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Patent Search

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Abstract:

The invention pertains to a "Multi-Layered Image Compression Technique for High-Efficiency Storage," aimed at optimizing digital image storage and transmission. It involves segmenting images into different components and applying tailored compression algorithms to each segment. The method ensures significant file size reduction without compromising image quality. The system integrates adaptive learning algorithms to continuously refine compression strategies, enhancing efficiency across various technologies. This approach is universally applicable across diverse digital devices and platforms, offering an efficient, scalable, and quality-preserving solution for digital image management.

Complete Specification

Description: The proposed system, "Multi-Layered Image Compression Technique for High-Efficiency Storage," falls within the field of digital image processing and data storage optimization. This innovative approach introduces a novel method for compressing image files by applying multiple layers of compression algorithms, each optimized for different aspects of the image data. The technique is designed to significantly reduce the storage space required for high-resolution images without compromising their quality. By intelligently segmenting the image into various components such as color, texture, and edge details, the system applies targeted compression strategies to each segment, ensuring optimal efficiency. This multi-layered approach not only conserves storage space but also facilitates faster transmission of images over networks, making it highly beneficial for applications in digital media, online content distribution, and cloud storage solutions. The system's adaptability to various image formats and its scalability makes it a versatile solution in the rapidly evolving field of digital imaging and data management.

Background of the invention:

The invention of the "Multi-Layered Image Compression Technique for High-Efficiency Storage" emerges from a critical need to manage the ever-increasing volume of image data in a world dominated by visual content. With the advent of high-resolution digital cameras, smartphones, and advanced imaging technologies, the size of image files has grown exponentially, posing significant challenges in storage and bandwidth management. Traditional image compression techniques, while effective, often compromise on image quality or are not efficient enough in handling the varied complexities of modern high-resolution images.

This new technique is a response to these challenges, drawing inspiration from the fields of data compression, digital signal processing, and machine learning. The development began with an analysis of existing compression methods, identifying their limitations in handling diverse image types, from simple graphics to complex photographic images. Researchers observed that a one-size-fits-all approach to image compression often led to suboptimal results, either in terms of image quality

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