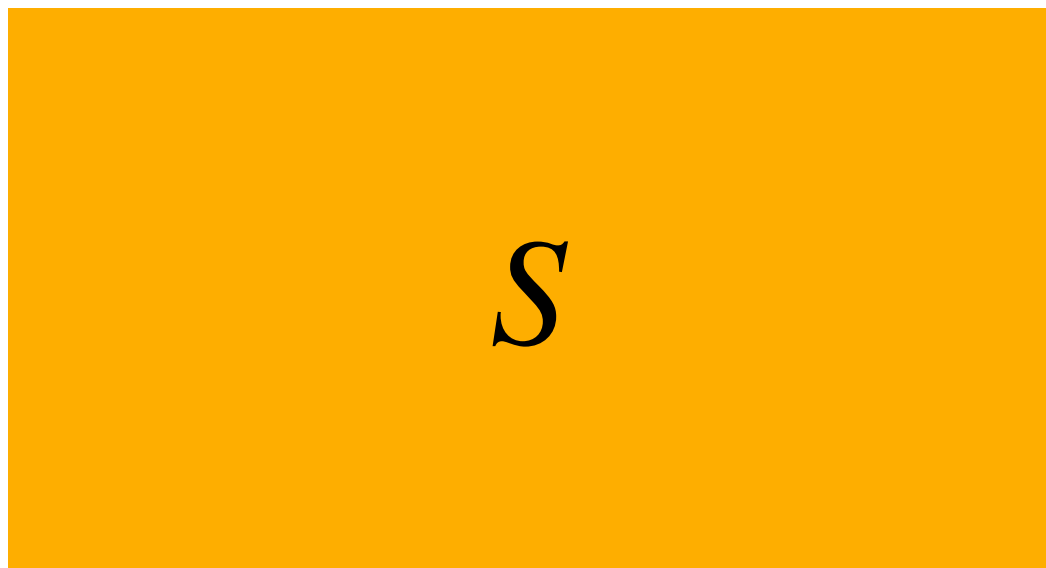


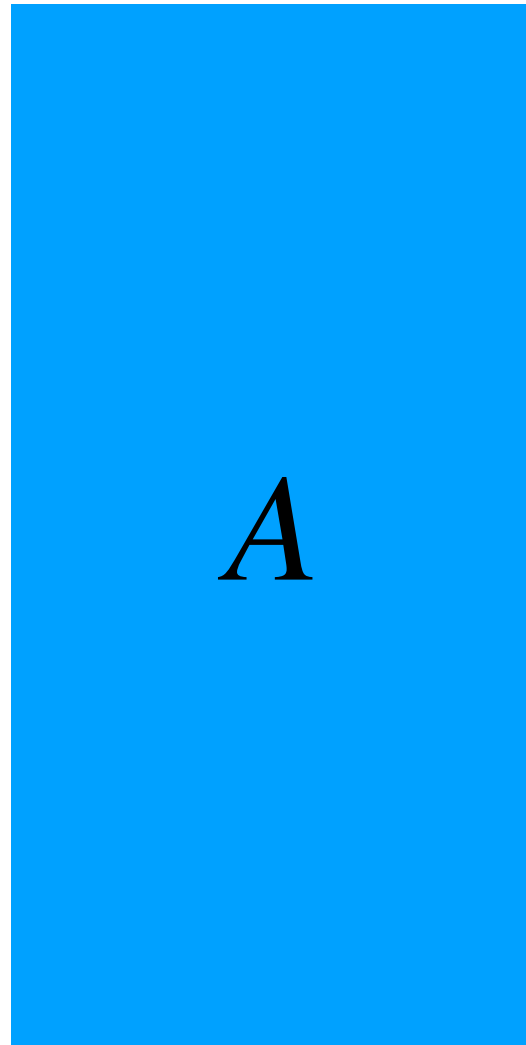
Linear Sketching

• Apply randomized linear transform

- CountSketch [Clarkson, Woodruff '13], OSNAP [Nelson, Nguyen '13], SRHT [Tropp '10], ...



\times



$=$



Sketching Matrix

- *S* consolidates necessary information in *A* into the “sketch”



Linear Sketching

- Apply a randomized linear transform
 - CountSketch [Clarkson, Woodruff '13], OSNAP [Nelson, Nguyen '13], SRHT [Tropp '10], ...

$$\begin{array}{c} \text{Sketching Matrix} \nearrow \\ \boxed{S} \end{array} \times \boxed{A} = \boxed{\text{sk}(A)}$$

- S consolidates necessary information in A into the “sketch”

Efficient Linear Sketching