

1145-68-1998

Vladimir Braverman, Stephen R Chestnut, Nikita Ivkin, Jelani Nelson*
(minilek@seas.harvard.edu), **Zhengyu Wang** and **David P Woodruff**. *BPTree: an l_2 heavy hitters algorithm using constant memory.*

In the frequent items problem one sees a sequence of items in a stream (e.g. a stream of words coming into a search query engine like Google) and wants to report a small list of items containing all frequent items. We would like algorithms for this problem that use memory substantially sublinear in the length of the stream.

In this talk we describe a new state-of-the-art solution to this problem, called the BPTree. We make use of chaining methods to control the suprema of Rademacher processes to develop this new algorithm which has provably near-optimal memory consumption for the l_2 heavy hitters problem, improving upon the CountSieve and CountSketch from previous work.

Based on joint work with Vladimir Braverman, Stephen Chestnut, Nikita Ivkin, Zhengyu Wang, and David P. Woodruff (Received September 24, 2018)