ERROR-RESILIENT LZ'77 DATA COMPRESSION

BACKGROUND: Source coding and channel coding are two opposing forces that present significant challenges in error-resilient adaptive lossless data compression. Source coding tries to decorrelate the input sequence as much as possible by removing redundant information, while channel coding introduces additional correlation by adding the information in order to protect against errors. Due to their devastating effects, errors in adaptive data compression have been a long-standing open problem. As a result, the non-resilience of adaptive data compression has hindered its use in many applications. However, joint source-channel coding has emerged as a possible solution to the problem.

DESCRIPTION: Scientists at the University of California have developed a novel joint source- coding algorithm capable of correcting errors in the popular Lempel-Ziv'77 scheme without losing any practical compression power.

APPLICATIONS: This new UC invention has applications in adaptive data compression.

ADVANTAGES: The new UC technology provides the following benefits:

- Corrects errors without loss of compression power;
- Is "backward-compatible", in that a file compressed with this scheme can still be
- Can be deployed gradually over existing LZ'77 communication channels without disrupting service.