

Artificial Intelligence Explained Simply

The basics — clear, no jargon

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AI and ME — Simplification, not buzzwords

Slides & content created with AI support



What to expect

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Terms and the core idea — no jargon.

02

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A look behind the scenes, simply explained.

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Four simple steps to get started yourself.

01

SECTION 01

Fundamentals

Terms and the core idea — your way into the world of AI.

What actually is AI?



AI systems are programs that learn to recognize patterns from huge numbers of examples — and use that to generate predictions or suggestions. They don't “understand” the world the way a human does; they recognize probabilities in data.

- ✓ Learns from examples instead of fixed, hard-coded rules
- ✓ Recognizes patterns in text, images, or numbers
- ✓ Can get things wrong — results should always be checked

Key terms, briefly explained (1/2)



Artificial Intelligence (AI)

An umbrella term for systems that solve tasks that would otherwise require human intelligence.



Machine Learning

A branch of AI: systems learn from data instead of being explicitly programmed.



Generative AI / LLM

AI that generates new text, images, or answers on its own — e.g. ChatGPT or Claude.



Prompt

Your input or question to the AI — the clearer it's phrased, the better the answer.

Key terms, briefly explained (2/2)



Token

The smallest chunk of text a language model processes — often part of a word.



Context window

How much text the AI can “keep in mind” at once during a conversation.



Hallucination

When the AI delivers confident-sounding but incorrect information.



Training / Fine-tuning

The process by which a model is first trained broadly, then adapted for specific tasks.

EXAMPLE

How an AI Breaks Text Into “Tokens”

Before a language model processes a text, it breaks it down into small units called tokens. These can be whole words, parts of words, or even single characters.



12 tokens for one short sentence

The AI doesn't compute with “words” — it computes with these building blocks. That's why very long or unusual words sometimes take more “effort.” Rule of thumb: in English, a token is roughly $\frac{3}{4}$ of a word on average.

Note: simplified example — real tokenizers may split words differently in detail.

02

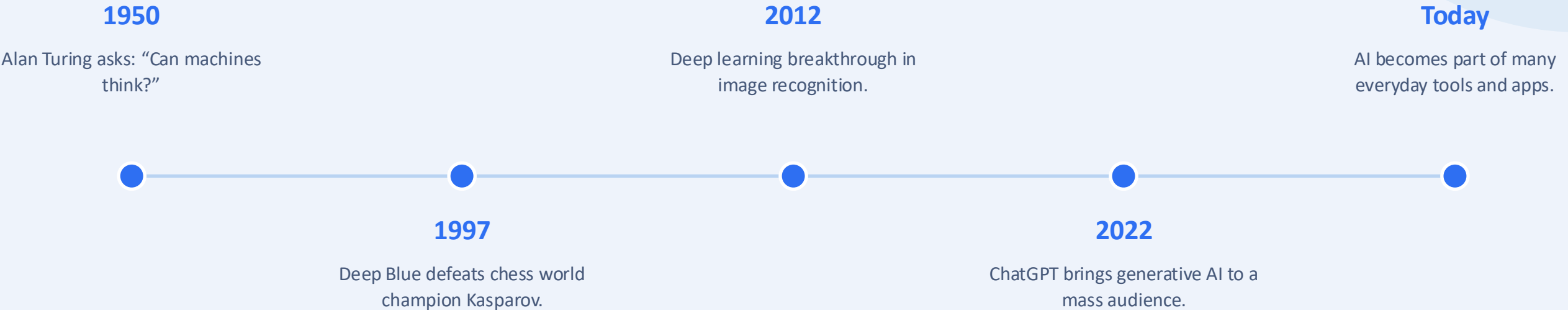
SECTION 02

How AI works

A look behind the scenes — simply explained.

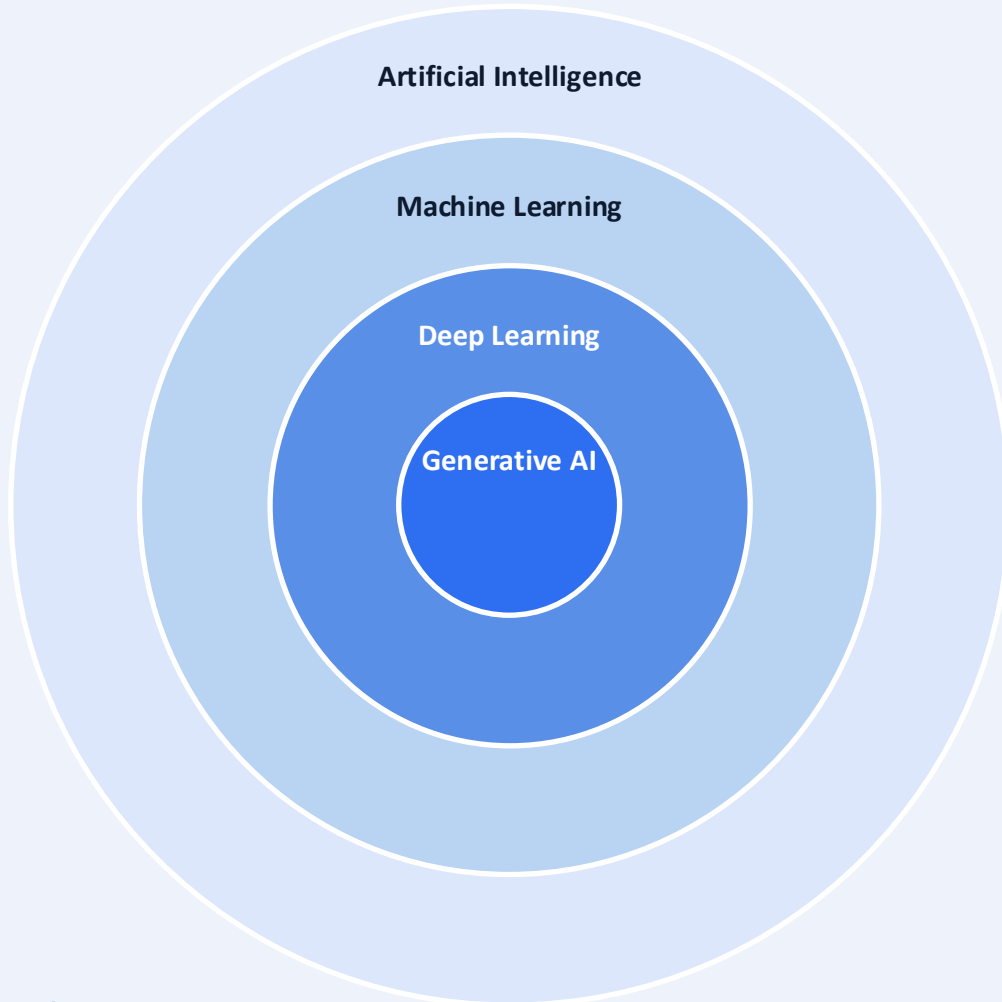
BACKGROUND

A Brief History of AI



The AI Family: Four Layers

“AI” is an umbrella term. Generative tools like ChatGPT are only the innermost, newest layer of it.



Artificial Intelligence

An umbrella term for systems that display seemingly intelligent behavior.



Machine Learning

Learns rules and patterns independently from data.



Deep Learning

Uses artificial neural networks with many layers.



Generative AI

Generates new content on its own — text, images, code.

How an AI Learns

1



Collect data

Gather large amounts of examples.

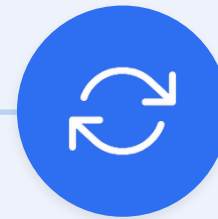
2



Find patterns

Detect relationships within the data.

3



Test & adjust

Test predictions and improve them step by step.

4

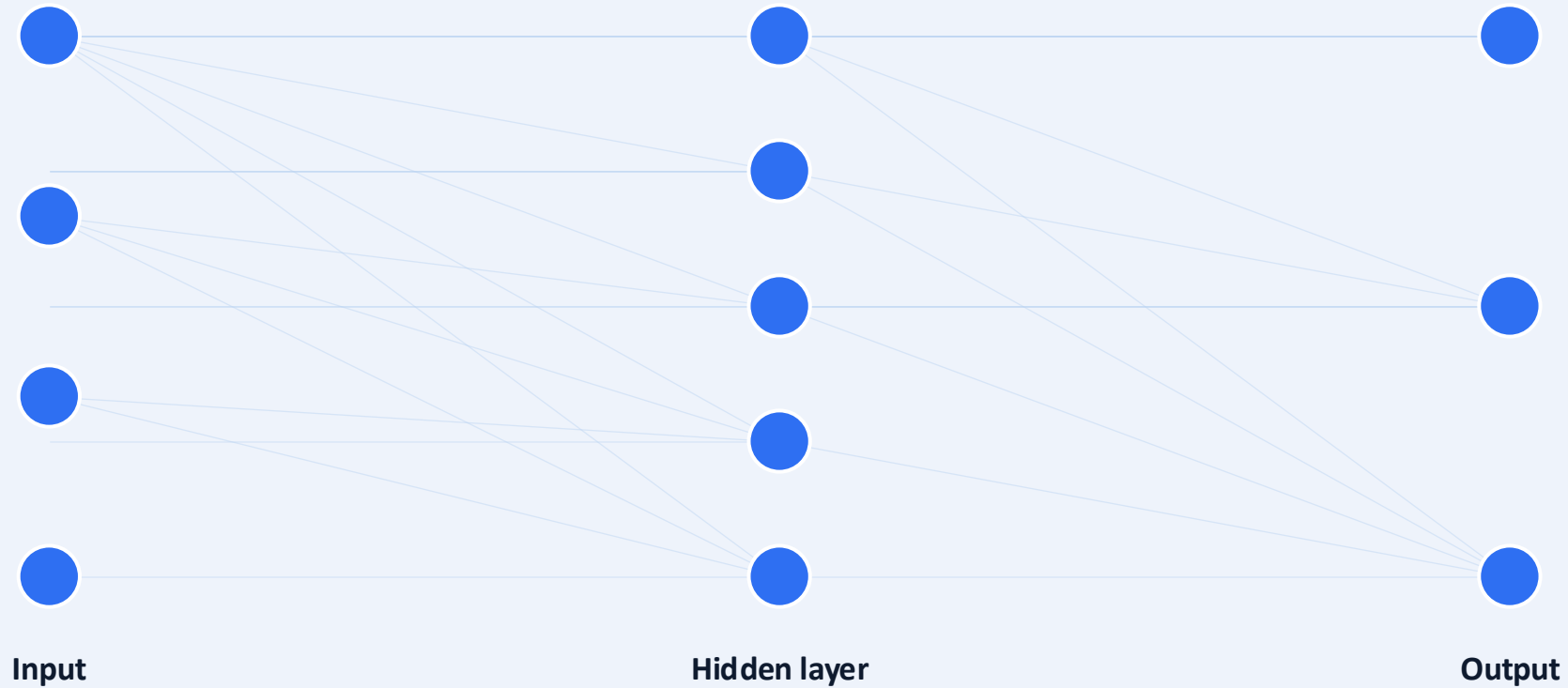


Apply

Apply what's learned to new, unseen cases.

A Look Inside the Digital Brain

An artificial neural network is loosely inspired by the brain: simple computing units, densely interconnected.



Each connection has a “weight” that gets adjusted during training — several such layers in a row are what's called “deep learning.”

Three Things AI Can Already Do Today



Understand language

Read text, summarize it, and respond in natural language.



Recognize images

Identify objects, faces, or text in photos.

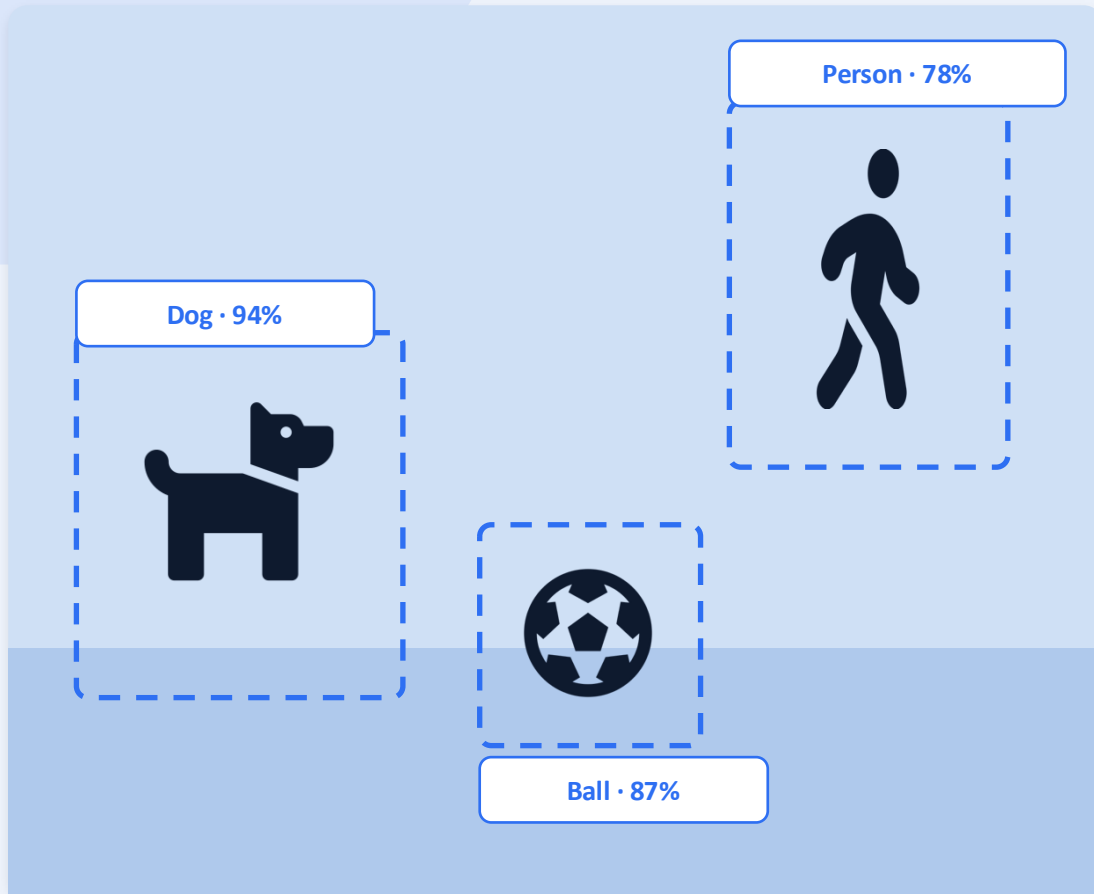


Predict patterns

Derive trends and probabilities from past data.

Concrete examples follow in Chapter 4 — AI in everyday life.

Example: Image Recognition in Action



How Does the AI Recognize Objects?

The AI compares the image with millions of previously seen examples and recognizes recurring visual patterns — shapes, edges, color gradients. From this, it calculates for each area of the image how likely a particular object is present.

- ✓ Recognizing your face to unlock your smartphone
- ✓ Searching for products by photo in an online store
- ✓ Quality control on industrial assembly lines

03

SECTION 03

AI in conversation

What happens when you talk to an AI?

Like an Author With an Extraordinary Memory

An AI language model like ChatGPT has read enormous amounts of text. In doing so, it learned which word is likely to come next — and assembles sentences based on exactly that.

- ✓ Recognizes patterns in language, but doesn't understand it the way a human does
- ✓ “Knows” nothing — it calculates probabilities
- ✓ Answers feel human, but are the result of a computation



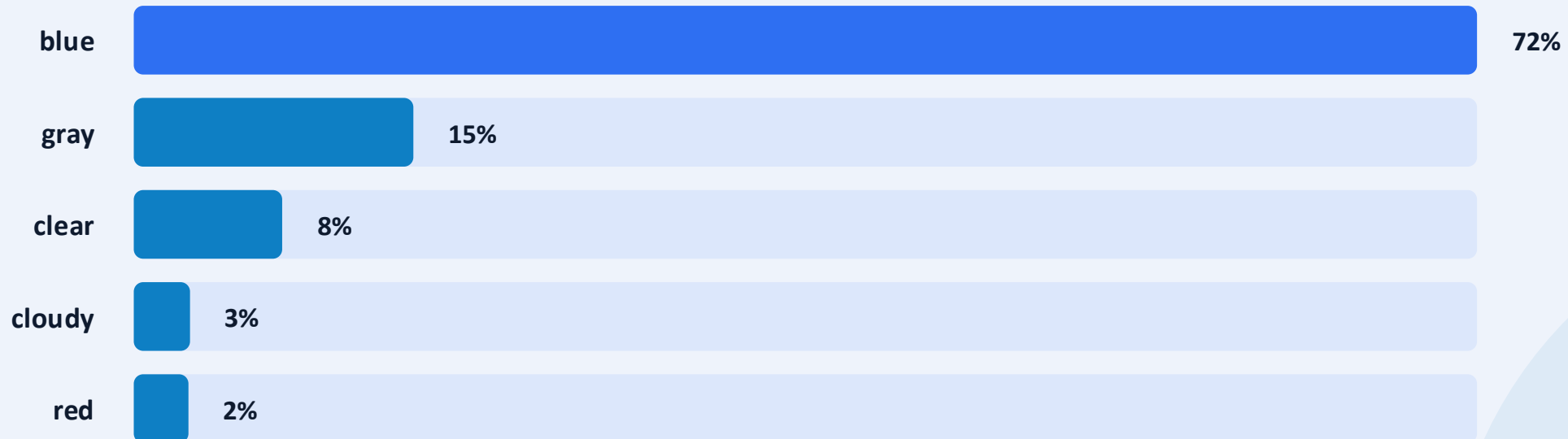
Millions of texts read

...to predict which word fits best next.

EXAMPLE

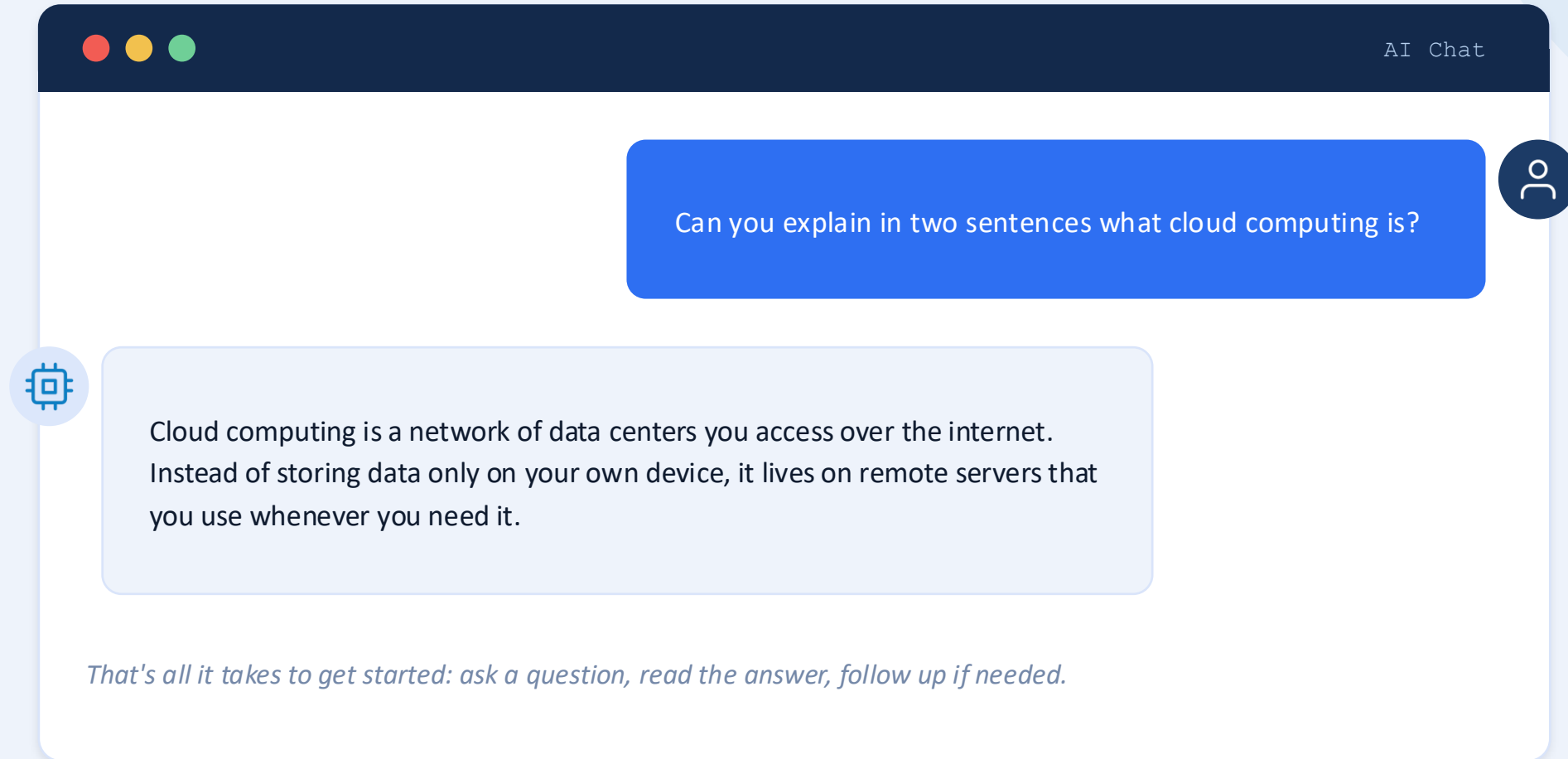
Example: How the AI Chooses the Next Word

“The sky today is ____”



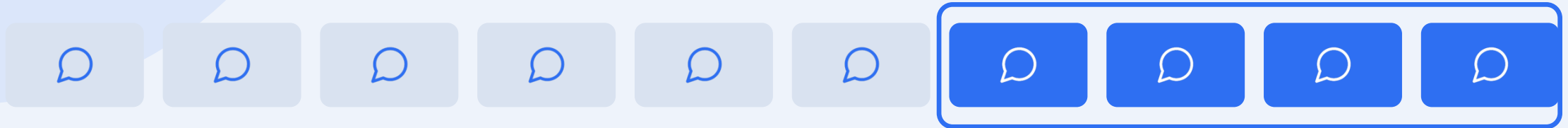
The AI doesn't always pick the most likely option — a bit of randomness makes answers feel more natural and less predictable.

What a Conversation With an AI Looks Like



Context Window: the AI's Short-Term Memory

...older messages no longer "in mind"



Current context window

Every AI language model can only process a limited amount of text at once — the context window. If a conversation grows longer than this window, the oldest parts drop out of the AI's active “memory,” even though they're still visible further up the chat.

Practical tip: in long conversations, it's best to repeat or briefly summarize important information.

Good vs. Bad Prompts



WEAK PROMPT

“Write something about marketing.”

Result: vague, generic — needs several follow-ups before anything useful emerges.

Rule of thumb: the more specific the context, goal, and format, the better the answer.



GOOD PROMPT

“Write 3 short social media post ideas for a local vegan café. Target audience: 20–35 year-olds, casual tone.”

Result: specific, ready to use — fits the topic, audience, and tone.

04

SECTION 04

AI in everyday life & tools

Where AI shows up — and which tools exist.

AI in Everyday Life



Navigation

Calculates the best route in real time



Translation

Translates text in seconds



Streaming recommendations

Suggests matching shows & songs



Spell check

Automatically catches typos



Voice assistants

Responds to spoken commands



Spam filters

Sorts out unwanted emails



Health apps

Assesses symptoms, analyzes fitness data



Online shopping

Suggests matching products

What the Numbers Show

58%

already use AI
professionally or privately

34%

use AI
at least weekly

42%

say: AI is already
changing society

Source: Bitkom Research 2026 — survey of the German population aged 16+ (n = 1,003).

Which AI Tools Are Out There?



ChatGPT

OpenAI

Widely used and versatile —
for text, code, and research.



Claude

Anthropic

Strong with long documents
and carefully considered
answers.



Gemini

Google

Tightly integrated with Google
services like Search and
Workspace.



Copilot

Microsoft

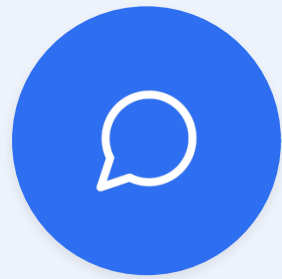
Built directly into Word, Excel,
and Outlook.

The core principles from this talk apply equally to all of these tools.

Other well-known tools include Perplexity, Mistral Le Chat, and Meta AI — the four above are currently among the most widely used.

Multimodal AI: More Than Just Text

Modern AI models are no longer limited to written text — they process and generate many different formats.



Text

Reads, writes, translates.



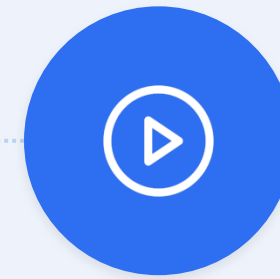
Image

Analyzes or generates photos.



Audio

Recognizes and reads speech aloud.



Video

Analyzes or generates video.



Code

Writes and explains code.

A single model today can, for example, describe a photo, respond out loud, and deliver matching code — all within the same conversation.

05

SECTION 05

Limits & responsibility

What AI can't do, and what to watch out for.

Opportunities & Limits (1/2)

OPPORTUNITIES

✓ Saves time on routine tasks

Emails, summaries, or first drafts take seconds instead of minutes.

✓ Helps with writing and structuring

Delivers a first draft that you refine from there.

LIMITS

✗ Can produce false information

So-called hallucinations sound convincing but are made up.

✗ Doesn't understand context like a human

Often fails to reliably pick up on irony or unspoken nuance.

Opportunities & Limits (2/2)

OPPORTUNITIES

✓ **Makes knowledge easier to access**

Explains complex topics in plain language, any time.

✓ **Works around the clock**

No waiting for office hours or free capacity.

LIMITS

✗ **Needs critical review of results**

Especially important for facts, figures, and legal matters.

✗ **Reflects biases in its training data**

If the data contains bias, answers can reflect that.

When AI Gets It Wrong: Hallucinations

Who was mayor of Anytown in 1920, and which bridge did he have built?



“In 1920, Henry Langford was mayor of Anytown. Under his leadership, the Chestnut Bridge was built across Mill Creek.”

Reality: neither the name nor the bridge are documented — the AI invented plausible-sounding details to answer the question in full.

Why Does This Happen?

The AI optimizes for probability, not truth. The more specific and obscure a piece of information, the higher the risk of a confident-sounding falsehood.

- ✓ Always check a second source for names, numbers, and quotes
- ✓ Ask for the source instead of accepting facts blindly
- ✓ When unsure, ask the AI how confident it is

Common Concerns, Briefly Addressed



Is AI expensive?

The best-known tools offer free basic versions; paid tiers usually add more power or higher usage limits.



Will AI take my job?

AI tends to change individual tasks rather than entire jobs — routine work is more often assisted than fully replaced.



Is my data safe?

Basic rule: never enter sensitive or confidential data — more on this in the tips at the end.



AI doesn't do our thinking for us — it just changes what we have to think about first.

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06

SECTION 06

Get started

Four simple steps to get started yourself.

How to Try AI Yourself

1

Choose a tool

Use a well-known tool like ChatGPT, Copilot, or Claude.

2

Ask a question

Try a simple everyday question, no pressure.

3

Check the answer

Compare the result against your common sense.

4

Keep going

Gradually try new use cases.

Before You Start: 4 Tips



Check results

AI can be wrong — a quick fact-check is always worth it.



Don't share sensitive data

Be cautious with personal or confidential information.



Start small

A single use case is plenty to get started.



Stay curious

Experimenting is the best way to get a feel for AI.

Questions & Discussion



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