## Next Steps: Streaming

Approximate top singular vector in the row arrival model

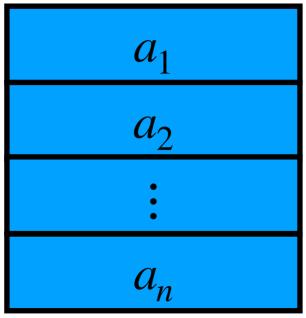
Smaller space since a weaker model

• [Price '23] shows that if  $\sigma_1(A)/\sigma_2(A) \leq O(1)$ , then need  $\Omega(d^2)$  space to approximate top singular vector

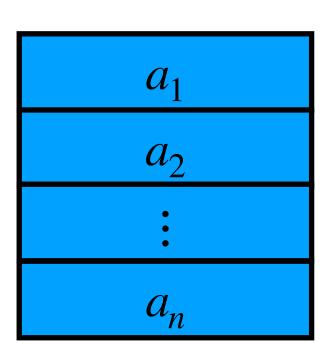
• Price also shows that if  $\sigma_1(A)/\sigma_2(A) \ge C\sqrt{\log n \cdot \log d}$ , then can approximate top singular vector in O(d) space

Relax the gap assumption?

ullet Random order or some conditions on A to obtain better algorithms?



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## Query lower bounds for LRA

with David Woodruff [NeurlPS '23]