Navigating the World of AI Agents

A brief exploration into the diverse realm of Artificial Intelligence agents. We will cover their characteristics, functionalities, and real-world applications.

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What are Agents

Description: AI agents can make autonomous decisions, optimize solutions and collaborate in multiagent systems to transform the future of business

How do they work?

Sensing mechanism that allows AI agents to:

- Understand context
- Adjust in real time
- Continuously learn

Optimize solutions

- Assemble workflow for optimized solution to specific problems
- Relies on inputs such as Large Action Models, API's, etc.
- Assesses inputs and then decides what to compose together for solution

Examples

Physical world, agents combined with robotics

- Can handle new environments and interact to do things
- Robotics, traditional limited to pre-programmed instruction - with agents, can now work in a new environment and learn from it
- Example: Agents + Robots + Sensors to automate manufacturing

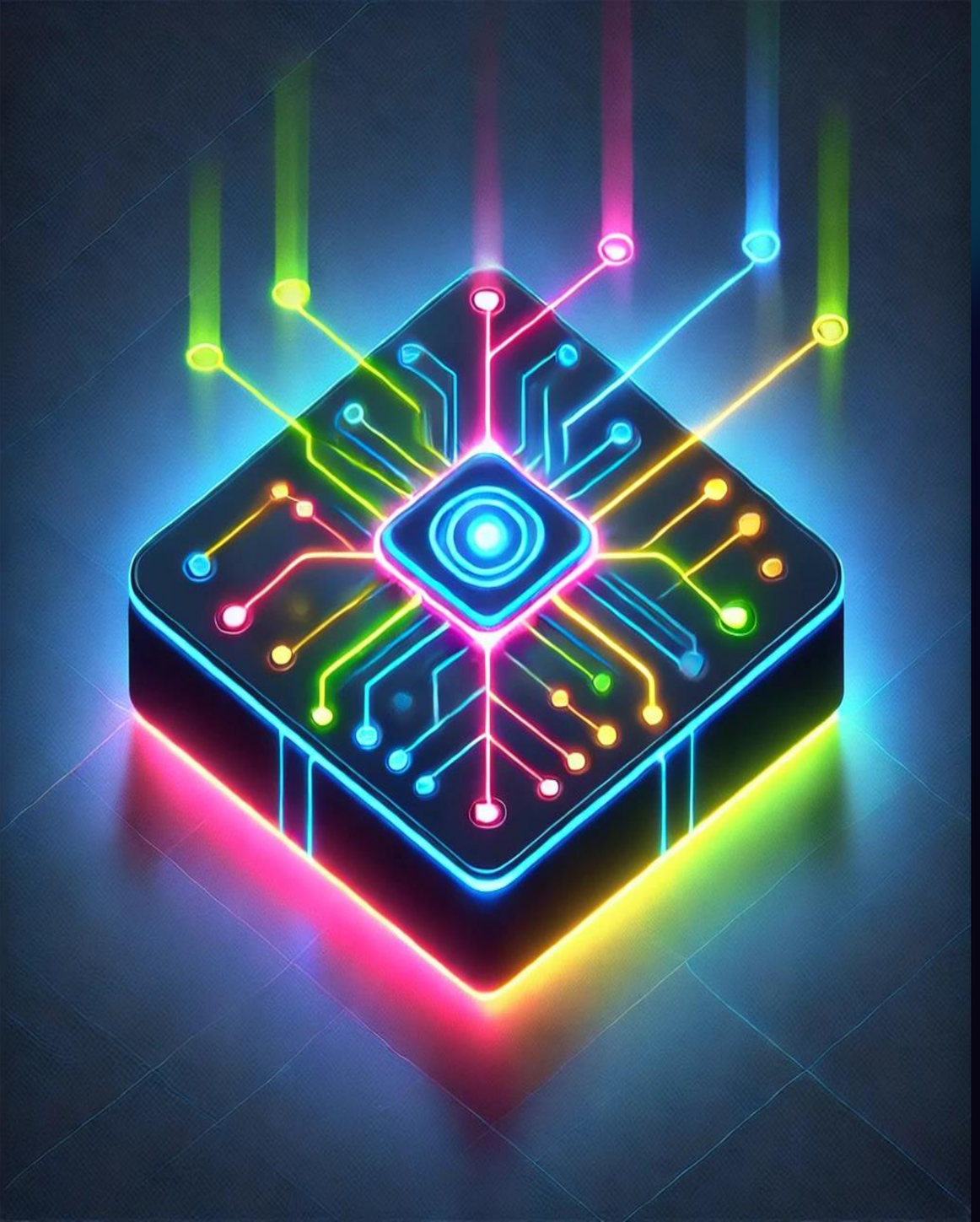
Multi-Agent Systems

- One AI creates output and another acts as auditor of first
- Agents work in parallel to develop a solution and final agent decides

Large Action Model

- Large Language Models predict the combination of words that make sense, a Large Action Model, predicts which Actions make sense

Not all agents are equal! This deck covers the types of agents that exist and what they are used for.



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Simple Reflex Agents

Description

Decisions are based solely on the **current state** of the environment.

They do not consider past experiences or future outcomes.

Example Use Cases

A thermostat reacting to temperature changes.

An automated door opening when someone approaches.

Model-Based Reflex Agents

Description

Maintains an **internal model** of the world.

Uses this model to make decisions based on past experiences.

Example Use Cases

Robot navigation in a dynamic environment.

Predicting traffic patterns based on sensor data.

AI Leverage

Learning Agents

Description

Improves performance, continuously learning through **experience**.

Example Use Cases

AI learns from equipment data to predict failures before they happen.

More Uses

Spam filters identifying unwanted emails over time.

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Goal-Based Agents

1

Description

Choose actions based on a **specific goal** or objective.

2

Example Use Cases

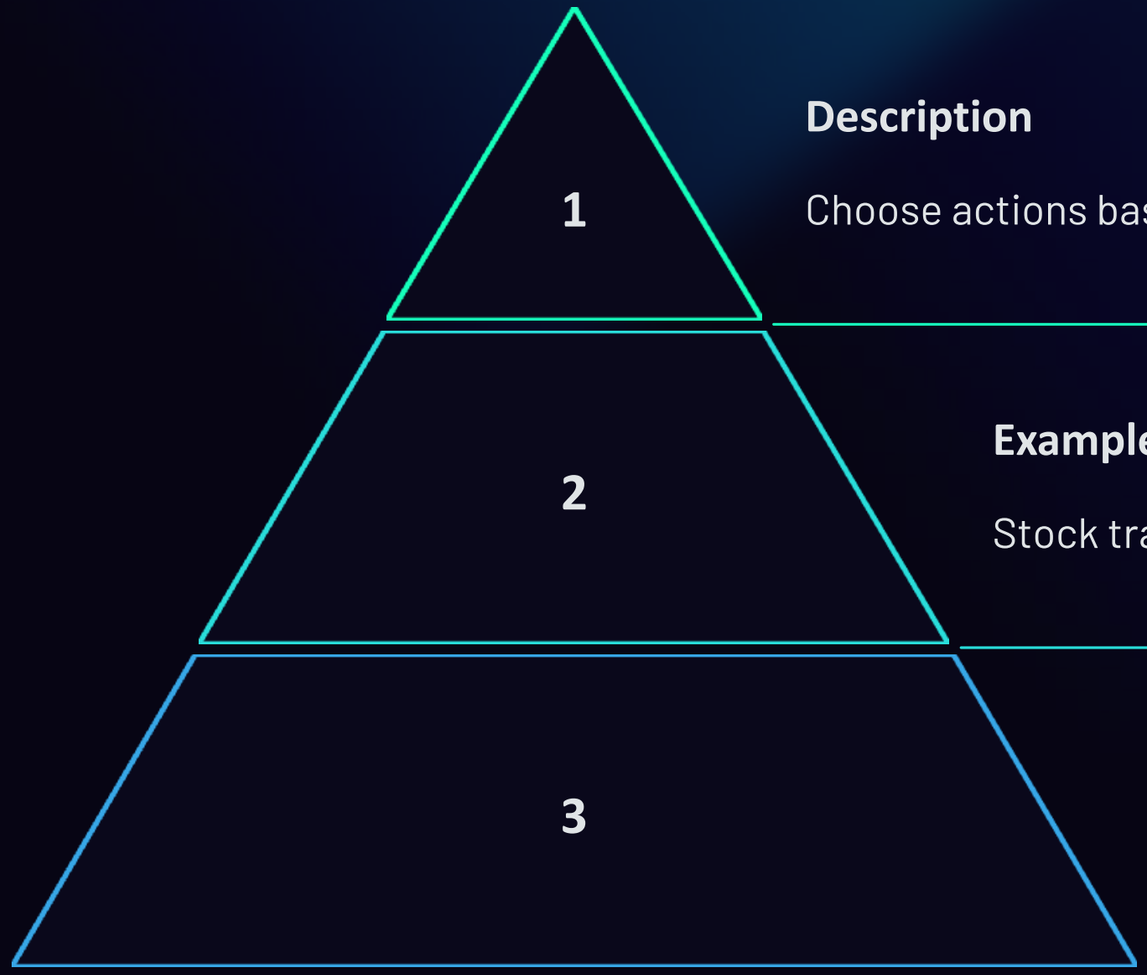
AI agent detects an imminent blackout, avoids by automatically lowering supply to low-priority consumers

3

More Uses

Planning routes for delivery trucks to minimize costs.

Utility Agents



Description

Choose actions based on a **numerical measure** of outcome desirability.

Example Use Cases

Stock trading algorithms maximizing profit while minimizing risk.

More Uses

Resource allocation in complex systems to optimize efficiency.

Autonomous Agents

1

Description

Operate **independently** without human intervention.

2

Example Use Cases

Self-driving cars navigating roads and avoiding obstacles.

3

More Uses

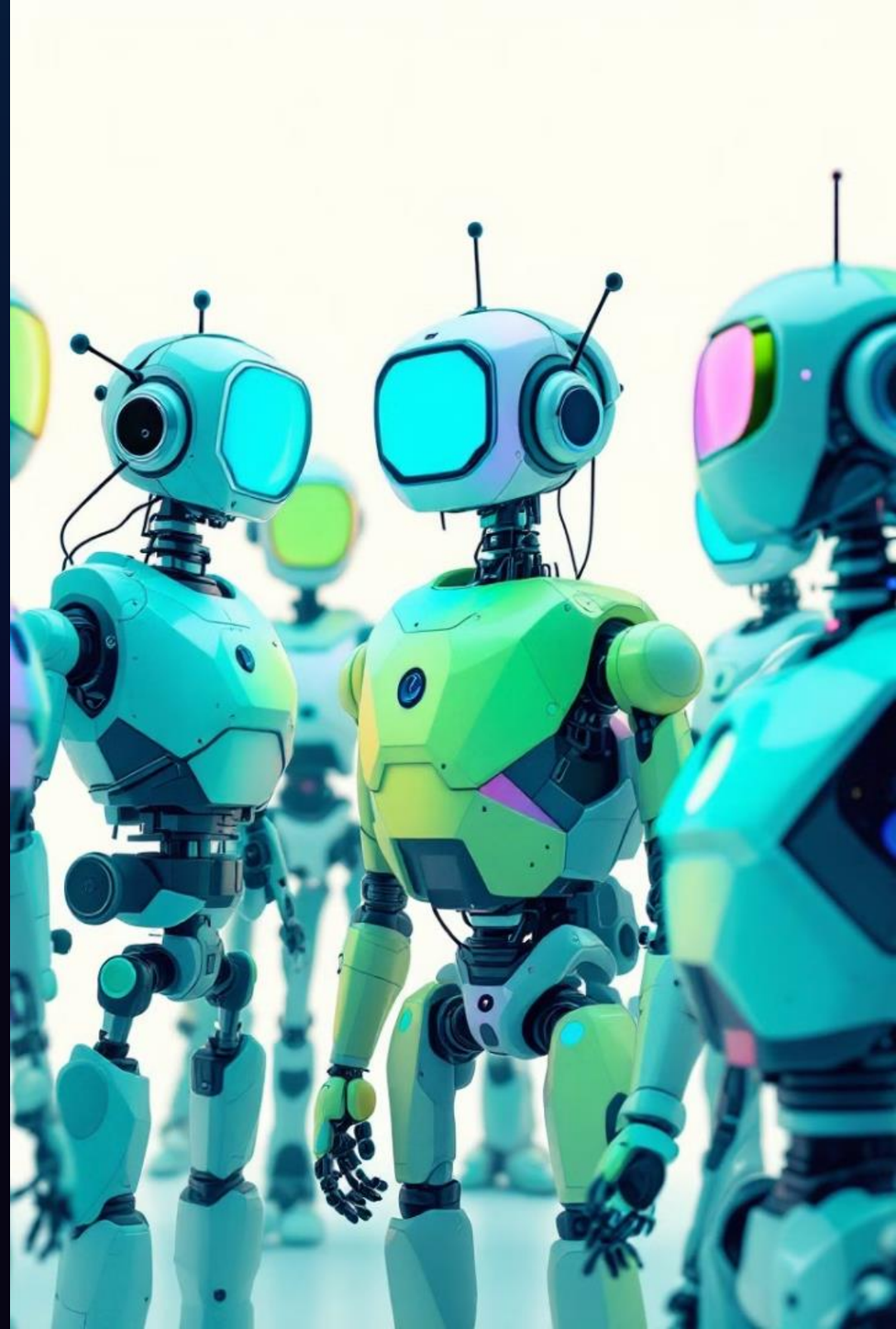
Automated drones performing inspections or surveillance.

Key Takeaways

Understanding the different types of AI agents is crucial. It helps developers select the most suitable approach.

Consider the specific requirements of your use case. Weigh the trade-offs between complexity and performance.

Future steps include exploring hybrid approaches. Combine different agent types for enhanced capabilities.



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We work closely with clients to develop AI-enabled business technology strategies and support the full lifecycle of implementation, ensuring seamless integration and adoption.

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