**NLP with Deep Learning**

Word embedding:

A way to represent words in a meaningful way.

* Adjacent matrix + SVD - Each vector that represents a word will be in the size of the entire vocabulary. The value of each cell will be the amount of times the respective word was in the same window that is centered at the represented word.

This approach captures context but very high dimensional. To reduce dimensionality, we can use SVD.

* Word2vec – embed a word by trying to learn to predict its surrounding words:

A close up of text on a white background

Description automatically generated

A screenshot of a cell phone

Description automatically generated

* A picture containing text

  Description automatically generatedGloVe (global vectors):

Pi,j is the probabily of word i and j to be adjacent. Wi wj is the words’ embeddings.

This approach enables arithmetic between words: king – man + woman = queen.

Adding a word vector another vector would lead to a new meaning. Applying the same on another word will cause similar logical action on the new word.