51 most basic GenAI & Agentic AI Terminologies

Basic terms everyone should know, explained simply.

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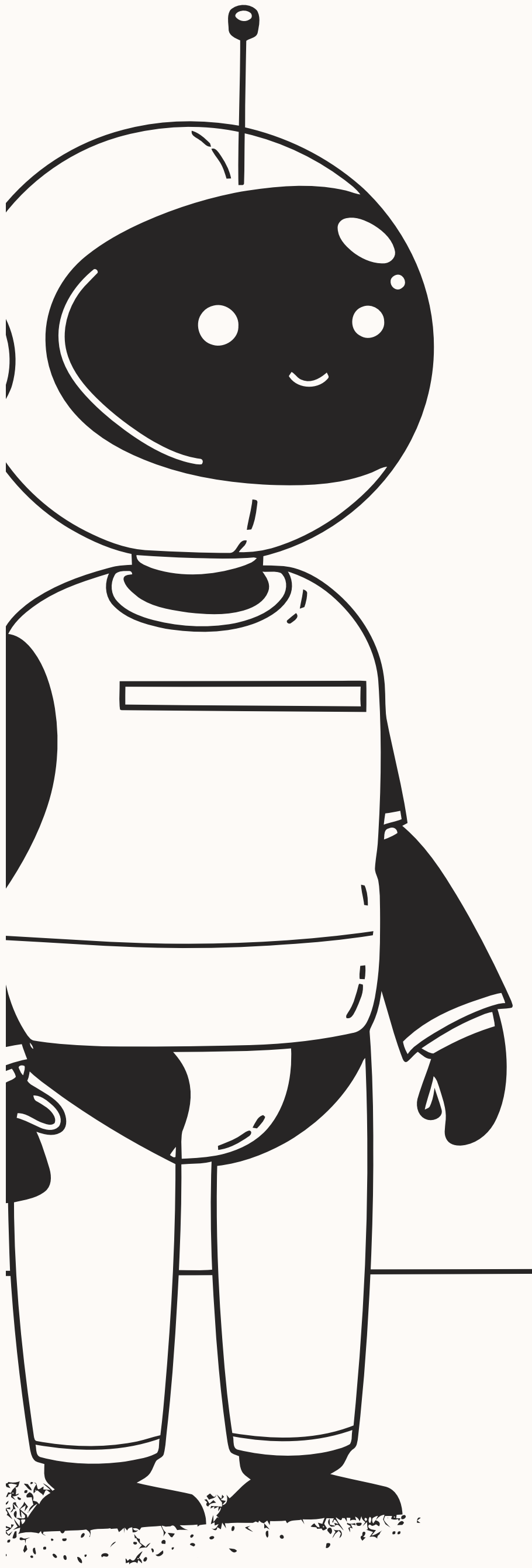
Artificial Intelligence (AI)

The broader field where machines perform tasks that typically require human intelligence, such as learning and decision-making.



Generative AI (GenAI)

AI that **creates new content** (text, images, code, videos, music) rather than just analyzing existing data.

Neural Networks

AI models inspired by the human brain, consisting of layers of "neurons" that process information and learn patterns.

Deep Learning

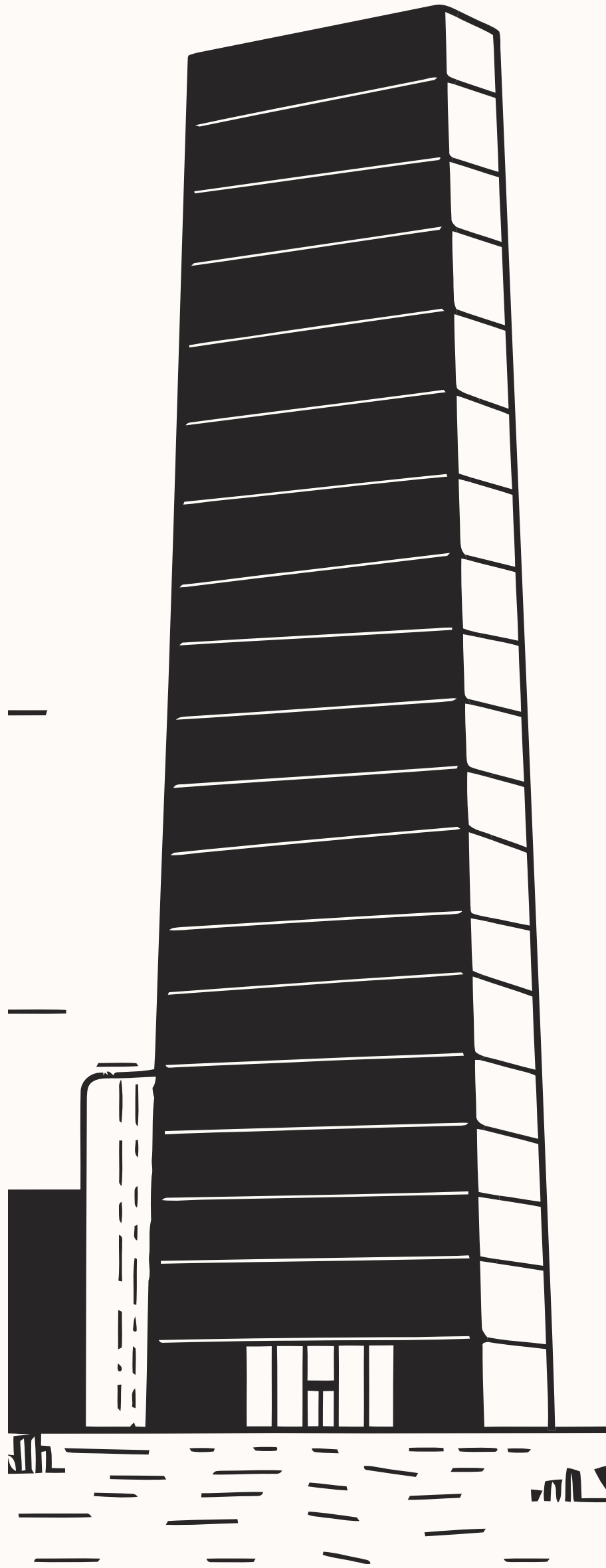
A subset of machine learning where **neural networks with multiple layers** learn complex patterns from large datasets.

Large Language Models (LLMs)

Very large AI models trained on huge amounts of text data, allowing them to generate human-like responses.

Transformer Models

A breakthrough AI architecture (used in GPT, BERT, etc.) that processes data using attention mechanisms.

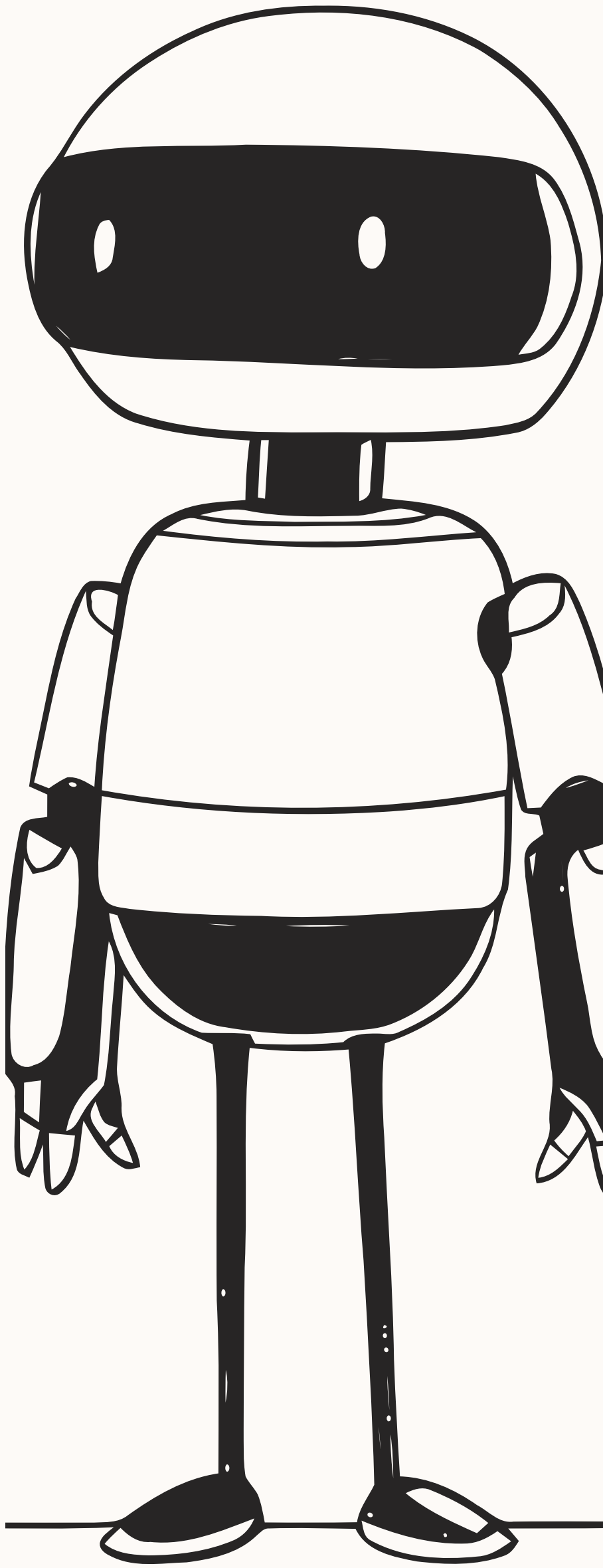


Self-Supervised Learning (SSL)

A way for AI models to **train on large datasets without needing labeled data**, making them more scalable.

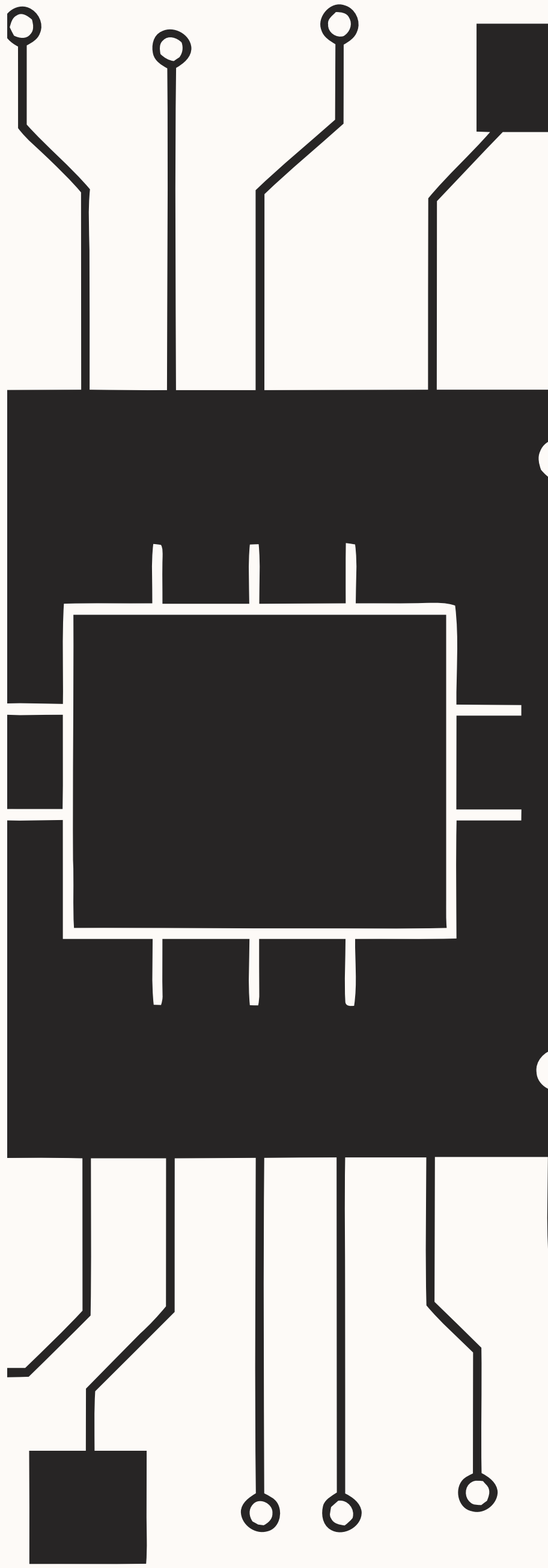
Diffusion Models

AI models that **generate images** by learning to turn random noise into clear pictures (used in tools like DALL·E and Stable Diffusion).



GANs (Generative Adversarial Networks)

A type of AI where **two models (a generator and a discriminator) compete** to create realistic images, text, or videos.



How Generative AI Works

These terms explain the inner workings of GenAI.

Training Data

The large amount of text, images, or code that AI models learn from.

Pretraining

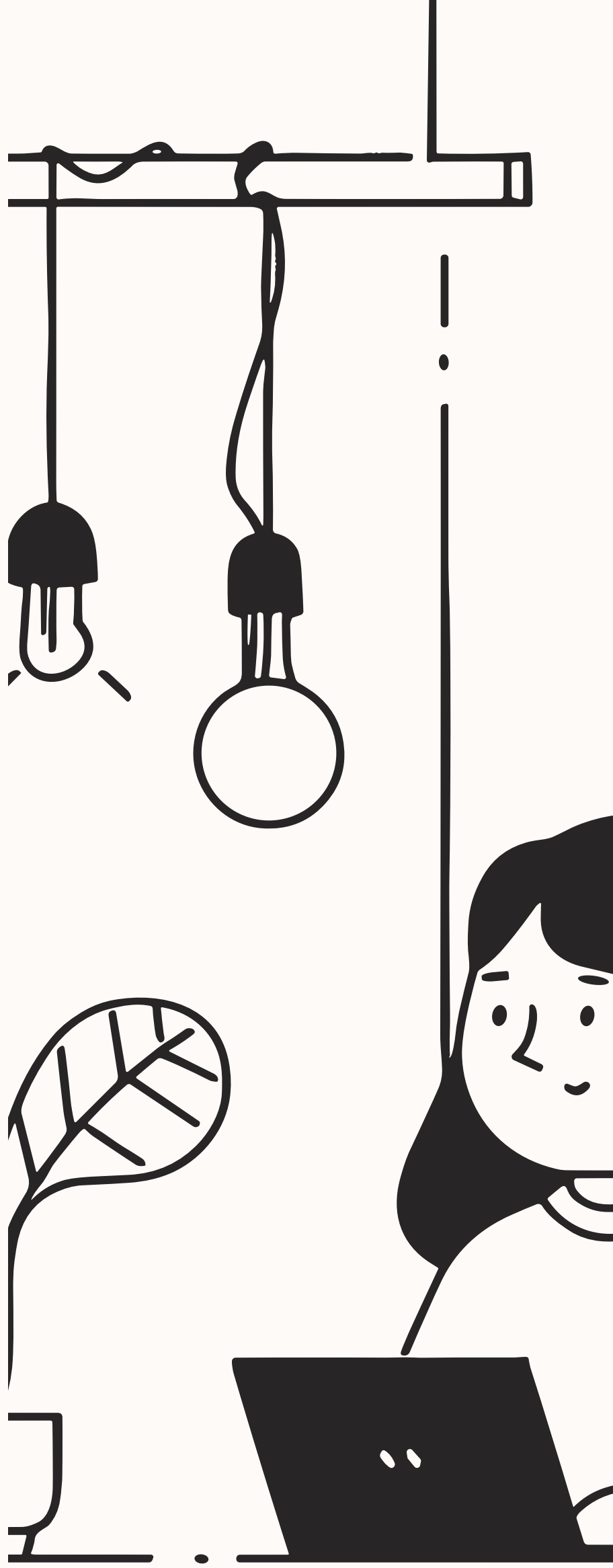
The phase where an AI model is trained on a broad dataset before being fine-tuned for specific tasks.

Fine-Tuning

Adjusting a pre-trained AI model for specialized tasks (e.g., making ChatGPT better at legal or medical advice).

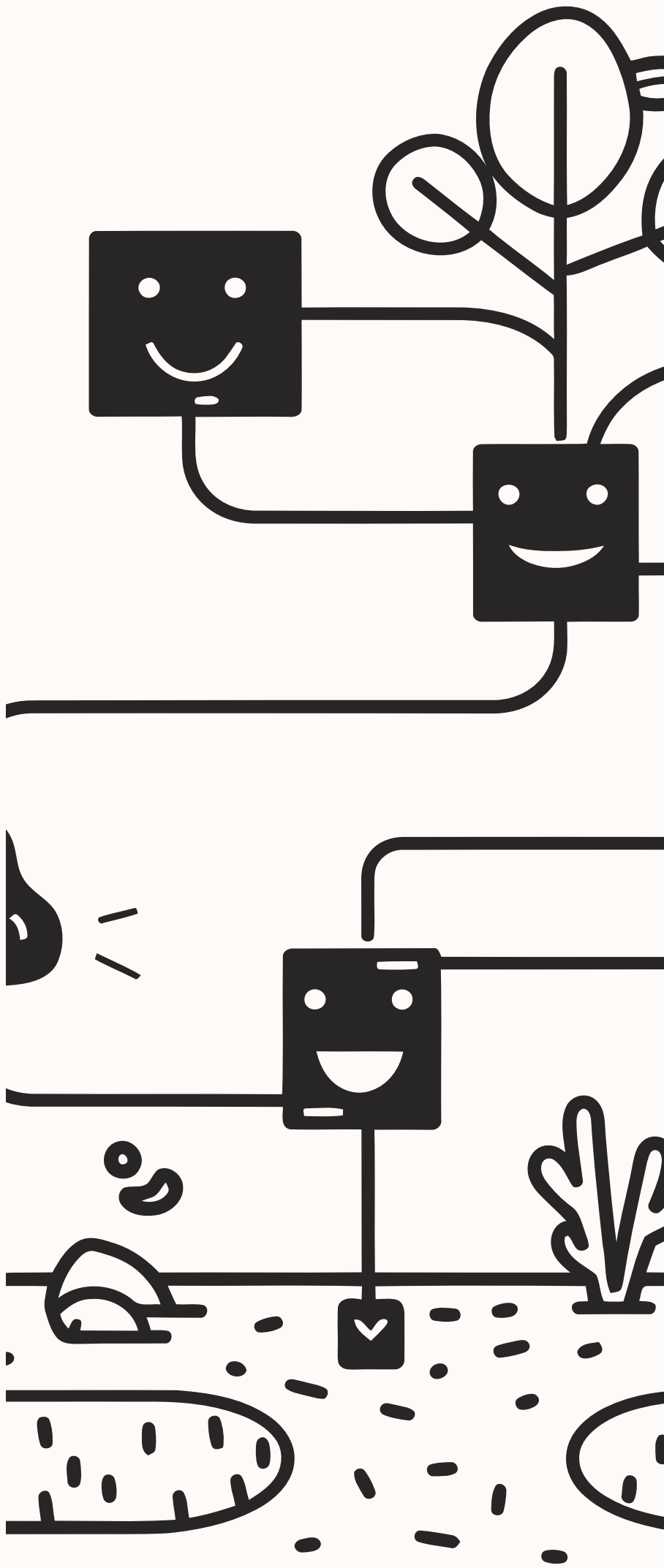
Few-Shot Learning

When an AI model learns to perform tasks with just a few examples.



Zero-Shot Learning

When an AI model can understand and complete new tasks **without** any specific training on them.

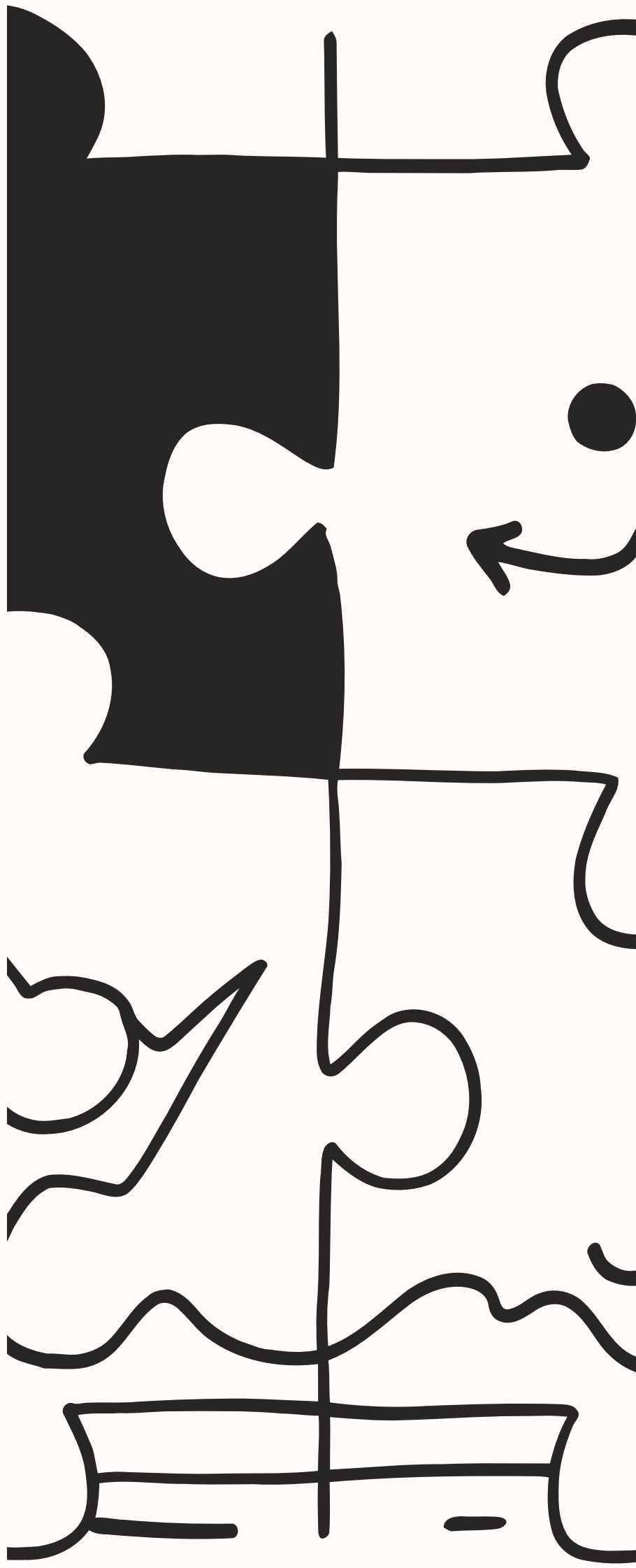


Prompt Engineering

The practice of crafting **better questions or instructions** to get improved AI responses.

Tokenization

Breaking text into small pieces ("tokens") for AI to process.



Embedding

A numerical representation of words or images that helps AI understand their meaning.

Attention Mechanism

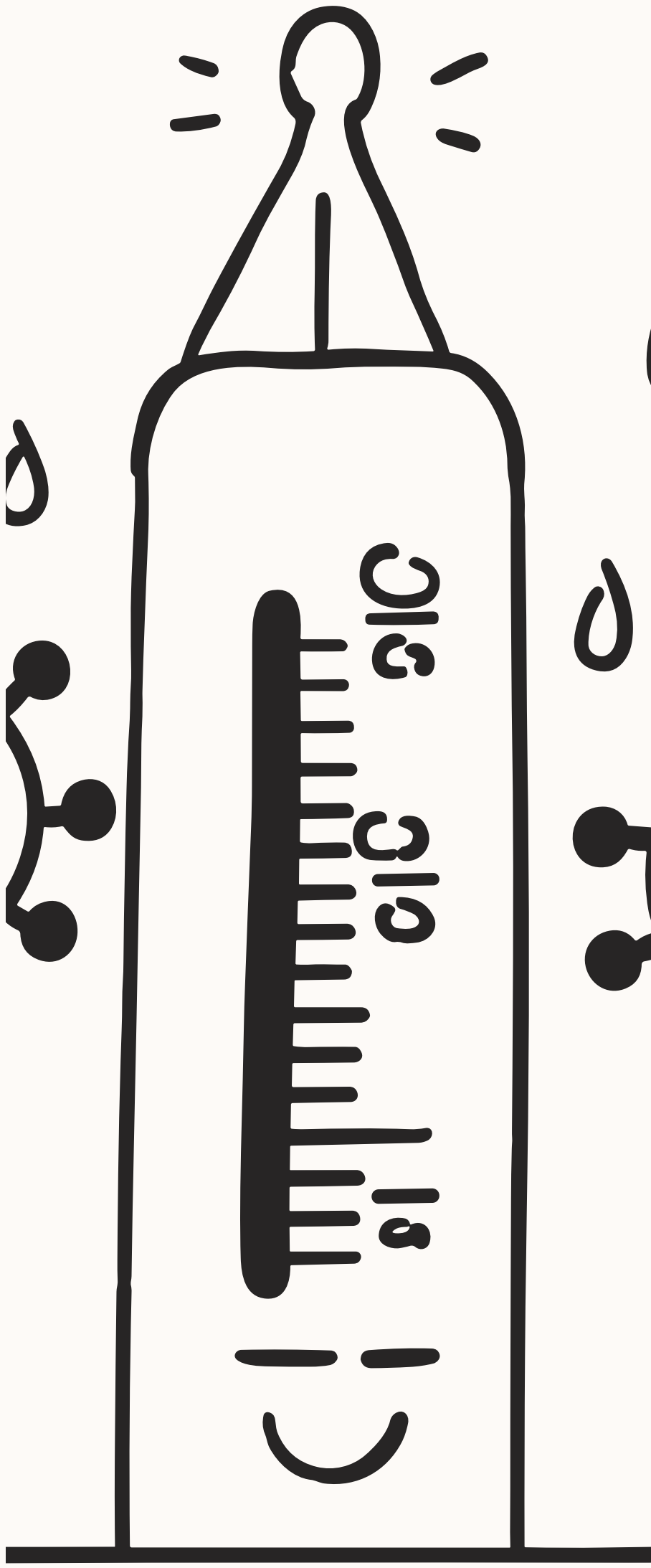
The core innovation in transformer models, allowing AI to focus on important words or patterns in data.

Context Window

The maximum amount of text an AI model can "remember" in a single interaction.

Temperature

A setting that controls how **creative or predictable** AI responses are (lower values = factual, higher values = creative).

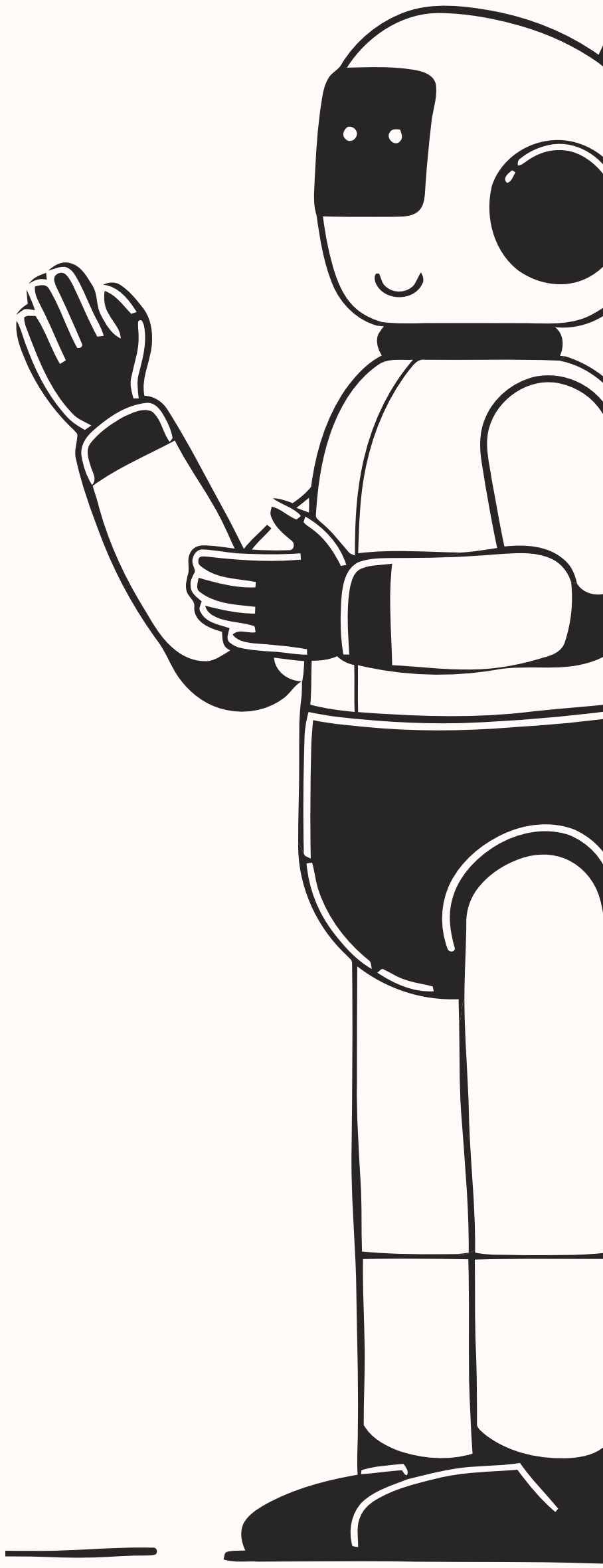


Applications of Generative AI

These are the most common ways GenAI is used.

Chatbots

AI-powered virtual assistants that can simulate human conversations (e.g., ChatGPT, Bard).

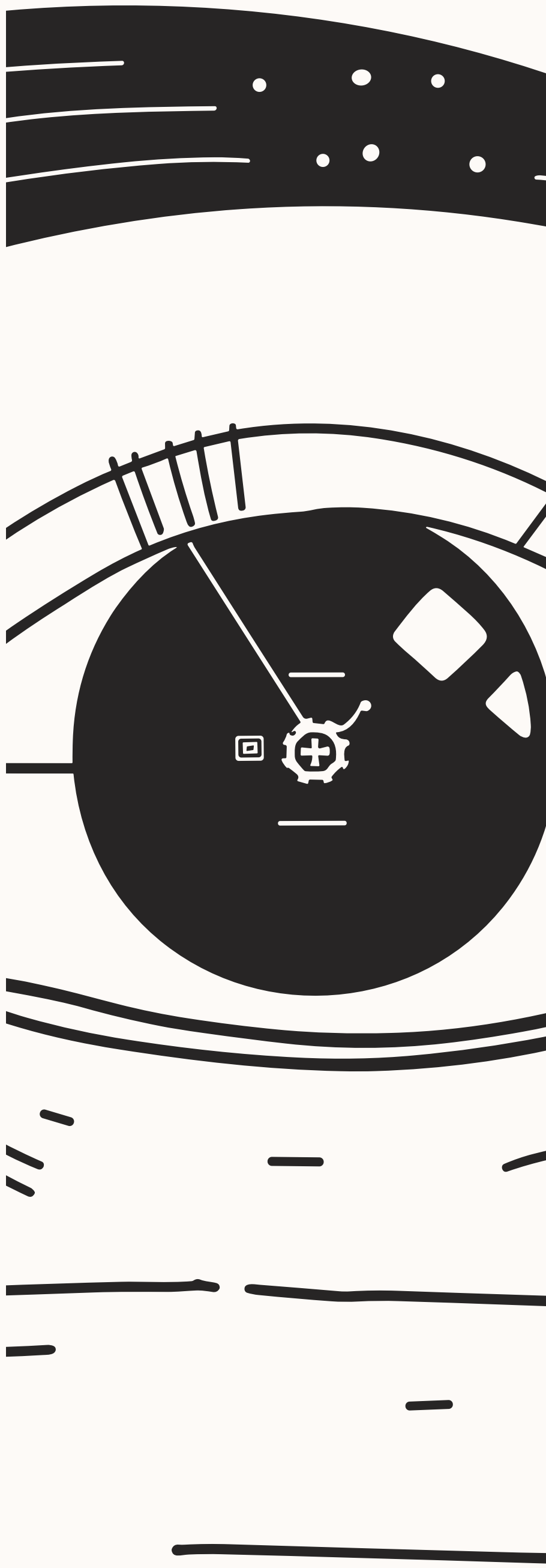


AI Writing Tools

AI-powered systems that generate text (e.g., Jasper, Copy.ai).

AI Art & Image Generation

AI models that create images from text descriptions (e.g., DALL·E, Midjourney).

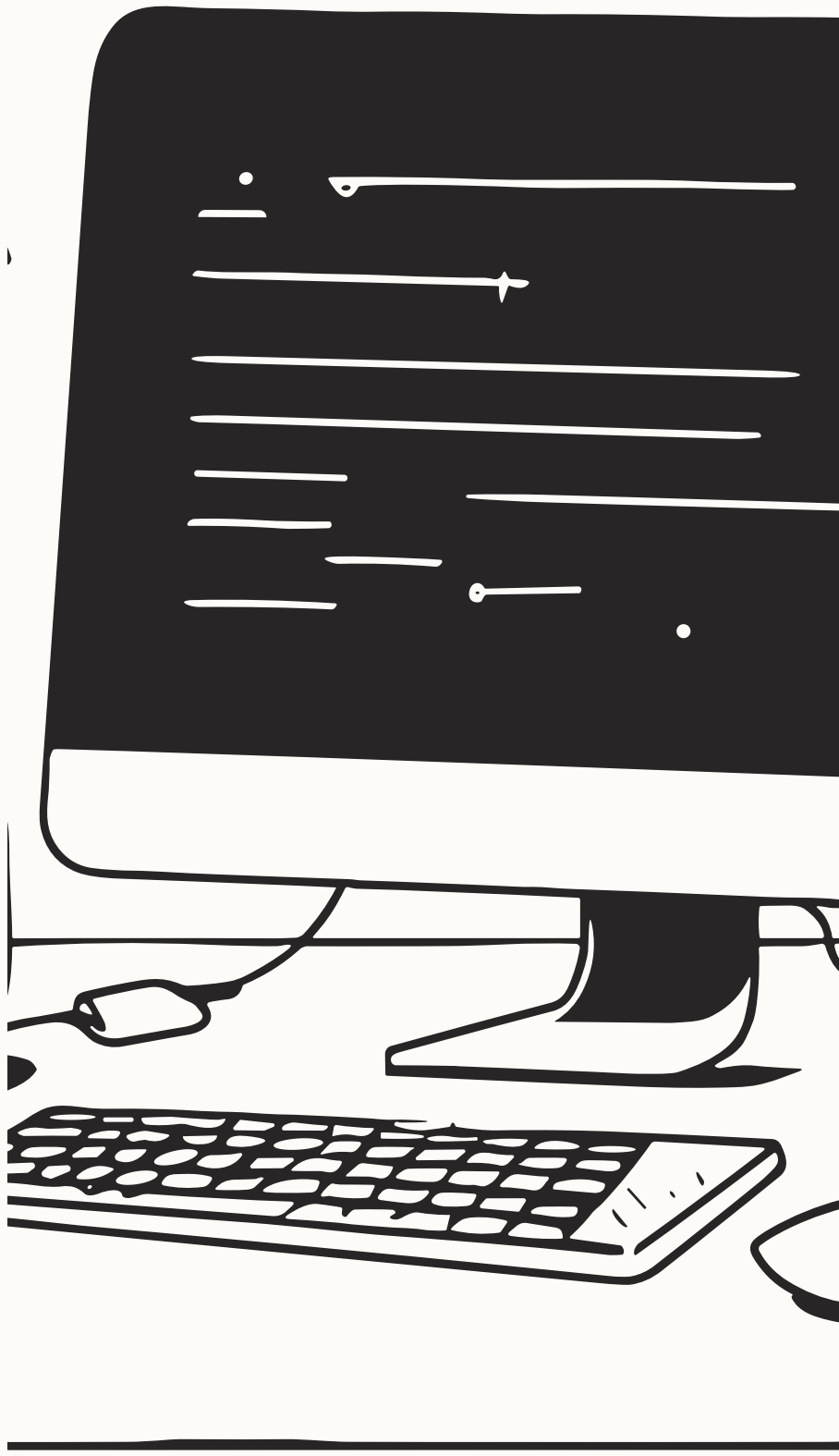


AI Video Generation

AI tools that generate video content (e.g., Synthesia, Runway).

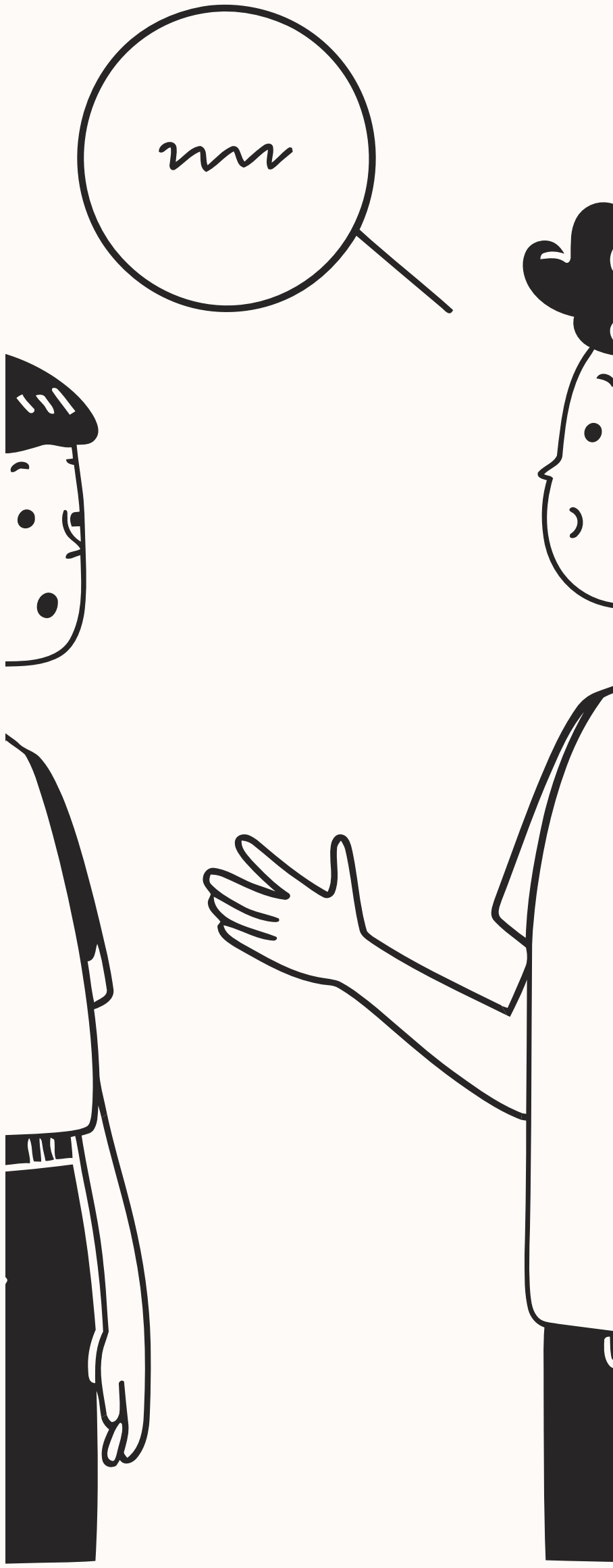
AI Code Generation

AI models that assist in writing code (e.g., GitHub Copilot).



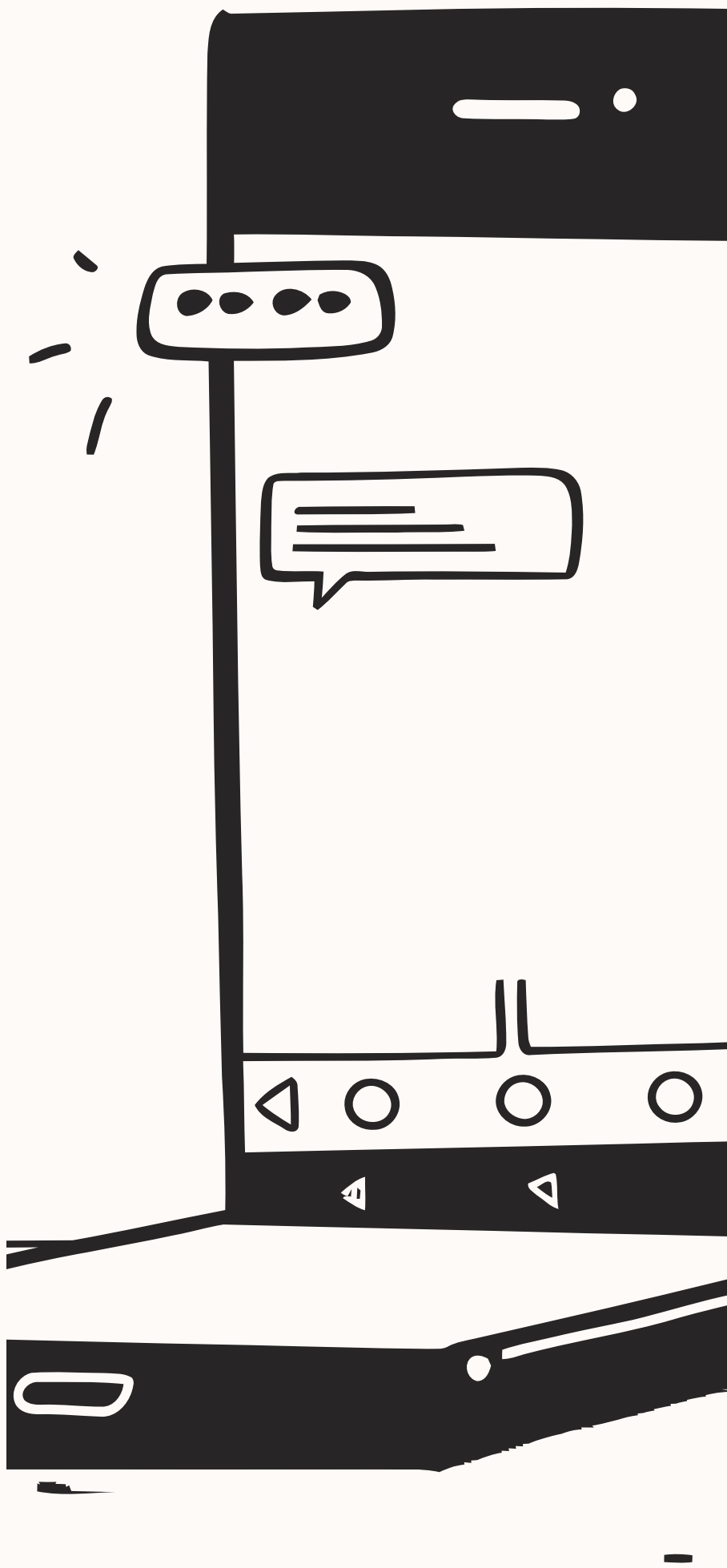
Speech-to-Text (STT)

AI that converts spoken words into text (e.g., Otter.ai).



Text-to-Speech (TTS)

AI that generates natural-sounding speech from text (e.g., Google Wavenet).

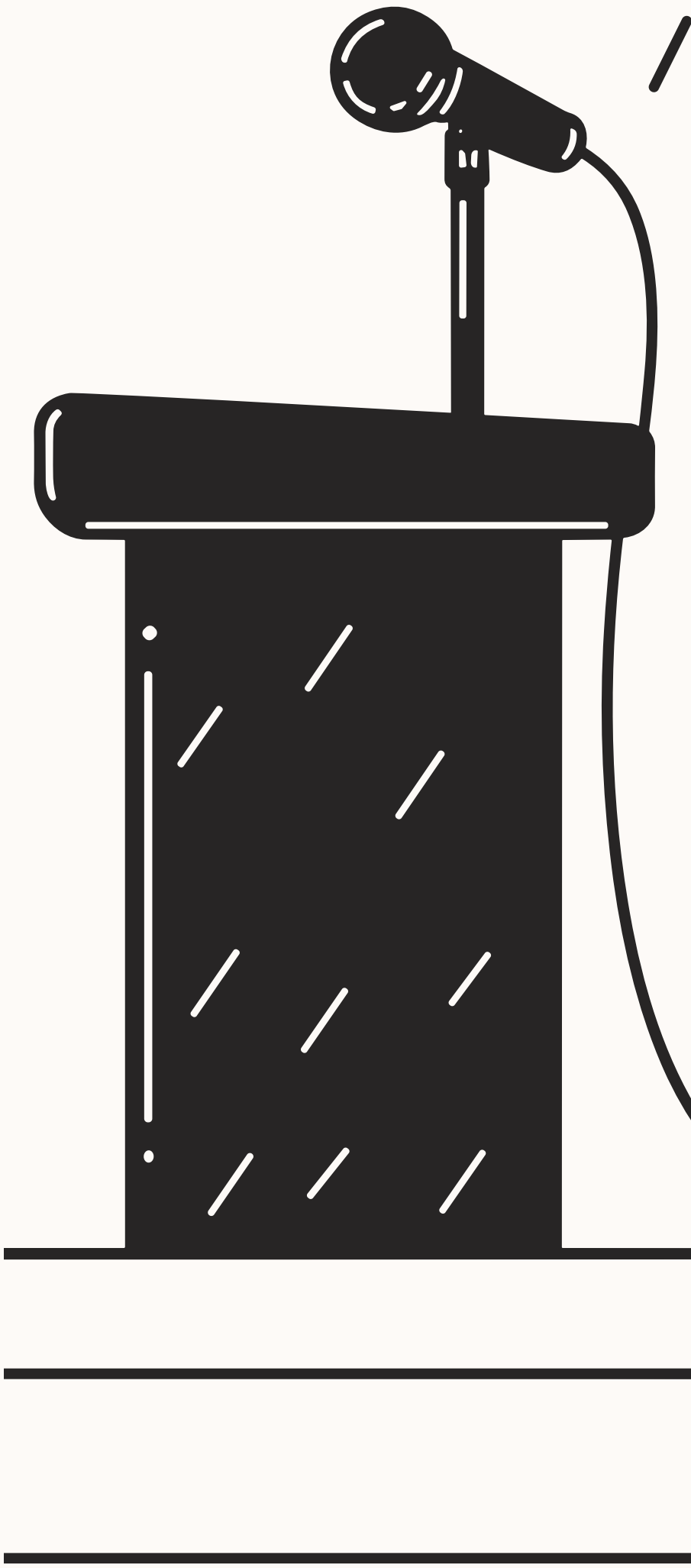


AI Music Generation

AI models that create music compositions (e.g., OpenAI's Jukebox).

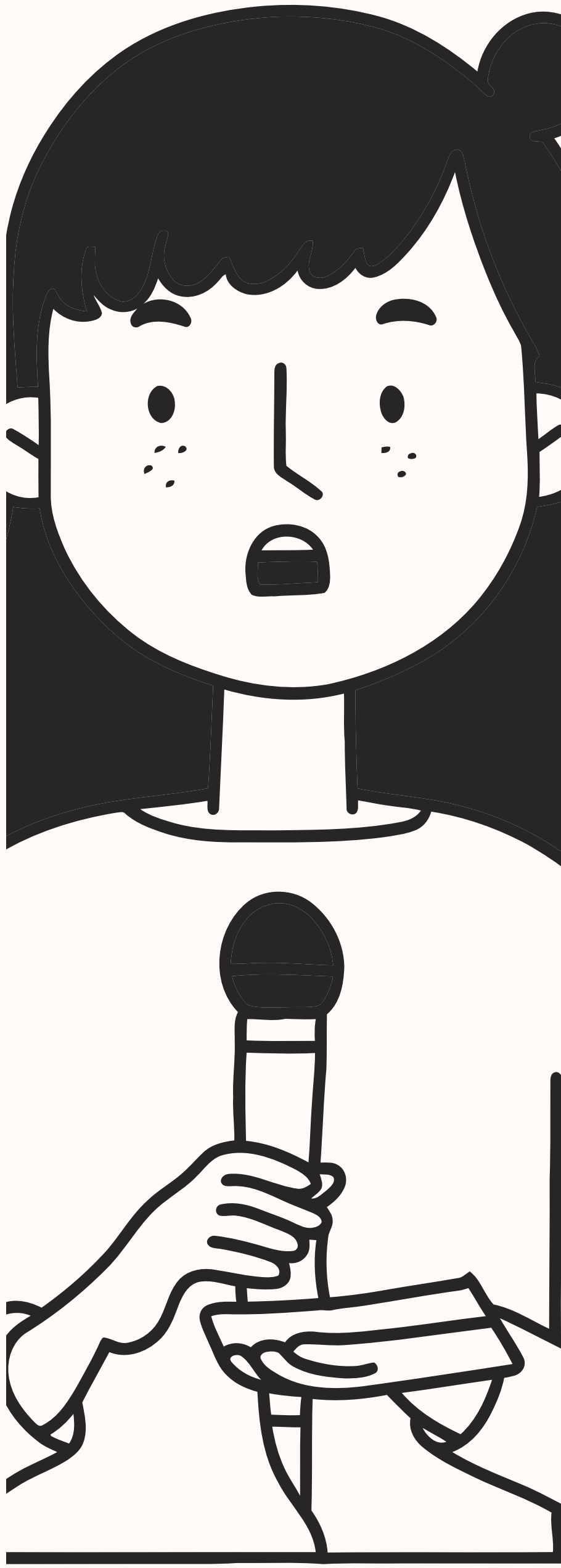
AI Voice Cloning

AI that mimics a person's voice using minimal audio samples.



Synthetic Media

Any AI-generated or AI-altered content, including **deepfakes**.



AI-Powered Search

Search engines enhanced with AI, providing **direct answers** rather than just links (e.g., Perplexity AI).

Understanding Agentic AI

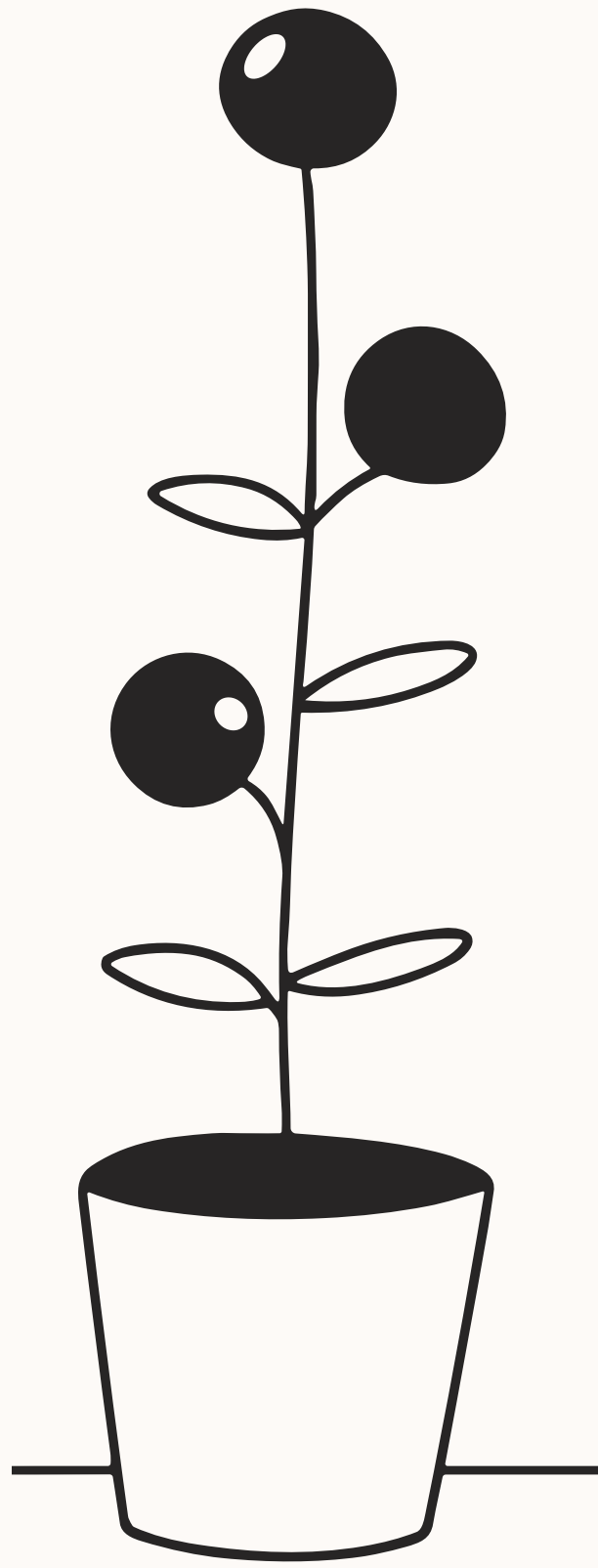
These terms define AI systems that take action autonomously.

Agentic AI

AI that acts **autonomously**, making decisions and taking actions on its own.

Autonomous Agents

AI systems that **complete tasks without constant human intervention**.

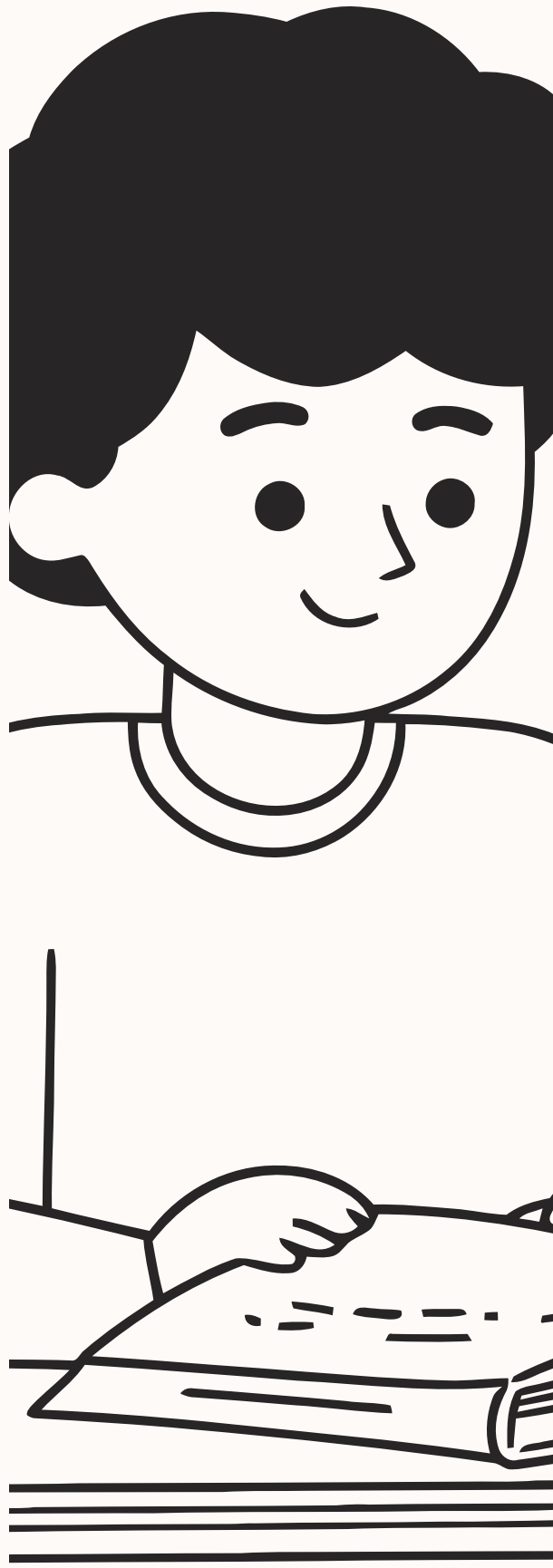


Multi-Agent Systems

A network of multiple AI agents that interact and collaborate.

Reinforcement Learning (RL)

A training method where AI learns through trial and error using rewards and punishments.

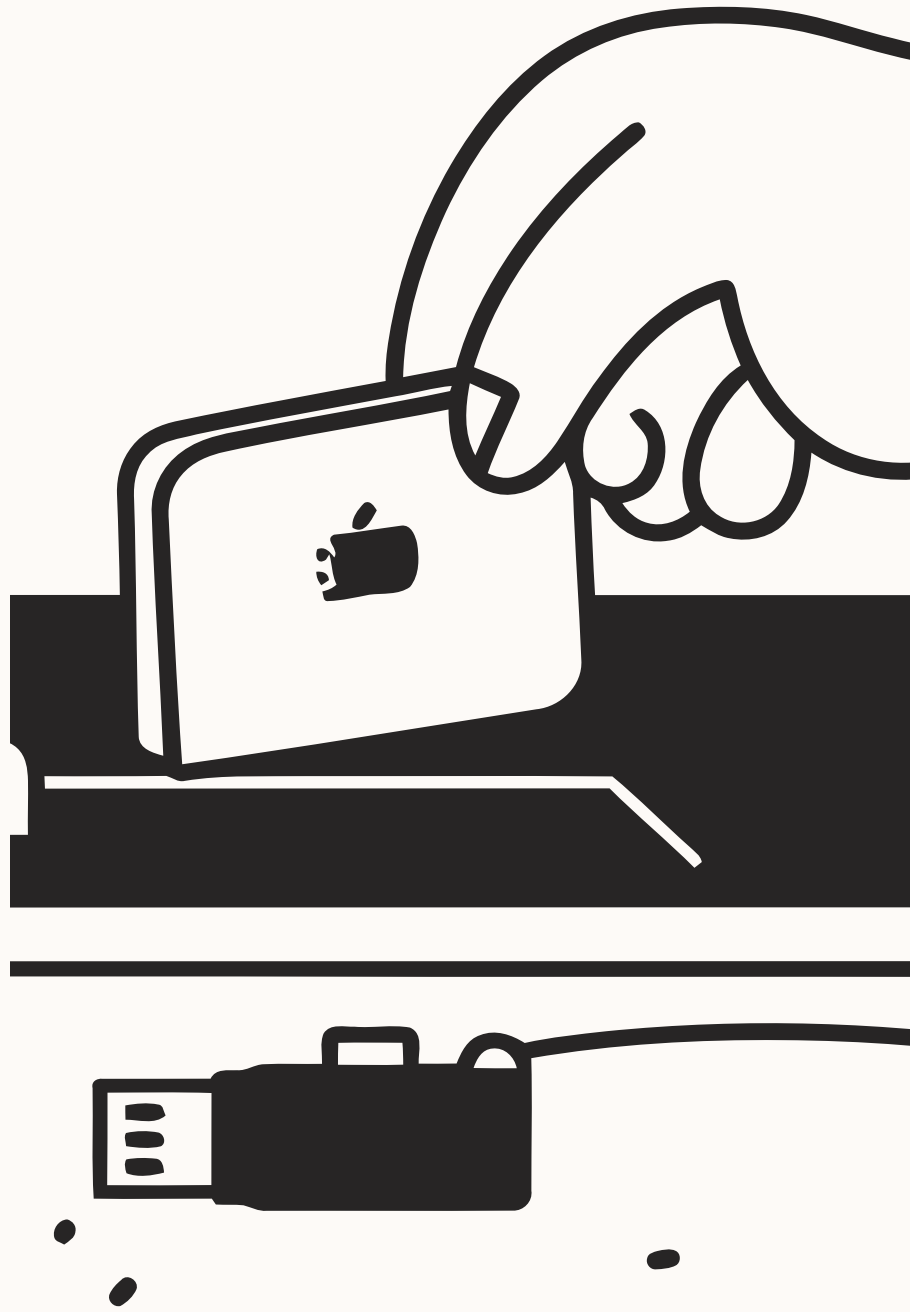


AI Planning & Reasoning

AI models that plan and execute tasks step by step.

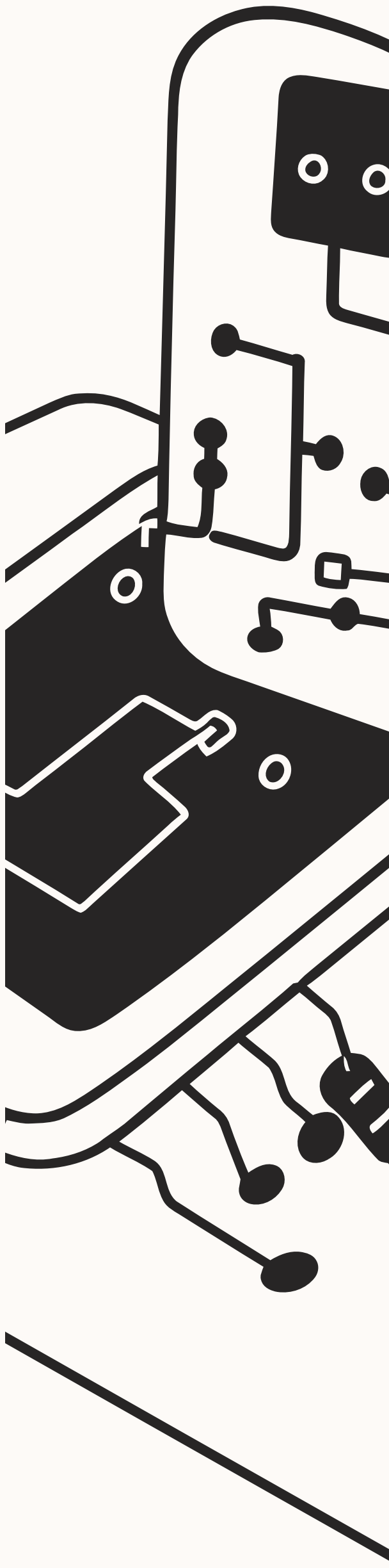
Memory & Context Retention

AI systems that remember previous interactions and use that knowledge over time.



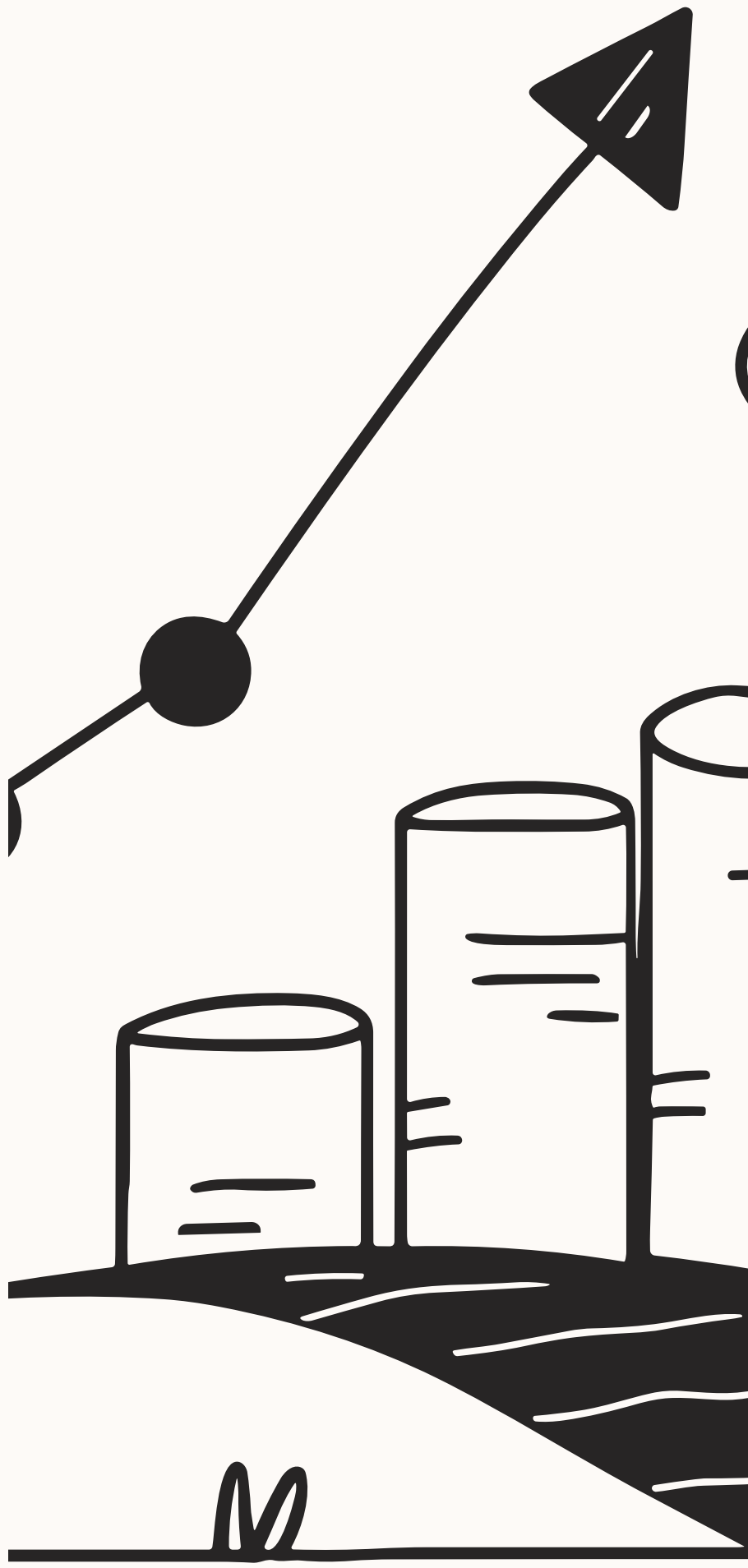
Recursive Self-Improvement (RSI)

When AI improves itself **without human input**.



Goal-Oriented AI

AI that sets and follows a goal independently.

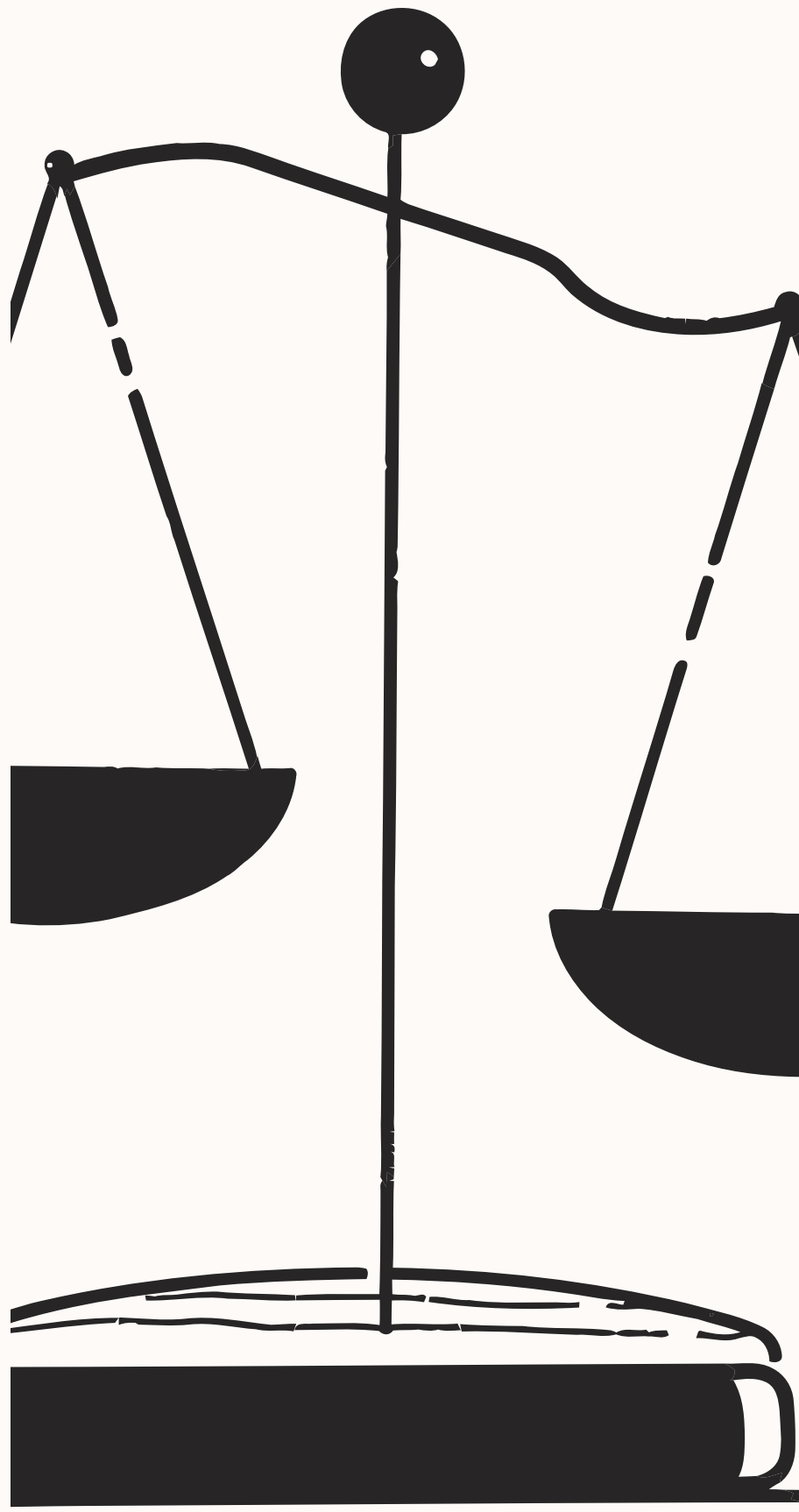


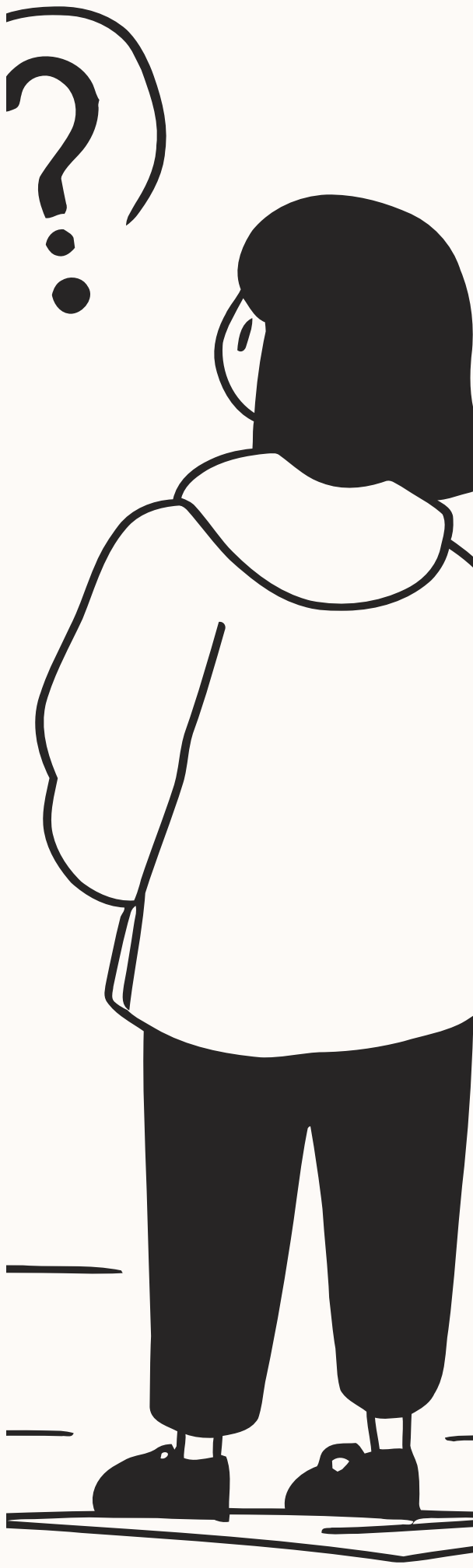
Challenges and Ethical Terms

Important ethical terms related to AI development.

AI Bias

When AI reflects unfair patterns from biased training data.



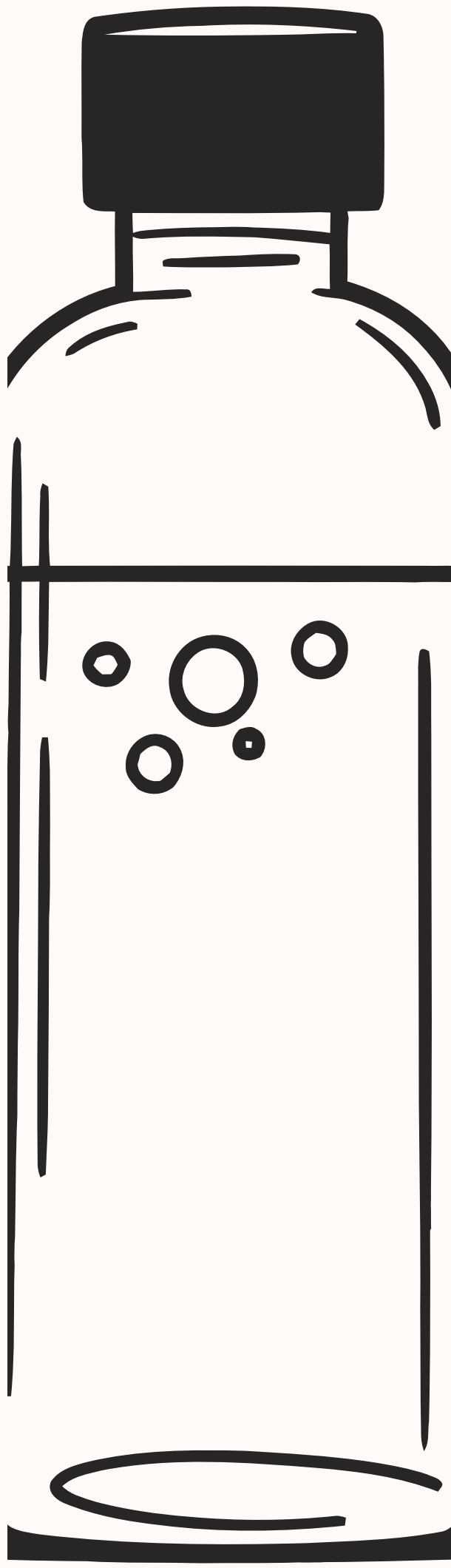


Hallucinations

When AI **makes up information** that isn't true.

Explainability (XAI)

The ability to understand and explain how AI makes decisions.



Fairness in AI

Ensuring AI does not discriminate against certain groups.

AI Safety

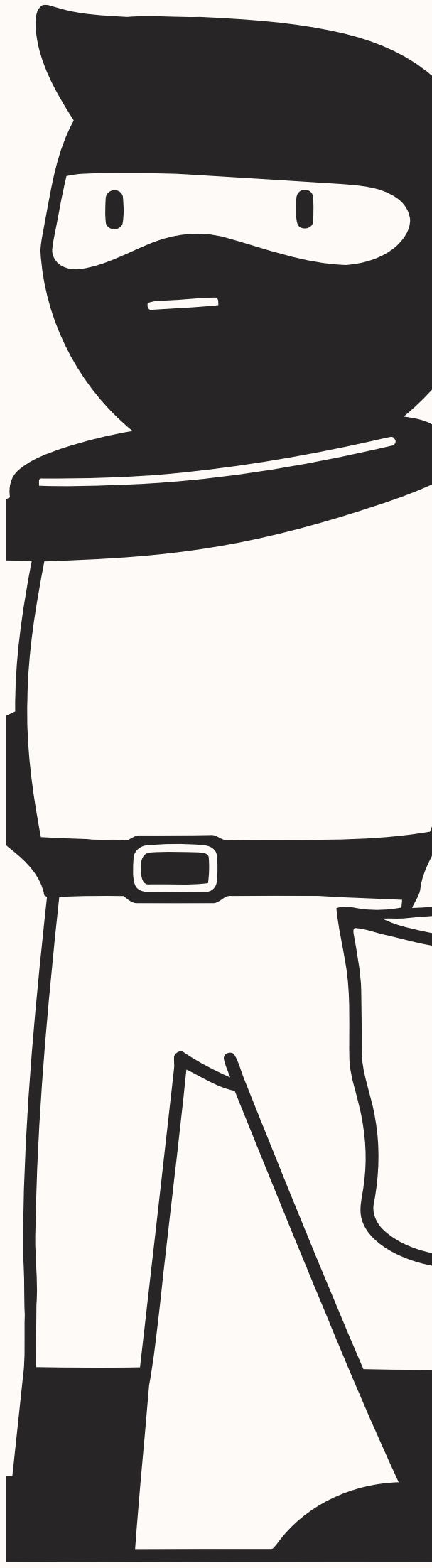
Ensuring AI is used responsibly and does not cause harm.

Data Privacy

Protecting user information when training AI models.

Misinformation & Deepfakes

AI-generated false content that can deceive people.

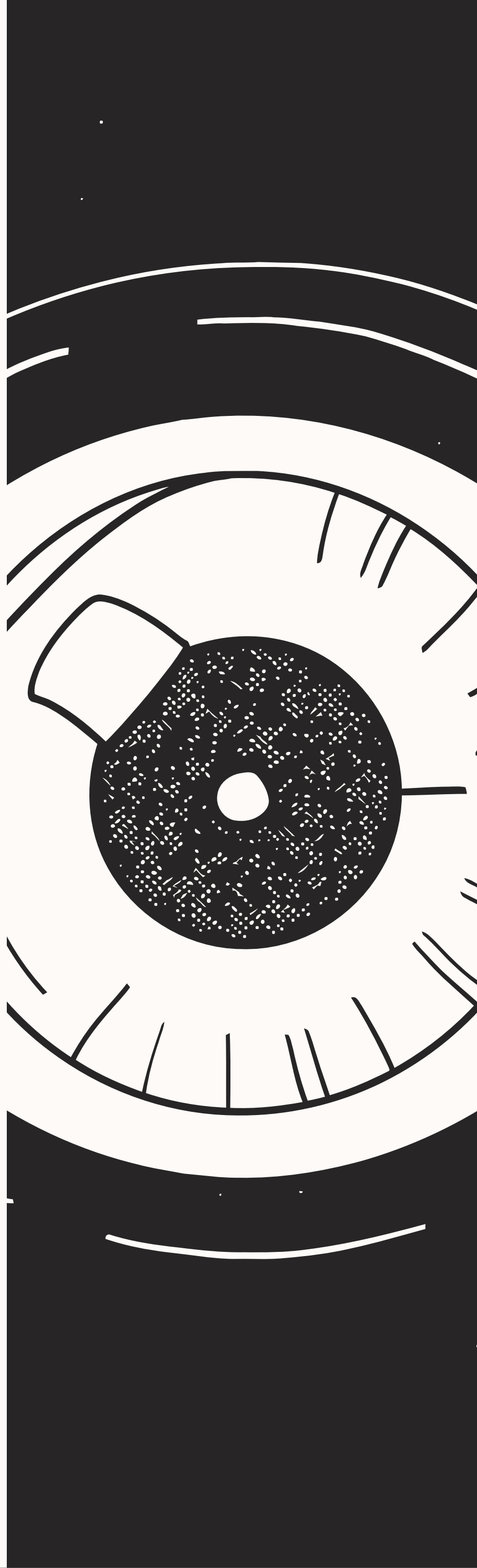


AI Ethics

The principles guiding the **responsible use** of AI.

Advanced Concepts in AI

For those interested in deeper AI topics.



Federated Learning & Self-Improving AI

1

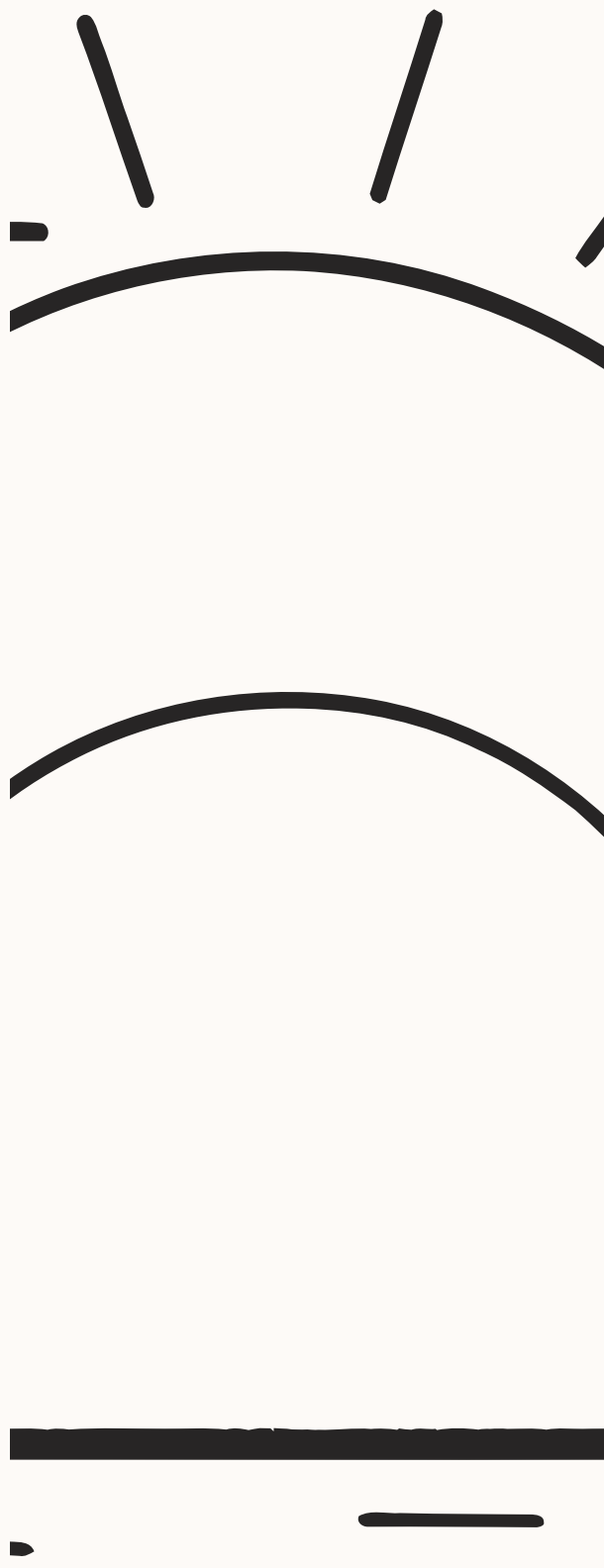
Federated Learning

AI learning across multiple devices while keeping data private.

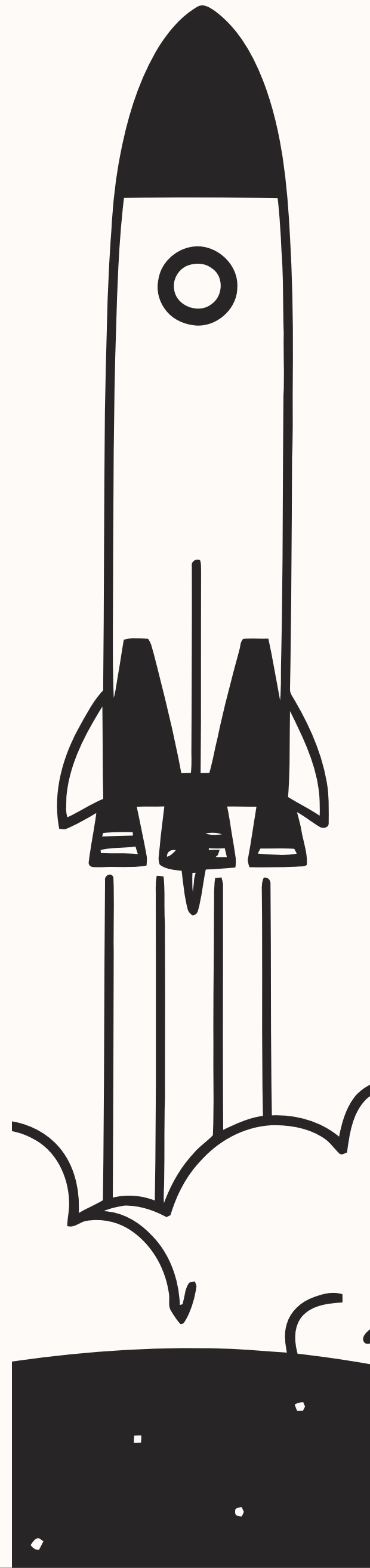
2

Self-Improving AI

AI models that enhance their own learning over time.



Hybrid & Neurosymbolic AI



1 **Hybrid AI**

Combining different AI models for better results.

2 **Neurosymbolic AI**

Merging deep learning with logic-based AI for reasoning.

The Future of AI

1 Quantum AI

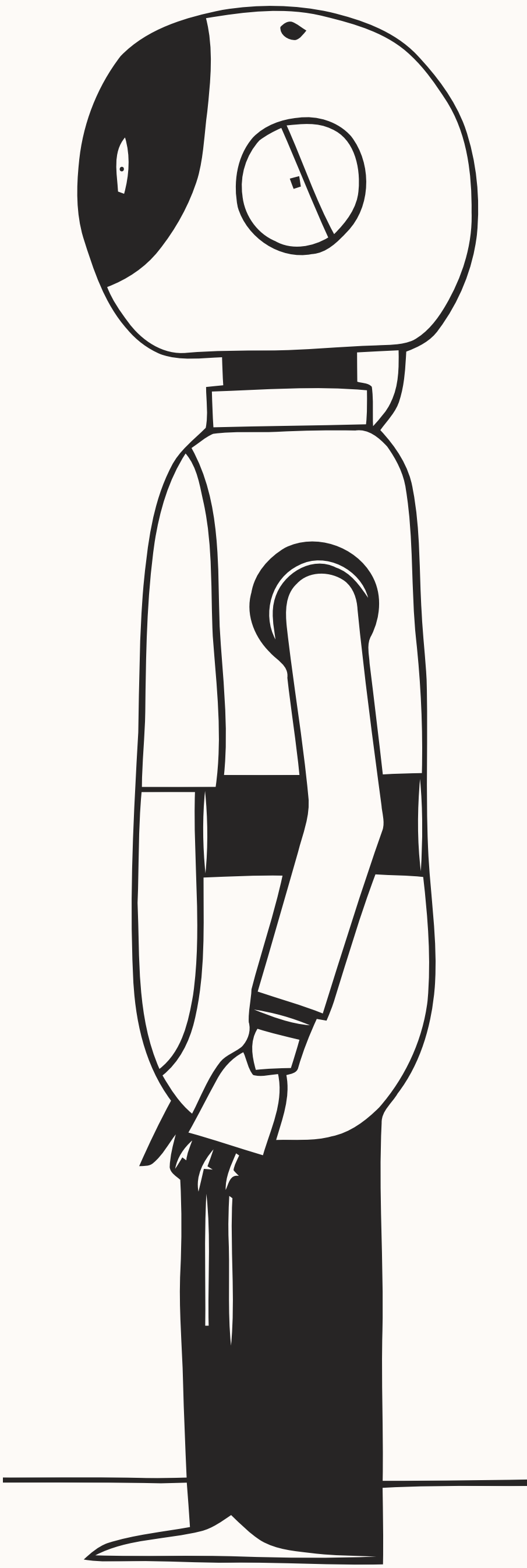
Using quantum computing to enhance AI capabilities.

2 AGI (Artificial General Intelligence)

A future AI that can perform any intellectual task like a human.

3 Superintelligence

Theoretical AI that surpasses human intelligence.



Thanks for Reading

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