



## Item Navigation

# Vocabulary & Feature Extraction

Given a tweet, or some text, you can represent it as a vector of dimension  $V$ , where  $V$  corresponds to your vocabulary size. If you had the tweet "I am happy because I am learning NLP", then you would put a 1 in the corresponding index for any word in the tweet, and a 0 otherwise.

I am happy because I am learning NLP



$$[\theta_0, \theta_1, \theta_2, \dots, \theta_n] \longrightarrow \begin{cases} 1. \text{ Large training time} \\ 2. \text{ Large prediction time} \end{cases}$$

$n = |V|$

As you can see, as  $V$  gets larger, the vector becomes more sparse. Furthermore, we end up having many more features and end up training  $\theta V$  parameters. This could result in larger training time, and large prediction time.

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