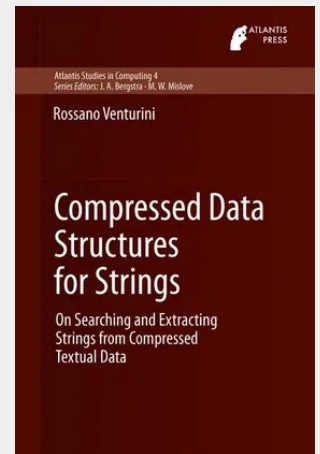


Compressed Data Structures for Strings

On Searching and Extracting Strings from Compressed Textual Data

Data compression is mandatory to manage massive datasets, indexing is fundamental to query them. However, their goals appear as counterposed: the former aims at minimizing data redundancies, whereas the latter augments the dataset with auxiliary information to speed up the query resolution. In this monograph we introduce solutions that overcome this dichotomy. We start by presenting the use of optimization techniques to improve the compression of classical data compression algorithms, then we move to the design of compressed data structures providing fast random access or efficient pattern matching queries on the compressed dataset. These theoretical studies are supported by experimental evidences of their impact in practical scenarios.

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