



HOW TO SPEAK AI: A GLOSSARY FOR THE REST OF US

We've all been there: Reading an article or watching a webinar about artificial intelligence (AI), we come across a term that we know we've heard and think we understand but...we're not quite sure. With that in mind, here are some common AI terms you might want to know in the months and years ahead.

Agentic AI: Software that, given a goal, can make decisions and act with limited supervision, making it possible to automate more comprehensive processes and not just individual tasks.

Bias: Systematic errors in AI output that discriminate against some groups (e.g., a facial recognition system that was trained on people with light-colored skin so it cannot accurately identify individuals with dark skin).

Emergent behavior: Behavior or capabilities that a given system was not specifically designed to produce (for better or worse).

Expert system: A system designed to replicate human decision-making in a given field (e.g., chemistry), building on both an extensive domain-specific knowledge base and clear rules of logic.

Explainability: The ability to understand how a model “thinks,” meaning how it reaches a decision or outcome.

Generative AI: Software that can be used to create similar but new content. GenAI typically is based on a **large language model** (LLM), software that has been trained to process human language by analyzing a vast amount of text or other content. Alternatively, GenAI might be based on a **small language model**, which involves less training data, often because it is focused on a specific domain of information (e.g., medical content).

Machine learning: Involves using data to train algorithms, which then can analyze real-world data and find patterns, make predictions and so on. The algorithms can be trained with human oversight and guidance (**supervised learning**) or without it (**unsupervised learning**).

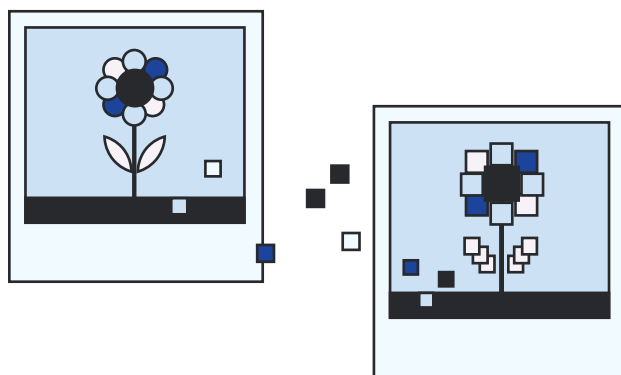
Neural network: A type of ML that uses multiple, interconnected nodes that process data in collaboration, much like the neurons in a human brain. **Deep learning** uses a multi-layered neural network to tackle very complex tasks, such as image or speech recognition or autonomous operations. (LLMs are developed using deep learning techniques.)

Prompt engineering: The process of writing a question or series of questions (or similar inputs) to provide GenAI with enough guidance to produce the outcome you want.

Responsible AI: The practice of developing AI models and systems that minimize risks to individuals and society at large by addressing concerns around fairness, privacy and security, and transparency or explainability.

Retrieval-Augmented Generation, or RAG: A process for supplementing the output of a general LLM with more context-specific information from a reliable source of information specific to a given environment (such as an agency’s knowledge base) or domain.

Turing test: A test of whether a system, such as a chatbot, has achieved human-like intelligence. A system passes the test when a person interacting with it online thinks it’s a human.



Four Types of AI Functionality

Not every AI system has the same functionality, or core capability. Today's applications generally fall into one of two categories:

Reactive Machine AI:

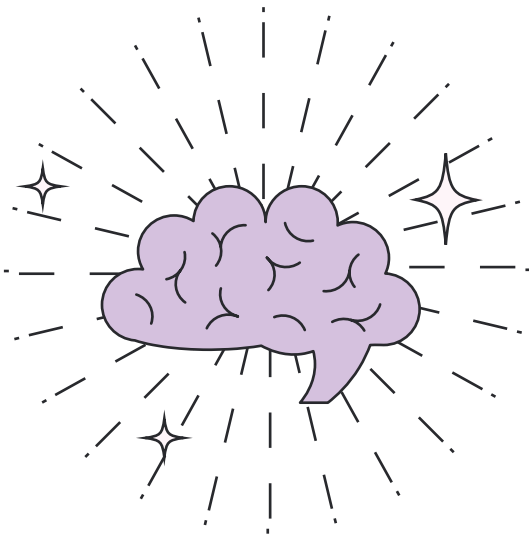
Although they can analyze large volumes of data, these systems have no memory. That means they can't track how well a decision or action worked out and use that information to improve outcomes. For example, a chess application based on reactive machine AI will not learn from game to game.

Limited Memory AI:

Such a system has some memory so it can change how it makes decisions based on experience. Although it can't retain data in the long term, its algorithms do improve over time. GenAI and autonomous cars both use limited memory AI.



Two more types of AI are possible but haven't been developed yet:



Theory of Mind AI:

Such a system would be able to understand how people (and other creatures) think and feel and then interact with them accordingly.

Self-aware AI:

Such a system would have human-like consciousness and be capable of its own thoughts and emotions. Not everyone believes this is even feasible (or desirable).

The Evolution of AI

Although AI has been around for decades, the technology is very much in its early stages. Experts expect that AI applications eventually will fall into one of three general tiers, based on the range of their capabilities:

Type	Definition	Sample Use Cases
Narrow AI	Also called weak AI, a type of AI designed to carry out a specific task or set of tasks or to solve specific types of problems.	Voice assistants, facial recognition systems, disease mapping.
Strong AI	Also called Artificial General Intelligence (AGI) — and at this point, still just theoretical — it will be able to apply human-like reasoning to a wide range of tasks or domains, with the ability to learn as it goes.	In a December 2023 report , the Government Accountability Office highlighted Lieutenant Commander Data, the android from the sci-fi series “Star Trek: The Next Generation” TV show, as an example of AGI.
Super AI	Also called Artificial Superintelligence — and at this point also theoretical — it will outperform humans in every way, including cognitive ability, creativity and even emotional intelligence.	TBD!

Where to Learn More

Here are some websites where you can dig deeper into AI fundamentals:

[*Beyond Basics: The 7 Types of AI \(AI-Pro\)*](#)

[*4 Types of AI: Getting to Know Artificial Intelligence \(Coursera\)*](#)

[*Understanding 7 types of AI with examples \(Eaton Business School\)*](#)

[*Artificial Intelligence Tutorial \(Geeks for Geeks\)*](#)