Georgetown University

Refresher: Linear Algebra

First, why is this important?

By convention, we typically represent data as a matrix of values

- Columns correspond to features
- Rows correspond to observations of those features

$$D = \begin{bmatrix} x_{1,1} & \cdots & x_{1,N} \\ \vdots & \ddots & \vdots \\ x_{M,1} & \cdots & x_{M,N} \end{bmatrix}$$

where $x_{i,j}$ represents j^{th} feature value of i^{th} observation

N = number of features

M = number of observations

- Linear algebra underpins much of language modeling with neural networks, topic modeling, LSA, etc...