

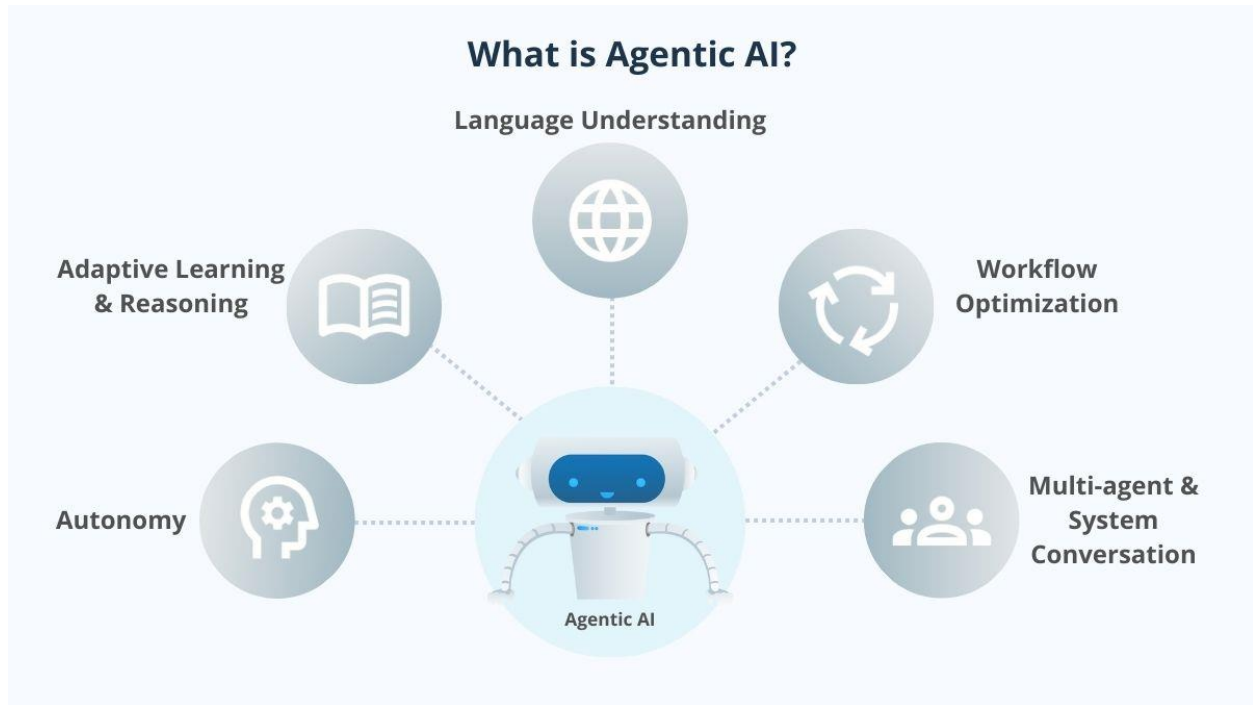
What Is Agentic AI? Research By Duaa Pirzada (00236762)



Agentic AI (Artificial Intelligence) means an AI that can make its own decisions, set goals, and take actions to achieve those goals — kind of like giving the AI a bit of a "mind of its own"

Definition of Agentic AI:

Agentic AI refers to artificial intelligence system designed to operate autonomously making decisions and taking actions to achieve specific goals without human oversight.



Key Characteristics:

1. ***Autonomy***: Agentic AI can independently make decisions and act upon them.
2. ***Goal-Oriented Behavior***: It focuses on achieving defined objectives, adjusting its actions as needed.
3. ***Contextual Understanding***: By analyzing vast amount of data it, understands the nuances of situations to make informed decisions.

4. ***Learning and Adaptation***: Through techniques like reinforcement learning, agentic AI learns from outcomes to improve future performance.

Real-World Applications:

- ***Healthcare***: AI agents assist in diagnosing diseases by analyzing patient data and suggesting treatment plans.
- ***Finance***: Autonomous trading bots make investment decisions based on market trends.
- ***Customer Service***: AI agents handle customer inquiries, providing solutions without human intervention.
- ***Manufacturing***: Predictive maintenance systems anticipate equipment failures and schedule repairs proactively.

Considerations and Challenges:

- ***Ethical Concerns***: Ensuring that autonomous decisions align with human values and ethics.
- ***Accountability***: Determining responsibility when AI actions lead to unintended consequences.
- ***Transparency***: Understanding the decision-making processes of complex AI systems.

Agentic AI Frameworks and Tools:

To harness the power of agentic AI, several frameworks and tools have been developed:

- **LangChain:** A framework that facilitates the development of applications powered by language models, enabling chaining of prompts and actions.
- **CrewAI:** Designed to manage multiple AI agents working collaboratively on complex tasks.
- **Microsoft AutoGen:** A framework by Microsoft that allows the creation of autonomous AI agents capable of performing tasks without human intervention.
- **Semantic Kernel:** An open-source SDK that integrates AI services into applications, allowing for the development of agentic behaviors.
- **LlamaIndex:** Provides tools to connect large language models with external data sources, enhancing the contextual understanding of AI agents.
- **Botpress:** An open-source conversational AI platform that enables the creation of chatbots with agentic capabilities.
- **OctoTools:** A framework designed for complex reasoning tasks, allowing AI agents to plan and execute multi-step processes.

Future Implications:

Agentic AI is poised to revolutionize various sectors by:

- **Enhancing Efficiency:** Automating complex tasks, reducing the need for human intervention.
- **Driving Innovation:** Enabling new business models and services through intelligent automation.

- ***Personalizing Experiences***: Tailoring services and interactions based on individual preferences and behaviors.

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