Efficient Linear Sketching

- CountSketch [CW'13] can be applied to a matrix A in $\text{nnz}(A)$ time

- Ahle et al., '20 give a sketch S that can be applied to $(A^{\otimes p})^{\mathsf{T}}$ to obtain $S(A^{\otimes p})^{\mathsf{T}}$ in $O(p \cdot \text{nnz}(A))$ time

- Large parts of my work:

  - Properties of sketches that we need to solve a problem

  - Constructing sketches that can be applied quickly to the input

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Roadmap

- PolySketchFormer : Theory + Practice (~25 min)

- Fast Streaming Algorithms : Theory (~10 min)