



Generative AI

vs.

Agentive AI:

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Generative AI vs. Agentic AI: Understanding the Difference

This presentation explores the distinct capabilities and roles of Generative AI and Agentic AI, two groundbreaking artificial intelligence technologies redefining automation and intelligence. We will examine how each works, their unique attributes, and explore real-world applications driving innovation across industries. Understanding these differences is vital for leveraging AI's full potential in business and society.

Generative AI: Creating New Content

Definition

Generative AI models synthesize novel content such as text, images, audio, and video by learning from vast datasets.

Examples

Applications include creating realistic photos, composing music, writing articles, and generating synthetic voices.

Key Models

- GANs (Generative Adversarial Networks)
- VAEs (Variational Autoencoders)
- Transformers like GPT and DALL-E



How Generative AI Works: The Process

Training on Data

Generative AI models absorb patterns from extensive datasets, learning underlying structures including syntax, shapes, and audio patterns.

Pattern Recognition & Generation

They identify complex correlations and generate original content by extrapolating learned information, exemplified by DALL-E 2 crafting images from text prompts.

Iterative Refinement

Models continuously refine outputs through multiple adjustments ensuring high quality and coherence in new creations.

Agentic AI: Autonomous Action

Definition

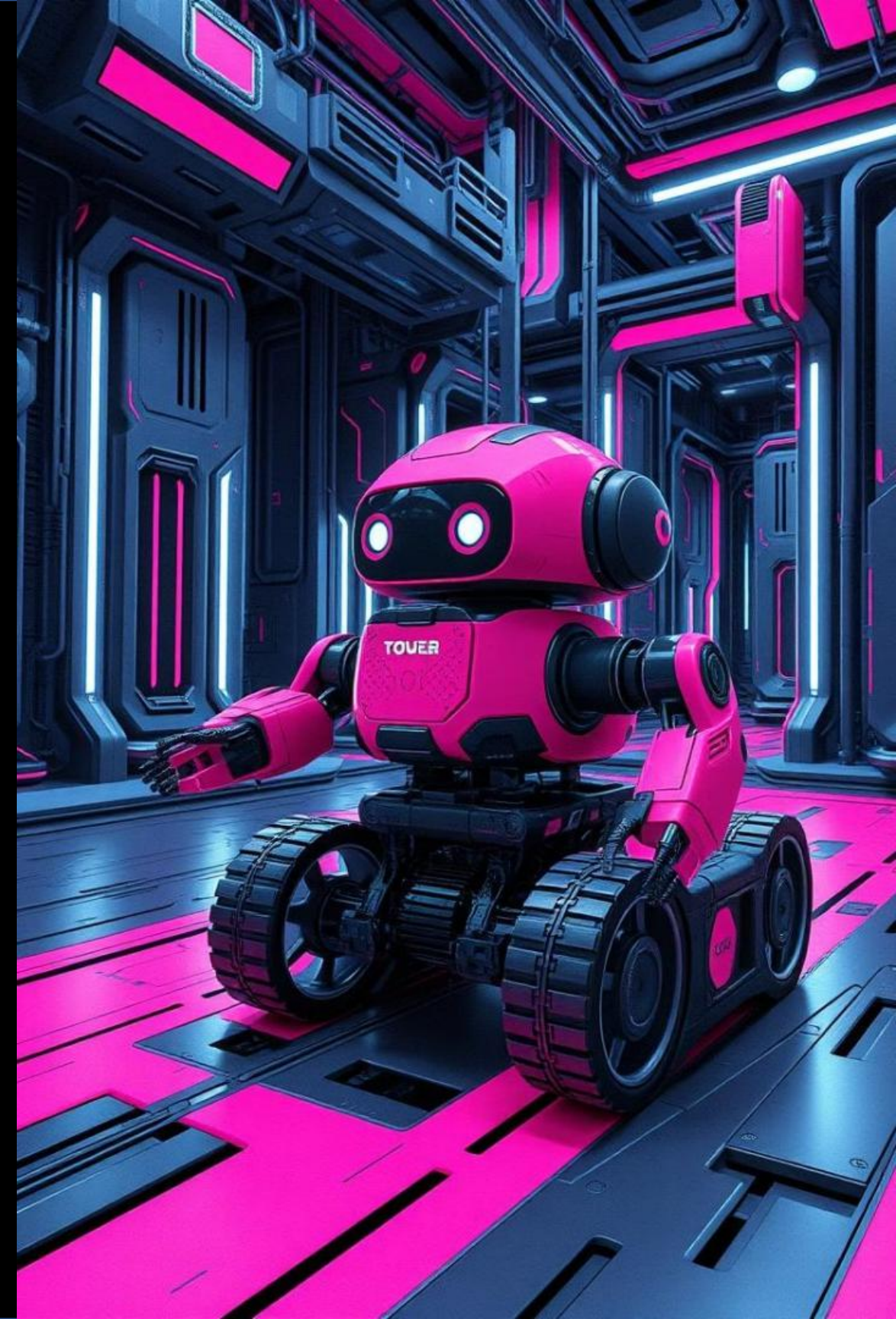
Agentic AI systems operate independently by perceiving their surroundings, reasoning, and taking actions toward defined objectives.

Goal-Oriented

Focuses on dynamically adapting strategies to complex, changing environments to fulfill specific tasks.

Key Components

- Perception through sensors
- Planning using algorithms
- Execution of actions autonomously



How Agentive AI Works: The Process

Perception

Agentive AI gathers real-time data via sensors or APIs to understand its environment accurately.

Planning

Utilizes algorithms to strategize actions, anticipate challenges, and decide on optimal paths or maneuvers.

Action

Executes planned actions through physical actuators or software controls, exemplified by Tesla Autopilot navigating roads, reducing accidents by 40%.

Key Differences: Autonomy and Creativity

Generative AI

- Generates new and diverse content
- Lacks autonomous decision-making
- Output: creative data such as text and images

Agentive AI

- Acts autonomously in complex environments
- Limited capacity for original content creation
- Output: purposeful physical or software actions



Core Technologies: Generative AI

Deep Learning

Uses multi-layer neural networks to interpret data and generate complex outputs.

GANs

Employ adversarial networks competing to produce realistic synthetic data.

VAEs

Compress and reconstruct data to enable smooth generation of new variations.

Transformers

Process sequences efficiently, forming the backbone for models like GPT-4, which boasts approximately 170 trillion parameters.

Core Technologies: Agentic AI

Reinforcement Learning

Agents learn optimal actions by trial and error with feedback mechanisms.

Robotics

Integrates AI algorithms with physical machinery enabling autonomous tasks.

Planning Algorithms

Optimize sequences of actions to achieve complex goals efficiently.

Computer Vision

Interprets visual data, essential for navigation and object recognition like A3C outperforming humans in gaming.



Real-World Applications

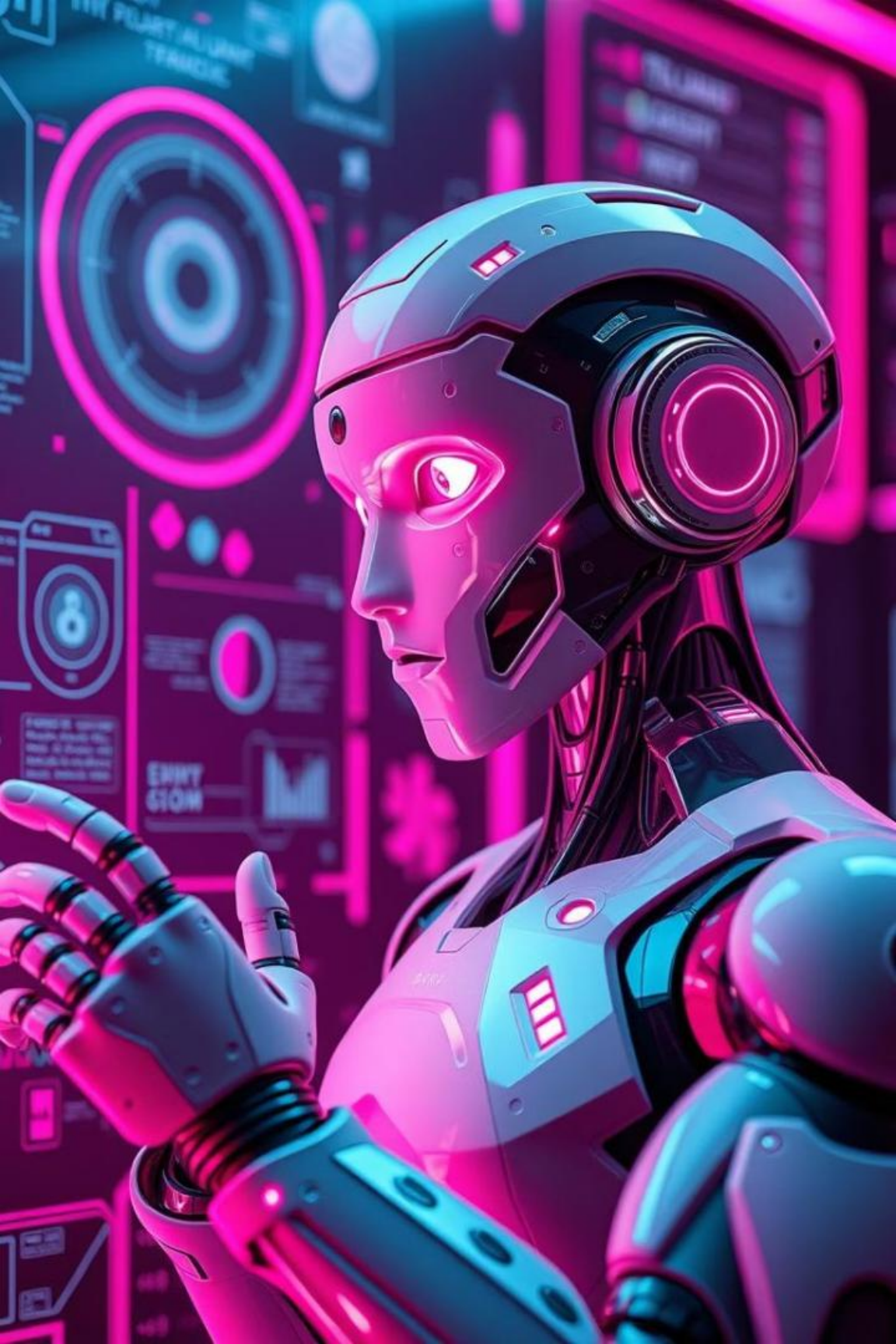
Generative AI Uses

- Creating digital art and music
- Automated content writing and code generation
- Voice synthesis and video creation

Agentive AI Uses

- Autonomous cars and drones
- Industrial robots and process optimization
- Supply chain automation and smart logistics

Gartner forecasts that by 2027, 70% of enterprises will deploy AI agents, while the AI robotics market is projected to reach 25 billion by 2030.



The Future: Convergence and Trends

1

Integration of AI Types

Combining generative creativity with autonomous decision-making to build powerful AI systems.

2

AI Co-Pilots

Assist humans in complex tasks, blending creativity with independent action capabilities.

3

Healthcare Applications

AI agents improving diagnostics and treatment planning, reducing errors by 30%.

The evolving synergy between generative and agentic AI promises more intelligent, creative, and autonomous systems that enhance productivity and innovation across all sectors.