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INTEGRATING VIRTUAL REALITY IN MANAGEMENT INFORMATION SYSTEMS

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Abstract. Ancient Chinese weapons, aesthetic and artistic yet rarely accessible, are showcased via virtual reality technology. This project uses Unity3D (with Maya for modeling) to build the "Swords, Guns, Swords, and Halberds" virtual pavilion – after defining its theme, collecting weapon data, and developing interactive functions like item rotation/zooming, video playback, and click-triggered audio introductions. Tested and optimized, the globally accessible pavilion breaks geographical and time barriers, offering engaging, educational insights into weapons' history, uses, and cultural value while preserving heritage.

Keywords: Virtual Pavilion, Swords guns swords halberds, Arms, Unity3D.

1.THE THEORETICAL FOUNDATIONS OF MANAGEMENT INFORMATION SYSTEMS AND VIRTUAL REALITY.

1.1. The Concept and Functions of Management Information Systems.

A management information system (MIS) is an integrated framework combining technology, data, and processes to support organizational decision-making and operations [1]. Its core functions include data collection, processing, storage, and presentation, converting raw data into actionable insights. MIS streamlines workflow management, resource allocation, and performance monitoring, enabling efficient coordination

across departments. It serves as a foundational tool for enterprises and institutions to enhance operational efficiency, reduce costs, and adapt to dynamic market or operational demands.

1.2. The Concept and Application Scope of Virtual Reality Technology.

Virtual reality (VR) technology creates immersive, computer-generated 3D environments that simulate real-world experiences via specialized devices. It integrates computer graphics, simulation, and human-computer interaction to enable users to interact with virtual scenes intuitively [2]. Its application scope spans multiple fields: education (simulated training), tourism (virtual travel), healthcare (surgical simulation), and cultural heritage (digital preservation). By breaking physical limitations, VR delivers immersive and interactive experiences that traditional methods cannot match.

1.3. Management Information Systems Combined with Virtual Reality Technology – Taking Virtual Exhibition Halls as an Example.

Integrating VR technology into MIS upgrades traditional information management with immersive interaction. Taking virtual exhibition halls as an example, MIS handles data management (e. g., exhibit information, visitor flow), while VR realizes intuitive presentation of content. This combination allows users to access exhibition resources via MIS and interact with virtual exhibits (rotate, zoom, listen to introductions) through VR. It optimizes information dissemination efficiency, expands audience reach beyond geographical constraints, and sets a typical model for the innovative application of MIS in cultural communication and exhibition industries [3].

2.VIRTUAL SCENE CONSTRUCTION AND INTERACTIVE FUNCTION DEVELOPMENT.

2.1. System Functional Requirements Analysis.

The system focuses on three core functional requirements: accurate presentation of ancient weapon information, immersive user interaction, and stable operation. It needs to realize data management of weapons, support multi-dimensional viewing of exhibits, and ensure smooth access across devices. Meanwhile, it should meet user demands for educational value and entertainment, laying a foundation for subsequent development.

2.2. Virtual Scene Modeling.

Based on collected weapon data and historical materials, Maya is used for 3D modeling of weapons and pavilion scenes. The modeling emphasizes restoring the appearance, texture, and details of ancient weapons, and

constructs a realistic virtual exhibition environment. The models are optimized for compatibility with Unity3D, ensuring smooth loading and display during user access.

2.3. Scene Interaction Design and Implementation.

Interactive functions are developed Unity3D, including rotating/zooming exhibits, click-triggered audio introductions, and video playback. The design adheres to simplicity and intuition, enabling users to operate easily. Technical debugging and effect optimization are conducted to ensure responsive interactions, enhancing user engagement and immersive experience in the virtual pavilion [4].

3. CHALLENGES AND PROSPECTS OF INTEGRATING VIRTUAL REALITY TECHNOLOGY IN INFORMATION SYSTEMS.

3.1. Technical and implementation challenges.

Key challenges include ensuring compatibility between VR technology and MIS, as well as optimizing model precision and operational stability [5]. High-quality 3D modeling of ancient weapons demands extensive historical research and technical expertise. Additionally, balancing immersive interaction with low-device-access thresholds and network latency issues poses practical implementation hurdles.

3.2. Industry application and development prospects.

The integration of VR and MIS has broad prospects in cultural heritage, education, and tourism. It can be extended to virtual museums, historical education scenarios, etc. Future development will focus on AI-driven intelligent guidance and cross-platform accessibility. This integration will further break geographical limitations, promoting wider dissemination of cultural resources and innovative development of related industries.

CONCLUSIONS.

This study focuses on integrating VR technology into information systems for an ancient Chinese weapons virtual pavilion. It explains core concepts of MIS and VR, clarifies their integration value, and completes functional analysis, virtual scene modeling, and interactive development via Maya and Unity3D. The study addresses technical compatibility and model optimization challenges, and outlines prospects in cultural heritage and education, offering practical references for industry digital innovation.

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MARKETING NVIDIA'S INNOVATIVE PRODUCTS: STRATEGIES DRIVING GLOBAL TECHNOLOGY ADOPTION

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Abstract. Nvidia's shift from gaming GPU maker to global AI/HPC leader, driven by tech-aligned marketing, uses ecosystem building, industry customization and data storytelling to link innovation to cross-sector customer value.

Keywords: Nvidia, product marketing, AI technology, ecosystem strategy, tech adoption, HPC, digital transformation.

1. Introduction.

The global technology landscape has witnessed Nvidia's remarkable evolution, driven by its relentless innovation in graphics processing units