Agentic AI

In the context of generative artificial intelligence, AI agents (also referred to as compound AI systems or agentic AI

Overview

AI agents possess several key attributes, including complex goal structures, natural language interfaces, the capacity

Researchers and commentators have noted that AI agents do not have a standard definition. The concept of agentic A

A common application of AI agents is the automation of tasks—for example, booking travel plans based on a user's

Companies such as Google, Microsoft and Amazon Web Services have offered platforms for deploying pre-built AI

Proposed protocols for standardizing inter-agent communication include the Agent Protocol (by LangChain), the M

In February 2025, Hugging Face released Open Deep Research, an open source version of OpenAI Deep Research.

Memory systems for agents include Mem0, MemGPT, and MemOS.

History

AI agents have been traced back to research from the 1990s, with Harvard professor Milind Tambe noting that the d

Training and testing

Researchers have attempted to build world models and reinforcement learning environments to train or evaluate AI

Architectural patterns

Common architectural design patterns for agents include:

1) Retrieval-augmented generation (RAG)
2) ReAct (Reason + Act), an extension of chain-of-thought prompting that queries the underlying model to explain i
3) Reflexion, which uses an LLM to create feedback on the agent's plan of action and stores that feedback in a mem
4) A tool/agent registry, for organizing software functions or other agents that the agent can use
5) One-shot model querying, which queries the model once to create the plan of action