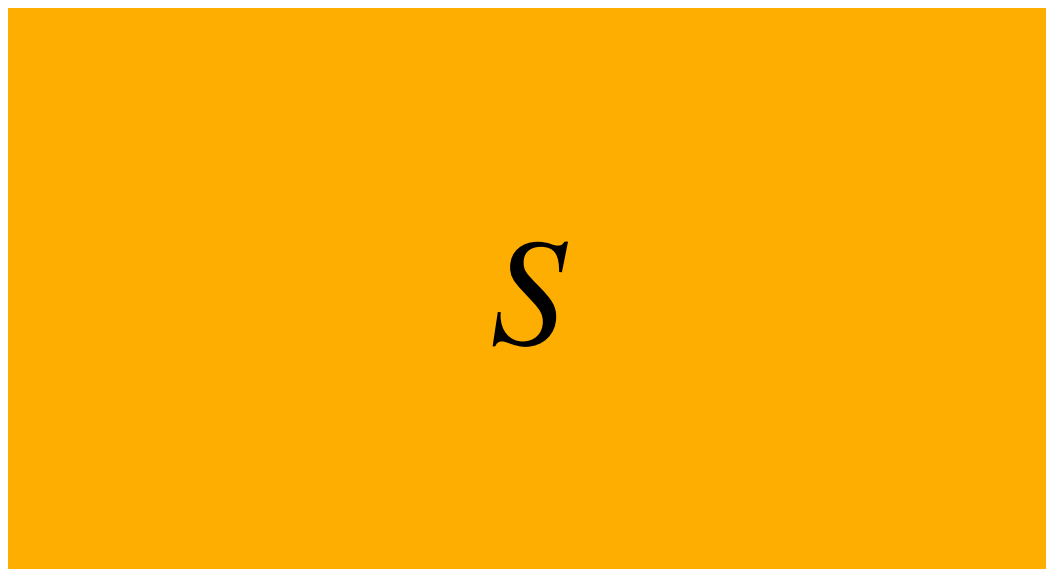


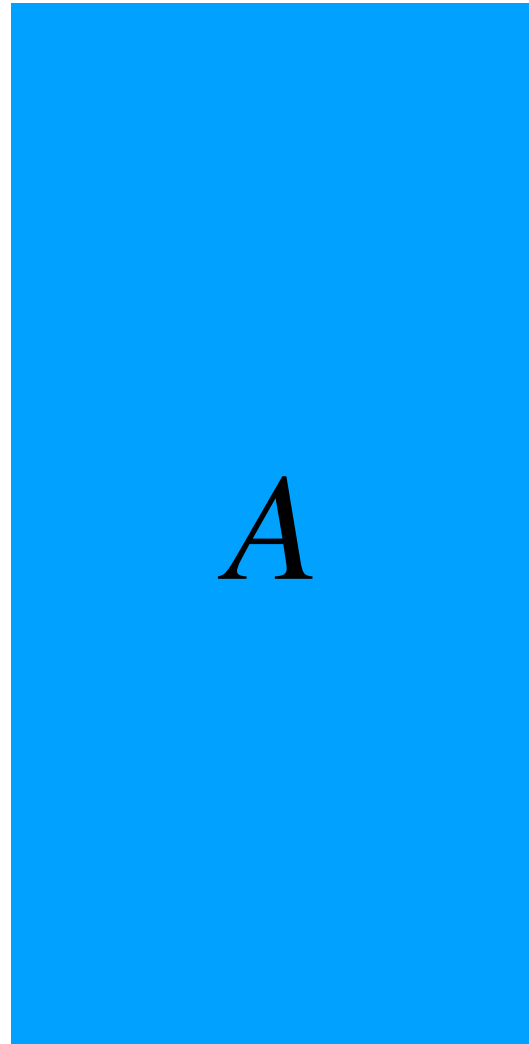
A Major Technique: Linear Sketching

• Apply randomized linear transform

- CountSketch [Clarkson and Woodruff '13], OSNAP [Nelson and Nguyen '13], SRHT [Tropp '10, Ailon and Chazelle '06], ...



\times



$=$



Sketching Matrix

- S consolidates information into the “sketch”



A Major Technique: Linear Sketching

- Apply a randomized linear transform
 - CountSketch [Clarkson and Woodruff '13], OSNAP [Nelson and Nguyen '13], SRHT [Tropp '10, Ailon and Chazelle '06], ...

$$\begin{array}{c} \text{Sketching Matrix} \nearrow \\ \text{Yellow Box } S \end{array} \times \begin{array}{c} \text{Blue Box } A \end{array} = \begin{array}{c} \text{Pink Box } \text{sk}(A) \end{array}$$

- S consolidates information into the "sketch"

How is Sketching Useful?

Distributed Setting

