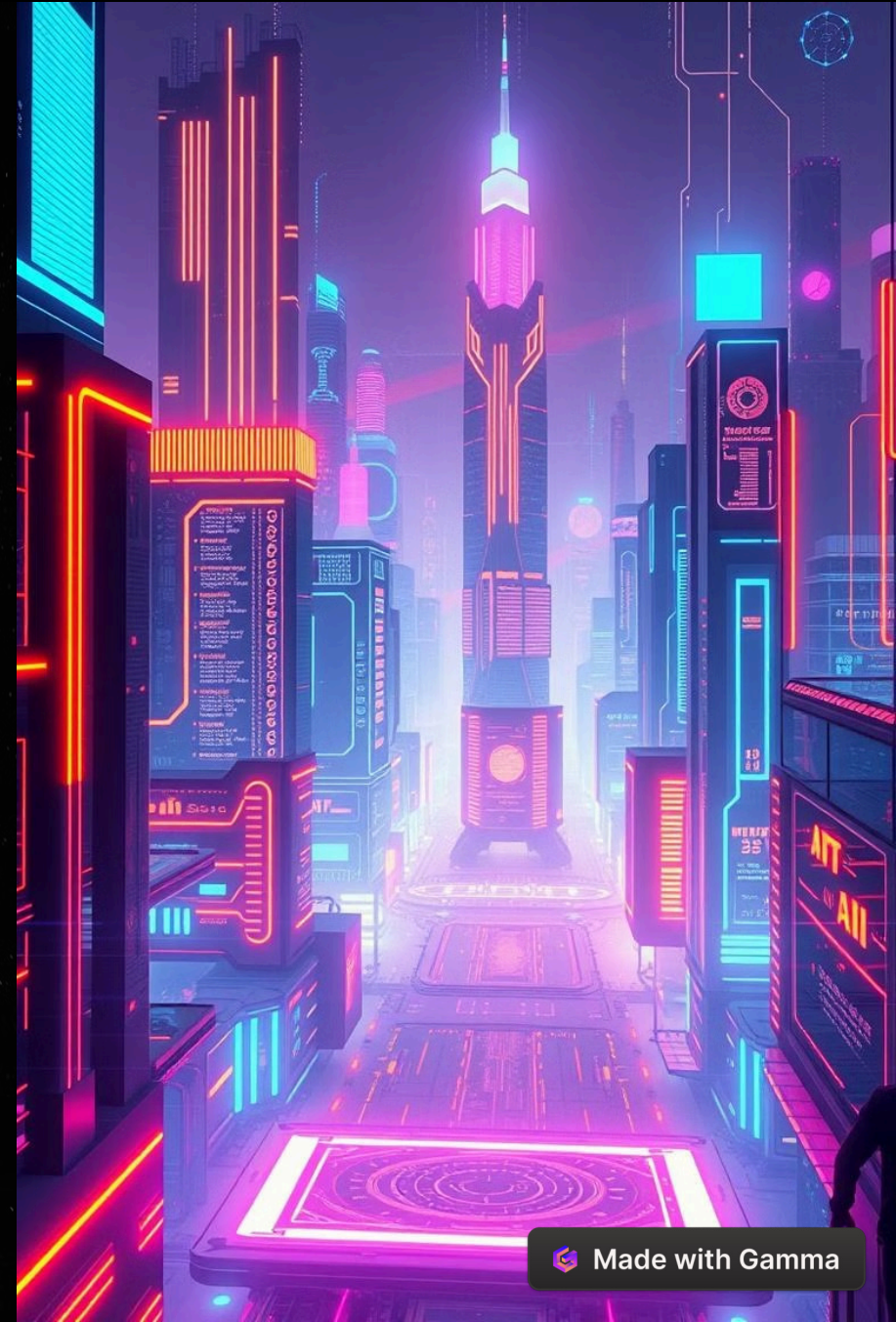


AI Applications: How Do They Work?

Artificial intelligence (AI) is rapidly transforming various aspects of our lives, from gaming and robotics to healthcare and graphics processing. This presentation will explore several key AI applications, delving into their functionalities and underlying mechanisms. We'll examine how AI algorithms are being used to solve complex problems, enhance decision-making, and create innovative solutions across diverse domains.

B by Bilal Apiev



DeepMind's MuZero: Conquering Complex Games

Learning Through Trial and Error

MuZero, developed by DeepMind, is a groundbreaking AI agent that learns to master complex games like chess, Go, and Atari without being explicitly told the rules. It achieves this through a process of trial and error, simulating possible future scenarios and refining its understanding of the game over time.

Model-Based Reinforcement Learning

Unlike its predecessor AlphaZero, MuZero doesn't require perfect knowledge of the game's environment. It learns a model of the environment from scratch, allowing it to adapt to different games and even real-world situations where the rules are unknown or constantly changing.



Yandex Rover: Revolutionizing Autonomous Exploration



Autonomous Navigation

The Yandex Rover is an autonomous delivery robot designed to navigate city streets and deliver packages to customers. It uses a combination of sensors, including cameras and lidar, to perceive its surroundings and avoid obstacles.



Real-Time Mapping

The Rover creates real-time maps of its environment, allowing it to adapt to changing conditions and plan efficient routes. It also uses machine learning algorithms to predict pedestrian and traffic behavior, ensuring safe and reliable delivery.



Last-Mile Delivery

Yandex Rover enhances last-mile delivery by navigating urban environments efficiently and autonomously. This technology can lower logistics expenses and improve delivery times, impacting industries from e-commerce to food services.



Hearts of Iron IV: AI-Driven Geopolitical Simulations

1 Strategic Decision-Making

Hearts of Iron IV is a grand strategy game that simulates World War II. The game's AI controls the actions of various nations, making strategic decisions about military deployment, resource allocation, and diplomatic relations.

2 Dynamic Alliances

The AI adapts to player actions, forming alliances and declaring war based on geopolitical considerations. It also learns from past mistakes, improving its strategies over time. This creates a dynamic and challenging gameplay experience.

3 Historical Accuracy

Hearts of Iron IV's AI is designed to reflect the historical tendencies of different nations, creating realistic and immersive simulations. However, it also allows for alternative historical scenarios, making each playthrough unique.

DeepMind Health: Transforming Medical Diagnostics

Early Detection

DeepMind Health is developing AI algorithms to improve medical diagnostics and patient care. One of its key projects involves using machine learning to detect eye diseases like diabetic retinopathy at an early stage, when treatment is most effective.

1

2

Personalized Treatment

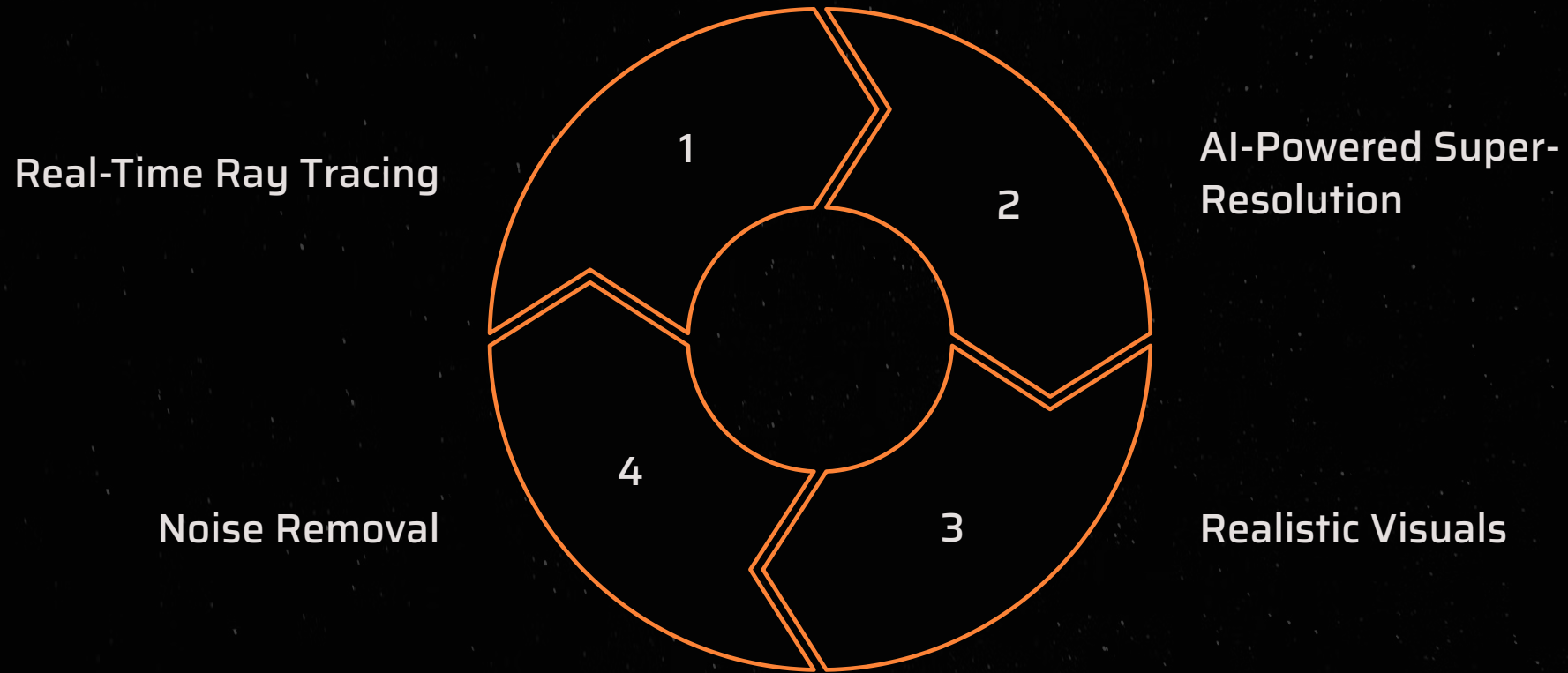
DeepMind Health's AI algorithms analyze medical images, such as retinal scans, to identify subtle signs of disease that may be missed by human doctors. This allows for faster and more accurate diagnoses, leading to personalized treatment plans.

Improving Efficiency

By automating the analysis of medical images, DeepMind Health's AI can help reduce the workload of healthcare professionals, freeing them up to focus on other important tasks. This can improve efficiency and reduce healthcare costs.

3

NVIDIA RTX AI: Enhancing Graphics and Visualization



NVIDIA RTX AI leverages the power of artificial intelligence to enhance graphics and visualization in games, design software, and other applications. RTX AI enables real-time ray tracing, creating realistic lighting and reflections. It also enables AI-powered super-resolution, enhancing image clarity while maintaining high performance. It facilitates noise removal, resulting in clearer and more refined visuals. This cycle of processes leads to exceptionally realistic and visually stunning experiences.

The Inner Workings of AI Algorithms

1

Data Collection

AI algorithms rely on vast amounts of data to learn and make predictions. This data can come from various sources, including sensors, databases, and user interactions.

2

Training

The collected data is used to train the AI algorithm, adjusting its parameters to improve its performance. This process can be computationally intensive, requiring powerful hardware and specialized software.

3

Inference

Once trained, the AI algorithm can be used to make predictions or decisions based on new data. This process is called inference and can be performed in real-time.

4

Evaluation

The performance of the AI algorithm is continuously evaluated, and its parameters are adjusted to improve its accuracy and efficiency. This iterative process ensures that the AI algorithm remains effective over time.

Real-World Applications of AI Technology

Transportation

AI is being used to develop self-driving cars, optimize traffic flow, and improve logistics and supply chain management. It will make transportation more efficient and safer.

Manufacturing

AI automates manufacturing processes, improving efficiency and reducing costs. From robotics to predictive maintenance, it's transforming how products are made.

Finance

AI is used for fraud detection, risk management, and algorithmic trading in the financial industry. It helps make informed decisions and ensures security.

Customer Service

AI-powered chatbots provide instant customer support, answering questions and resolving issues. It helps enhance customer satisfaction and streamline service delivery.



Thank You

Thank you for taking the time to explore the fascinating world of AI applications. We've covered diverse fields from gaming to healthcare, illustrating how AI algorithms are transforming industries. From DeepMind's MuZero to Yandex Rover and NVIDIA RTX AI, the possibilities are vast and constantly evolving. AI's potential to solve complex problems and improve lives is truly remarkable.



THANK YOU!!

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