

Data Adaptive Compression and Encryption with Minimal Loss of Data and Enhanced Transmission Speed

Technology:

Currently, there are two main methods for compressing digital data files to minimize storage, handling and transmission speed. In lossy compression, certain (especially redundant) information is permanently deleted to reduce the file; upon decompression, only the retained information remains. Lossy compression is often used for audio/video/image files (e.g., JPEG files) where some loss of the original information is not detected by most users. In contrast, in lossless compression, all data in the file is retained after compression and subsequent decompression. This approach is often used for text or spreadsheet files where losing any data may be problematic, however, transmission velocity is hindered due to the large file sizes.

The inventor has developed a novel method of encoding data that can be used with either approach to enhance compression/decompression, thereby reducing size of digital files and increasing transmission speed without sacrificing the amount of data stored. Digital files processed by the NSU method had a compression ratio approximately two to four times higher than JPEG files but with minimal loss of data. The method also allows for parallel processing which greatly reduces compression/decompression time. By using this approach, data is stored using less memory, processed in a shorter time, and complete recovery is achieved. Further, the data can be encrypted and subsequently decrypted at the decompression stage, ensuring data security.

Opportunity:

Modulating and encoding data to increase transmission velocity without sacrificing information is beneficial to any data-intensive technology (e.g., medical imaging, geographic information systems) that requires real-time access to high quality data. In addition, the encrypting capabilities allow for data security; for example, a unique encryption algorithm can be assigned to each user to access certain information managed by the administrator.

Nova Southeastern University is seeking to develop collaborative partnerships and licensing opportunities for this technology.

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