

What is Agentic AI

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Artificial Intelligence (AI) has been evolving rapidly, and among the various types of AI systems, one concept that has garnered attention is **Agentic AI**. This type of AI is designed to function autonomously, making decisions and taking actions based on its understanding of the environment and predefined objectives.

In this article, we will delve into the concept of Agentic AI, its characteristics, and its potential implications for the future.

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Understanding Agentic AI

Agentic AI refers to [artificial intelligence systems](#) that exhibit autonomous behavior, acting as agents within an environment to achieve specific goals. Unlike traditional AI systems that require human

intervention for decision-making, Agentic AI operates independently, using its internal models, learning algorithms, and decision-making processes to navigate and interact with its surroundings.

Key Characteristics and Components of Agentic AI

- **Autonomy and Goal-Oriented Behavior:** Agentic AI systems operate independently, making decisions and taking actions without human oversight. They are programmed with specific objectives and work towards achieving these goals through their autonomous actions.
- **Adaptive Learning and Complex Decision-Making:** These AI systems are designed to learn from their experiences, adapting their behavior over time to improve efficiency in reaching their goals. They are capable of navigating complex situations by considering multiple variables and potential outcomes.
- **Environment Interaction and Perception:** Agentic AI interacts with its environment, gathering data through sensors, cameras, and other input devices. This real-time data collection enables the AI to perceive its surroundings and make informed decisions.
- **Information Processing:** Using algorithms, [neural networks](#), and pattern recognition models, Agentic AI processes and analyzes collected data. It applies decision-making frameworks like [rule-based systems](#) and [machine learning models](#) to interpret data and guide its actions.
- **Action Execution:** Equipped with mechanisms such as robotic actuators or software commands, Agentic AI systems execute tasks autonomously, based on the processed information and the goals they are programmed to achieve.

For example, an AI agent controlling a camera might learn how to adjust its settings in response to changing environmental conditions, like high humidity. Over time, these systems can improve their performance by refining their decision-making processes based on past experiences.

How is Agentic AI Different from Traditional AI?

While both Agentic AI and traditional AI fall under the broader umbrella of artificial intelligence, there are key differences that set them

apart in terms of functionality, autonomy, and decision-making capabilities. Understanding these differences is crucial for grasping the unique potential of Agentic AI.

1. Level of Autonomy

- **Traditional AI:** Traditional AI systems are typically designed to perform specific tasks based on predefined rules or algorithms. These systems require human intervention for decision-making and often operate within a narrow scope of capabilities. For example, a traditional AI might be used to sort emails into folders based on keywords, but it cannot make decisions beyond this predefined task.
- **Agentic AI:** Agentic AI, on the other hand, operates autonomously, making decisions without human oversight. It can interact with its environment, gather data, and adapt its actions to achieve predefined goals. This level of autonomy allows Agentic AI to function in dynamic, unpredictable environments, where it must continuously assess and respond to changes.

2. Decision-Making Process

- **Traditional AI:** The decision-making process in traditional AI is generally rule-based or relies on pre-trained models. These systems do not have the capacity to make complex decisions involving multiple variables and potential outcomes.
- **Agentic AI:** In contrast, Agentic AI is capable of complex decision-making, considering multiple factors and outcomes. It uses adaptive learning to improve its decision-making over time, allowing it to handle a broader range of tasks and challenges, especially in situations where the environment is constantly changing. This adaptability is a key feature that enables Agentic AI to achieve its objectives more efficiently and effectively than traditional AI systems.

What is the difference between generative AI and agentic AI?

We have discussed the differences between [generative AI](#) and agentic AI below:

Aspect	Generative AI	Agentic AI
Primary Function	Creates content (e.g., text, images, music)	Makes autonomous decisions and takes actions
Output	Generates new data or content based on input data	Interacts with the environment to achieve goals
Autonomy	Operates under predefined rules; no decision-making	Operates autonomously with decision-making ability
Decision-Making	Follows algorithms to produce content	Adapts and makes complex decisions in real-time
Learning Capability	Learns patterns from training data to generate outputs	Learns and adapts from experiences for better actions
Environment Interaction	Limited; does not interact with external environment	Actively interacts with and responds to the environment
Example Use Cases	Content creation, art generation, language models	Autonomous vehicles, robotics, intelligent agents

JPMorgan Chase's COiN: Agentic AI for Finance

JPMorgan Chase's Contract Intelligence (COiN) is a groundbreaking application of agentic AI in the financial services industry. COiN is a

machine learning system designed to automate the analysis of legal documents, such as contracts and agreements.

How COiN Works

COiN uses [natural language processing](#) (NLP) and machine learning techniques to:

1. **Extract Data:** It can automatically extract key information from legal documents, such as dates, parties involved, and contractual terms.
2. **Analyze Contracts:** COiN can analyze contracts for potential risks, inconsistencies, or errors.
3. **Automate Processes:** By automating these tasks, COiN can significantly reduce the time and cost associated with manual contract review.

Impact on the Financial Industry

JPMorgan Chase's COiN has the potential to revolutionize the way financial institutions handle legal documents. By automating routine tasks, COiN can improve efficiency, reduce costs, and enhance risk management. It also represents a significant step forward in the development of agentic AI applications for the financial services industry.

Industry Leaders in Agentic AI

As the field of Agentic AI continues to evolve, several key players are making significant contributions through innovative projects and research.

Here are three industry leaders who are pushing the boundaries of what Agentic AI can achieve:

1. Microsoft's Project AutoGen

AutoGen is an open-source framework developed by Microsoft that simplifies the orchestration, optimization, and automation of workflows involving [large language models \(LLMs\)](#). It enables the creation of

multi-agent systems where agents can converse and collaborate to solve complex tasks.

Key Features of Microsoft's Project AutoGen

1. **Customizable Agents:** AutoGen allows developers to define specialized agents with specific capabilities that can interact with one another.
2. **Integration of Human Feedback:** The framework supports human-in-the-loop workflows, allowing for real-time human input and oversight.
3. **Enhanced Performance:** By automating multi-agent interactions, AutoGen significantly reduces manual effort and enhances the efficiency of LLM applications, making it easier to build complex systems for various domains like supply chain optimization and code-based question answering

2. Allen Institute for AI's Lumos

Lumos is an open-source framework designed for training language agents, developed by the Allen Institute for AI. It focuses on creating agents that can perform complex interactive tasks by leveraging a modular architecture and a unified training dataset.

Key Features of Allen Institute for AI's Lumos

1. **Modular Design:** Lumos consists of planning, grounding, and execution modules, allowing for flexibility and scalability in developing language agents.
2. **High-Quality Training Data:** The framework uses a large set of high-quality annotations derived from existing benchmarks, enabling agents to handle a wide range of tasks effectively.
3. **Competitive Performance:** Lumos has demonstrated superior performance compared to existing models on various benchmarks, showcasing its potential for advancing research in agentic AI

3. Moveworks' Next-Gen Copilot

Moveworks is known for its AI-driven solutions that enhance workplace productivity. Their Next-Gen Copilot leverages agentic AI to automate IT support tasks, enabling employees to resolve issues quickly and efficiently.

Key Features of Moveworks' Next-Gen Copilot

- **Autonomous Issue Resolution:** The Copilot can autonomously diagnose and resolve common IT issues without human intervention, streamlining support processes.
- **Natural Language Understanding:** It utilizes advanced natural language processing capabilities to understand user queries and provide accurate responses.
- **Integration with Existing Systems:** The Copilot seamlessly integrates with various enterprise systems, enhancing its ability to assist employees by providing timely and relevant information

These industry leaders are not only advancing the capabilities of Agentic AI but are also demonstrating its potential to revolutionize various sectors.

Applications of Agentic AI

The potential applications of Agentic AI are vast and varied, spanning multiple industries and domains. Here are a few examples:

1. **Autonomous Vehicles:** Agentic AI can be used in self-driving cars, where the AI acts as the driver, making real-time decisions based on traffic conditions, road signs, and other environmental factors.
2. **Healthcare:** In healthcare, Agentic AI could assist in patient diagnosis and treatment planning by autonomously analyzing medical data and recommending personalized treatment options.
3. **Finance:** Agentic AI could be employed in the financial sector for algorithmic trading, where the AI independently makes trading decisions based on market trends and data analysis.
4. **Robotics:** In robotics, Agentic AI could power robots that perform complex tasks autonomously, such as search and rescue missions in disaster-stricken areas.

5. **Smart Home Systems:** Agentic AI could enhance smart home systems by autonomously managing energy consumption, security, and other home automation features.

Ethical Considerations of Agentic AI

While the development of Agentic AI offers exciting possibilities, it also raises important ethical questions. These include:

1. **Accountability:** If an autonomous AI system makes a harmful decision, determining who is responsible becomes a complex issue. Is it the developers, the users, or the AI itself?
2. **Bias and Fairness:** Agentic AI systems could potentially inherit or develop biases based on the data they are trained on. Ensuring fairness and mitigating bias is a critical challenge.
3. **Safety:** The autonomy of Agentic AI raises concerns about safety, particularly in high-stakes environments like healthcare or transportation. Ensuring that these AI systems make safe and reliable decisions is paramount.
4. **Regulation:** As Agentic AI systems become more prevalent, there is a growing need for regulatory frameworks that address the unique challenges they pose.

The Future of Agentic AI

The future of Agentic AI is full of possibilities, but it also requires careful consideration of the ethical, legal, and societal implications. As AI technology continues to advance, the development of robust frameworks to guide the creation and deployment of Agentic AI will be essential. These frameworks should ensure that Agentic AI systems are designed with safety, fairness, and transparency in mind, while also unlocking their full potential to benefit society.

Conclusion

In conclusion, **Agentic AI** represents a significant leap forward in AI technology, offering the ability to create truly autonomous systems capable of complex decision-making and adaptation. As we continue to

explore and develop this technology, it is crucial to balance innovation with responsibility, ensuring that Agentic AI serves the greater good.

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