

Compact Data Structures

A Practical Approach

Compact data structures help represent data in reduced space while allowing querying, navigating, and operating it in compressed form. They are essential tools for efficiently handling massive amounts of data by exploiting the memory hierarchy. They also reduce the resources needed in distributed deployments and make better use of the limited memory in low-end devices.

The field has developed rapidly, reaching a level of maturity that allows practitioners and researchers in application areas to benefit from the use of compact data structures. This first comprehensive book on the topic focuses on the structures that are most relevant for practical use. Readers will learn how the structures work, how to choose the right ones for their application scenario, and how to implement them. Researchers and students in the area will find in the book a definitive guide to the state of the art in compact data structures.

Gonzalo Navarro is Professor of Computer Science at the University of Chile. He has worked for 20 years on the relation between compression and data structures. He has directed or participated in numerous large projects on web research, information retrieval, compressed data structures, and bioinformatics. He is the Editor in Chief of the *ACM Journal of Experimental Algorithmics* and also a member of the editorial board of the journals *Information Retrieval* and *Information Systems*. His publications include the book *Flexible Pattern Matching in Strings* (with M. Raffinot), 20 book chapters, more than 100 journal papers and 200 conference papers; he has also chaired eight international conferences.