, lists, etc.

Personas



Assigning a persona to ChatGPT can make the interaction more engaging and tailored to your needs. A persona defines the role, style, or expertise level ChatGPT should adopt in the conversation.

Specify the Role

Define what role ChatGPT should play (e.g., teacher, chef, travel guide).

Define the Expertise Level

Indicate the level of detail or complexity required (e.g., beginner, expert).

Set the Style or Tone

Decide if the conversation should be formal, friendly, technical, etc.

Examples

Persona

Priming



“You are an experienced presentation coach.

I need to create a short presentation for my team on workplace efficiency.

Can you suggest an outline with key points?”



“You are an environmental science professor.

I’m a college student new to renewable energy.

Can you explain the main types of renewable energy sources and their benefits?”



“You are an experienced research assistant.

I need a concise summary for my research notes.

Can you help me summarize this research paper in simple terms, highlighting the main argument and key findings?”

Functionalities Text-based



Functionalities

Text generation, summarization, paraphrasing/rewriting, proofreading, question answering, brainstorming, language translation, content analysis support, citation guidance

How to activate it

Type the prompt in the **chat box**

Examples

“Rephrase this paragraph in a more formal academic tone.”

“Translate this Spanish text to English.”

“Format this source in APA style.”

Functionalities Image & documents



Functionalities (depend on ChatGPT plan)

Image generation

Input image analysis or description.

Process documents (better performance with PDFs)

How to activate it

Click the “**Image**” tab, enter prompt, then **generate**.

Click “**Upload image**” or drop an image, enter a related prompt.

Examples

Create diagrams, visual concepts, or illustrations.

“Describe the key features of this manuscript page.”

Functionalities Reasoning



Lets ChatGPT spend extra time **processing** your prompt.

Considers context, evaluates multiple possibilities, and applies **deeper reasoning**.

Useful for **complex questions**, research tasks, or careful analysis.

Produces **more detailed** and nuanced responses.

Functionalities Deep Research



Deep Research

Combines reasoning with web browsing to create **in-depth reports**.

Handles **complex tasks** like comparing sources or analyzing research.

Takes **5–30 minutes** to produce long, detailed outputs (max 5 per month).

Accepts **files/images** for context and adapts its search strategy.

Functionalities

Web search



Web search

Accesses the **internet** to retrieve the most up-to-date information.

Looks up facts, news, statistics, and other **timely data**.

Verifies information by referencing **sources**.

Provides **citations and links** so you can check original sources.

Limitations

Lack of True Understanding



The model works by identifying patterns in text rather than truly understanding the content.

Inconsistency



Depending on the phrasing of the input, it might produce different answers to the same question.

Bias



ChatGPT may reflect biases present in its training data.

Hallucinations



Occasionally, the model can generate plausible-sounding but inaccurate information.

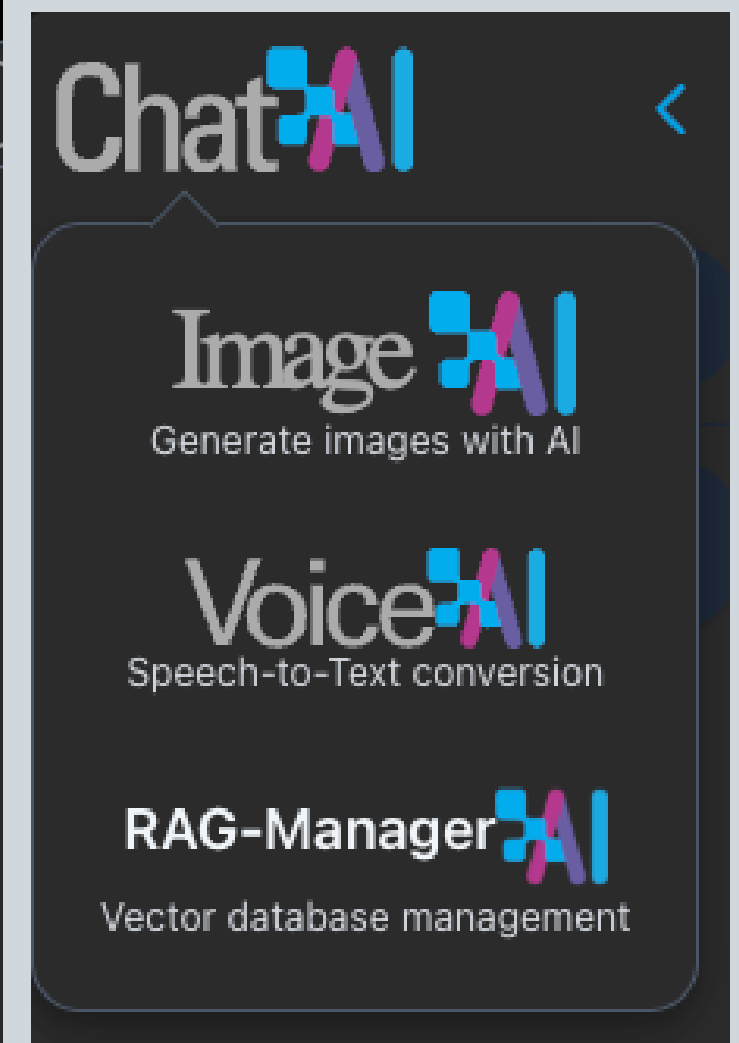
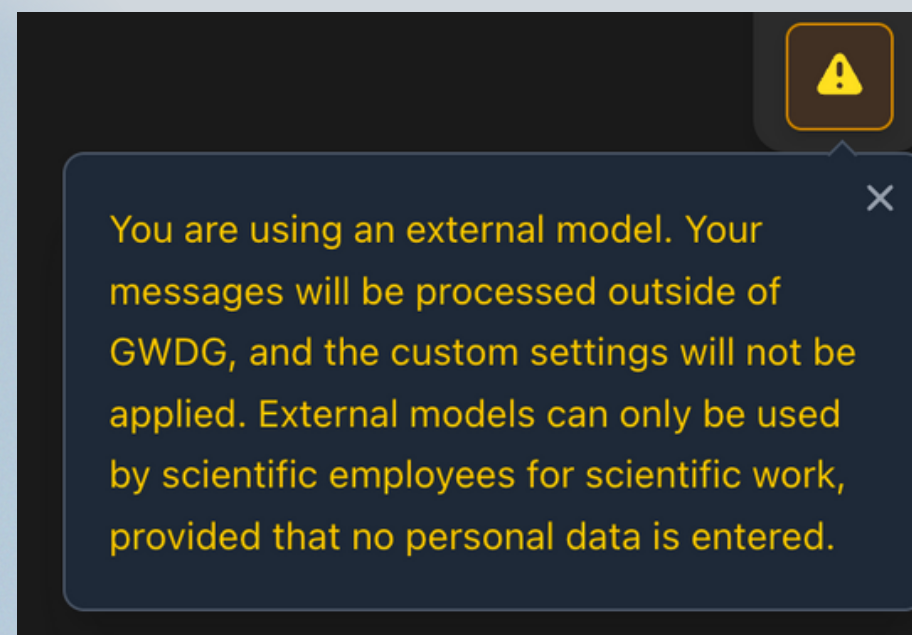
Human-Centric Responses



Trained to provide helpful and satisfying answers, which can sometimes lead to overconfidence or inaccuracies.

Chat-AI

- <https://academiccloud.de/services/chatai/>
- Internal Max-Planck Society tool (new version released)
- Depending on the selected model, the system does not store any data.



Thank You

dh@khi.fi.it



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PRESENTATION!

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