

Streaming k -edit approximate pattern matching via string decomposition

Tuesday, July 11, 2023 3:55 PM (20 minutes)

Sudatta Bhattacharya and Michal Koucky

Abstract: In this paper we give an algorithm for streaming k -edit approximate pattern matching which uses space $\tilde{O}(k^2)$ and time $\tilde{O}(k^3)$ per arriving symbol. This improves substantially on the recent algorithm of Kociumaka, Porat and Starikovskaya (2021) which uses space $\tilde{O}(k^5)$ and time $\tilde{O}(k^8)$ per arriving symbol. In the k -edit approximate pattern matching problem we get a pattern P and text T and we want to identify all substrings of the text T that are at edit distance at most k from P . In the streaming version of this problem both the pattern and the text arrive in a streaming fashion symbol by symbol and after each symbol of the text we need to report whether there is a current suffix of the text with edit distance at most k from P . We measure the total space needed by the algorithm and time needed per arriving symbol.

Presenter: KOUCKY, Michal

Session Classification: Track A-4