

Abstract:

Burrows-Wheeler transform (BWT) was proposed in 1994 as a means to perform lossless compression on text strings. Soon after that, Ferragina and Manzini (FOCS'00; JACM'05) discovered the string matching power of BWT, and this result, together with independent work by Grossi and Vitter (STOC'00; SICOMP'07) and by Sadakane (ISAAC'00; JALG'03), subsequently started the field of compressed text indexing. Nowadays, BWT gains much popularity in bioinformatics areas, for a couple of famous applications such as BWA, Bowtie, and SOAP2, use BWT as the core in their design.

In this talk, we will give an introduction of BWT and some of its variants, and show how they work, and how they can be used to derive interesting results, both in theory and in practice. No background knowledge is required.