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Research Paper

MEMOVERSE AI-FROM MEMORIES TO REALITY

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Abstract

MEMOVerse AI – From Memories to Reality is an Artificial Intelligence-based system designed to transform users' personal memories into meaningful digital experiences. People capture many important moments through photographs, videos, text messages, voice notes, and personal stories, but these memories often remain scattered across different devices and platforms. The proposed system brings these memories together and uses AI to organize, understand, and creatively reconstruct them.

The system allows users to upload photographs, videos, text descriptions, voice recordings, or other memory-related content. Artificial Intelligence and Natural Language Processing techniques analyze the submitted information to identify people, places, events, dates, emotions expressed in text or voice, and relationships between different memories. The system organizes these elements into a structured personal memory collection.

A key feature of MEMOVerse AI is its ability to convert memories into interactive and creative experiences. Based on the user's selected memories, the system can generate digital stories, timelines, memory albums, narrated experiences, personalized scenes, and other visual representations. Generative AI can combine textual descriptions and visual information to create an immersive representation of an important event or personal experience.

The system also allows users to explore memories through a conversational interface. Users can ask questions such as "Show my college memories," "Create a story from my trip," or "What happened during this event?" The AI retrieves relevant memories and presents them in an organized manner. Users can edit generated stories, add additional information, remove unwanted content, and control how their memories are represented.

Overall, **MEMOVerse AI** aims to provide a new way of preserving and experiencing personal memories using Artificial Intelligence. The system can be useful for individuals, families, students, travelers, and anyone interested in preserving meaningful experiences digitally. Future enhancements can include immersive virtual environments, AR/VR experiences, voice-based memory interaction, advanced multimodal generation, family memory sharing, and secure long-term memory preservation.

I. INTRODUCTION

Human memories are closely connected with important experiences, people, places, and emotions. People traditionally preserve these experiences through photographs, videos, diaries, letters, messages, and social media posts. As the amount of digital content continues to increase, personal memories are often distributed across different applications and devices, making it difficult to organize and revisit them as a complete story.

Traditional photo galleries and cloud-storage applications mainly store digital files. They allow users to search using filenames, dates, albums, or basic tags, but they usually do not understand the deeper context of a memory. For example, a collection of photographs from a college trip may contain valuable memories, but the user may still need to manually organize the photographs and remember what happened during the event.

Artificial Intelligence provides new possibilities for understanding multimedia information. Computer Vision can identify visual objects and scenes, while Natural Language Processing can understand descriptions, messages, and stories. Speech-processing technologies can convert voice recordings into text. By combining these technologies, an AI system can connect different pieces of information and create a richer representation of a user's memories.

MEMOVerse AI is designed to transform stored memories into meaningful digital experiences. Users can provide photographs, videos, voice notes, or text descriptions, and the system analyzes the content to identify important details. It can then organize related memories and generate stories, timelines, albums, summaries, or interactive experiences based on the user's requirements.

The system is designed with user control and privacy in mind because personal memories can contain sensitive information. Users should be able to decide which content is uploaded, which memories are processed, and whether memories are shared. The objective is not to alter real historical events or create false memories, but to provide creative and organized representations based on information supplied by the user.

II. LITERATURE SURVEY

Traditional digital-memory systems primarily focus on storing and organizing photographs, videos, documents, and other personal files. Gallery applications and cloud-storage platforms provide features such as albums, timestamps, search, and automatic categorization. These systems make digital content easier to access but generally provide limited understanding of the personal context associated with a memory.

Computer Vision research has enabled systems to recognize objects, faces, scenes, locations, and activities in images and videos. Image classification, object detection, facial recognition, and scene understanding can provide useful information for organizing multimedia memories. However, visual recognition alone may not fully explain the personal meaning or context behind an event.

Natural Language Processing has been widely applied to text summarization, sentiment analysis, information extraction, and conversational systems. These techniques can analyze diary entries, messages, captions, and personal descriptions to identify events, entities, emotions, and important details. Such capabilities can help create structured representations of memories from unstructured textual information.

Speech-processing technologies have also improved the ability of systems to understand voice recordings. Automatic speech recognition can convert spoken memories into text, while language models can summarize and organize the resulting content. Combining speech processing with image and text analysis creates opportunities for building multimodal personal-memory systems.

Recent advances in **Generative AI and multimodal models** allow systems to work with multiple forms of information and generate text, images, audio, and other creative outputs. These technologies can be used to create personalized stories, visual narratives, captions, timelines, and interactive experiences. However, generated content can introduce information that was not present in the original memory, so systems need clear controls to distinguish source memories from AI-generated creative content.

Existing research demonstrates that AI can improve personal information organization and multimedia interaction, but challenges remain in maintaining context, protecting privacy, preventing fabricated details, and providing meaningful personalization. The proposed **MEMOVerse AI** addresses these challenges by combining multimodal memory processing, semantic organization, retrieval, Generative AI, interactive storytelling, and user-controlled memory management into one platform.

III. SYSTEM ANALYSIS

System Analysis

MEMOVerse AI is designed to collect, organize, understand, and creatively present personal memories using Artificial Intelligence. The user first uploads photographs, videos, voice notes, text descriptions, or other memory-related content through the application interface. The input-processing module validates and organizes the submitted files. Computer Vision analyzes visual content and identifies relevant objects, scenes, locations, and events where appropriate. Speech recognition converts voice recordings into searchable text. NLP techniques analyze text and transcribed speech to identify people, places, dates, events, emotions, and important concepts. A memory-linking engine connects related content based on semantic similarity, time, context, and user-provided information. The system stores structured memory information in a secure memory database. A retrieval engine finds relevant memories when the user searches or asks questions. The Generative AI module converts selected memories into stories, timelines, albums, summaries, or creative experiences. Users can review and edit generated content before saving it. Finally, the system presents the reconstructed memory through an interactive memory dashboard while maintaining clear separation between original user content and AI-generated material.

Existing System

Existing personal-memory systems mainly consist of photo galleries, cloud-storage platforms, social media archives, digital diaries, and messaging applications. These platforms allow users to store photographs, videos, documents, and text-based memories in different locations. Search functionality is usually based on dates, filenames, folders, tags, or basic image recognition. Users often need to manually create albums and organize related content. Digital galleries may recognize objects or locations but generally have limited understanding of the personal story behind an event. Voice notes and text messages may remain separate from photographs and videos. Users may therefore need to search multiple applications to reconstruct a complete memory. Traditional systems mainly focus on preservation rather than transforming memories into interactive experiences. They rarely provide AI-generated narratives based on multiple sources of personal information. Creating detailed memory albums, stories, or timelines can require significant manual effort. Sharing memories may also involve moving content between different applications. As a result, existing systems provide effective storage but limited intelligent understanding and creative reconstruction of personal memories.

Disadvantages of Existing System

- Memories are often scattered across multiple platforms.
- Limited understanding of the context behind personal memories.
- Users may need to organize albums manually.
- Basic search may depend on dates, filenames, or tags.
- Text, audio, images, and videos are often handled separately.
- Limited semantic linking between related memories.
- Creating personal stories requires manual effort.
- Limited interactive memory exploration.
- Traditional systems mainly focus on storage rather than experience.
- Limited conversational access to personal memories.
- AI-generated storytelling is not commonly integrated with memory management.
- Privacy and user-control requirements can be difficult to manage across multiple services.

Proposed System

The proposed **MEMOVerse AI** integrates multimodal Artificial Intelligence to transform personal memories into organized and interactive digital experiences. Users can upload photographs, videos, voice notes, text descriptions, and other selected memory content through a single platform. The system processes each input using appropriate AI technologies such as Computer Vision, Speech Recognition, and Natural Language Processing. Important information such as events, dates, locations, people, objects, and textual context is extracted from the content. A semantic memory engine connects related items and organizes them into meaningful memory groups. The system creates a searchable personal memory repository while maintaining user-defined privacy controls. A retrieval engine allows users to find memories using natural-language queries rather than only filenames or dates. Generative AI can create personalized stories, timelines, captions, summaries, memory albums, and other representations from selected source memories. Users can review generated content and correct or remove information before saving it. The system clearly distinguishes

original memory content from AI-generated creative elements. Finally, users can explore their memories through an interactive dashboard and optionally export or share selected experiences according to their permissions.

Advantages of Proposed System

- Combines images, videos, audio, and text memories in one platform.
- Automatically organizes memories using AI.
- Provides semantic search using natural language.
- Connects related memories across different media types.
- Generates personalized memory stories and timelines.
- Creates interactive digital memory experiences.
- Supports voice-based memory input.
- Provides AI-generated summaries and captions.
- Reduces manual album and story creation effort.
- Allows users to edit and control generated content.
- Provides privacy and user-controlled memory sharing.
- Makes revisiting personal experiences more engaging.

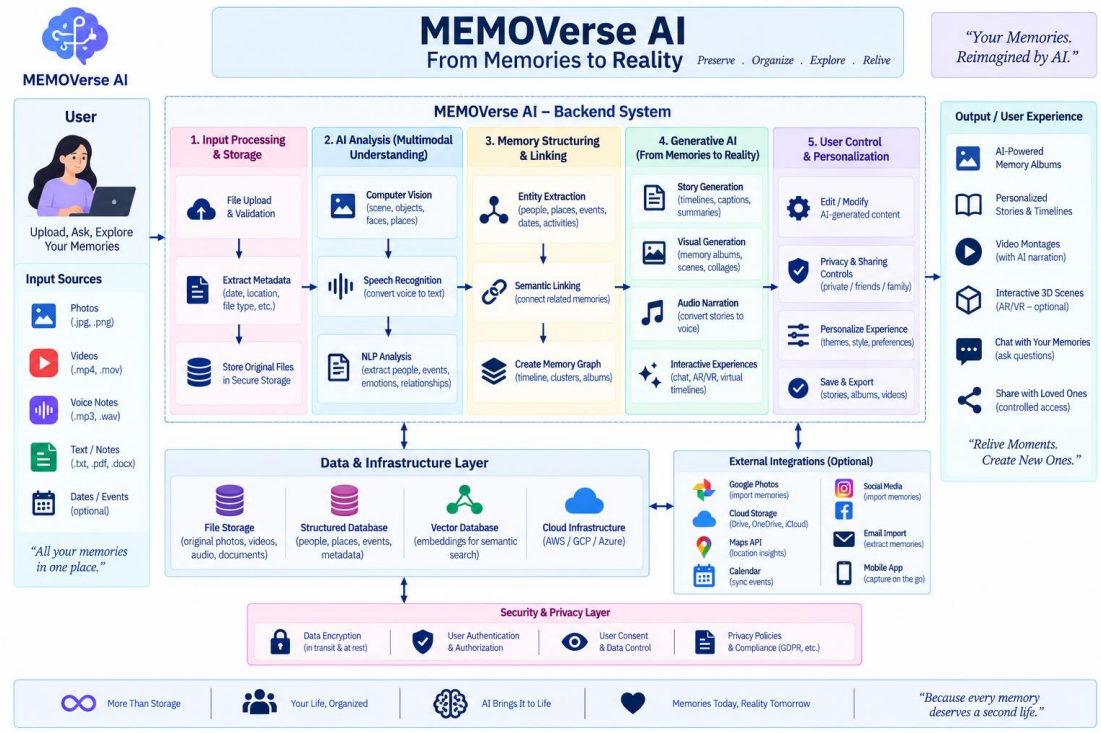
IV. METHODOLOGY

The methodology begins when the user uploads selected photographs, videos, voice notes, or text descriptions to the MEMOVerse AI platform. The system first validates the uploaded content and extracts basic metadata such as file type, date, and available information. Computer Vision techniques analyze images and videos to identify relevant visual elements, scenes, and objects. Speech Recognition converts voice recordings into text for further analysis. NLP techniques process text and transcriptions to extract events, people, places, dates, emotions, and important concepts. A multimodal embedding module represents different types of memory content in a searchable semantic format. The memory-linking engine connects related content using semantic similarity, timestamps, contextual information, and user-provided details. The structured information is stored in a secure personal memory repository. When the user submits a query, the retrieval engine identifies the most relevant memories. Generative AI uses the retrieved memories to create stories, timelines, summaries, captions, or other requested experiences. The user reviews the generated output and can edit, regenerate, or remove unwanted information. Finally, the approved memory experience is displayed or exported according to the user's selected privacy and sharing settings.

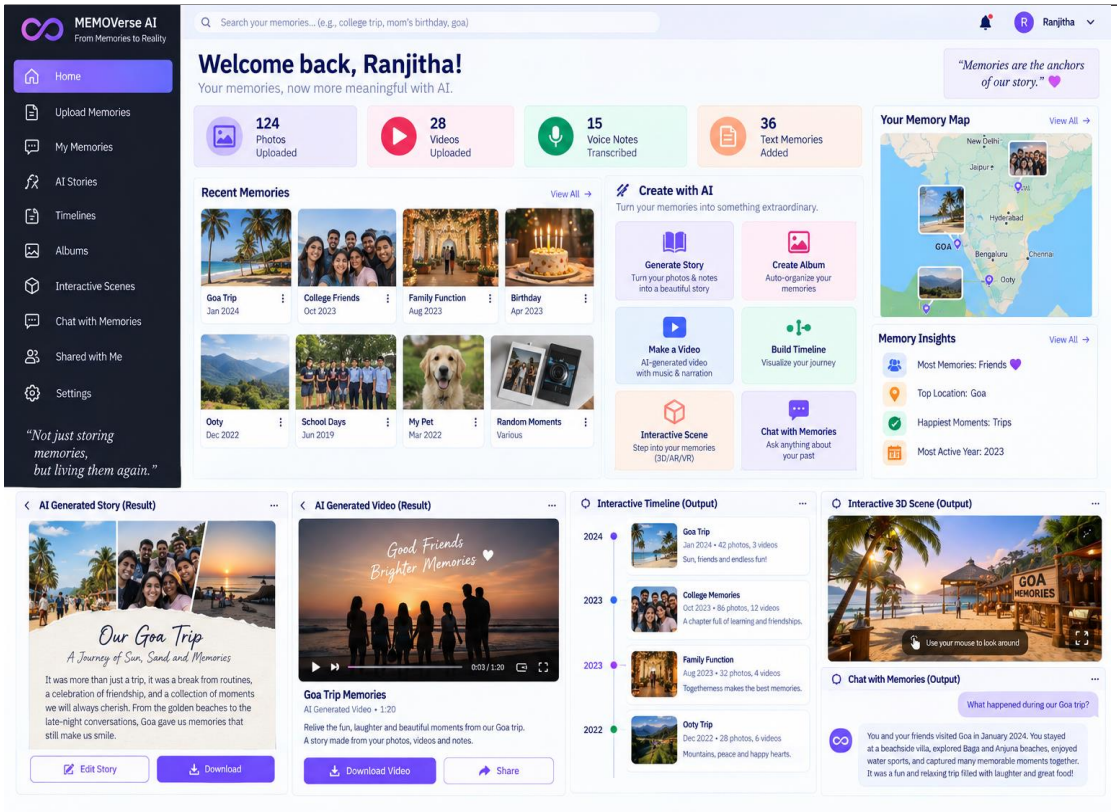
SYSTEM ARCHITECTURE

The MEMOVerse AI architecture consists of several interconnected modules that process different forms of personal memory and transform them into interactive experiences. The User Interface allows users to upload images, videos, voice notes, and text memories. The Input Processing Layer validates files and extracts available metadata. The Computer Vision Module analyzes images and videos for relevant visual information. The Speech Recognition Module converts voice memories into text. The NLP and Semantic Analysis Module extracts events, entities, dates, locations, emotions, and important concepts. The Multimodal Embedding Module creates unified representations for different types of memory content. The Memory Linking Engine connects related memories using semantic, temporal, and contextual relationships. The

Secure Memory Repository stores structured memory information and original content according to user permissions. The Memory Retrieval Engine retrieves relevant memories based on natural-language queries. The Generative AI Engine transforms selected memories into stories, timelines, summaries, albums, and creative experiences. The User Review and Privacy Layer allows users to edit generated content and control sharing. Finally, the MEMOVerse Dashboard presents the resulting personalized memory experience.



V. RESULT AND OUTPUT



VI. CONCLUSION

The MEMOVerse AI – From Memories to Reality system provides an innovative approach to preserving, organizing, and experiencing personal memories using Artificial Intelligence. Instead of simply storing photographs, videos, voice notes, and text, the system brings different forms of memory content together and converts them into meaningful digital experiences.

By combining Computer Vision, Speech Recognition, Natural Language Processing, multimodal AI, semantic search, and Generative AI, the system can analyze different types of user-provided memories and identify important events, people, places, dates, and relationships. These capabilities allow related memories to be automatically organized and retrieved through natural-language queries.

The system can generate personalized stories, albums, timelines, narrated videos, captions, summaries, and interactive memory experiences from selected memories. Users can review, edit, regenerate, save, and share the generated content according to their preferences. The system also provides privacy and sharing controls so that users can maintain control over their personal memories.

Overall, MEMOVerse AI transforms traditional digital memory storage into an interactive and personalized experience. It can be useful for individuals, families, students, travelers, and anyone who wants to preserve meaningful experiences in a creative way. Future enhancements can include AR/VR memory experiences, AI avatars, voice-based conversations, advanced video generation, wearable-device integration, family memory collaboration, and secure long-term memory preservation.

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