

Title: Compression and Information

Marek Rychlik

Abstract:

Compression has as its purpose transforming digitally stored data to a more compact and thus more manageable format. Without compression digital, high-definition television or cellular telephony would not be possible. The compression transformation must be either completely invertible (lossless compression) or must preserve only essential information (lossy compression). Several mathematical disciplines are a basis of compression algorithms, including probability theory, Fourier theory, information theory, geometry and others. This series of lectures is designed to provide an overview of the field. Short programs written predominantly in MATLAB will be used as an illustration.