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AUGMENTED REALITY



Introduction to Augmented Reality



Introduction to Augmented Reality

Definition: Augmented Reality (AR) is a technology that overlays digital information onto the real world.





Difference between AR and VR:

AR enhances the real world, while Virtual Reality (VR) creates a completely virtual environment.





How Augmented Reality Works

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How Augmented Reality Works

Essential Components:

- Hardware: Cameras (capture real-world), sensors (position and orientation), displays (present the augmented view)

- Software: Computer vision (processes and interprets real-world), Simultaneous Localization and Mapping – SLAM (algorithms for envioroment and position), Rendering Engine (generating digital content)

- Process: Capturing the real world, processing digital overlays, and displaying the combined view to the user.



Applications in Industry

Applications in Industry

Healthcare: Surgery assistance, medical training

Education: Interactive learning, virtual classrooms

Entertainment: Gaming, immersive experiences

Retail: Virtual try-ons, enhanced shopping experiences

Tourism: Interactive tours, historical reconstruction

Industry: manufacture, design



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Benefits of Augmented Reality



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Benefits of Augmented Reality

Enhanced User Experience: More engaging and interactive Increased Efficiency: Improved task performance and productivity Facilitates Learning and Training: Hands-on practice in a safe environment



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Challenges and Limitations



Challenges and Limitations

Technical Issues: Accuracy, latency

Development and Implementation Costs: High initial investment Ethical and Privacy Concerns: Data security, user consent



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Future of Augmented Reality

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Future of Augmented Reality

- Emerging Trends: More integrated AR experiences, wearable AR devices
- Technological Innovations: Improved hardware, AI integration





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THANK

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