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## **Lecture: Machine Translation**

- Video: Week Introduction 46 sec
- Video: Overview 1 min
- **Video:** Transforming word vectors 7 min
- **Reading:** Transforming word vectors 10 min
- Lab: Rotation matrices in R2 1h
- Video: K-nearest neighbors 3 min
- Reading: K-nearest neighbors 10 min
- Video: Hash tables and hash functions 3 min
- Reading: Hash tables and hash functions 10 min
- **Video:** Locality sensitive hashing 5 min
- **Reading:** Locality sensitive hashing 10 min
- Video: Multiple Planes
- **Reading:** Multiple Planes 10 min
- **Lab:** Hash tables 1h

( ) Video: Approximate

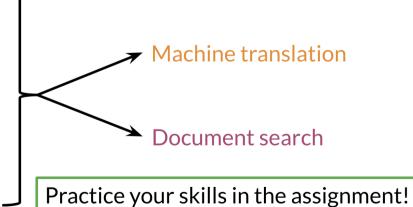
## Searching documents

The previous video shows you a toy example of how you can actually represent a document as a vector.

```
word_embedding = {"I": np.array([1,0,1]),
                  "love": np.array([-1,0,1]),
                  "learning": np.array([1,0,1])}
words_in_document = ['I', 'love', 'learning']
document embedding = np.array([0,0,0])
for word in words in document:
    document embedding += word embedding.get(word,0)
print(document embedding)
array([1 0 3])
```

In this example, you just add the word vectors of a document to get the document vector. So in summary you should now be familiar with the following concepts:

- Transform vector
- "K nearest neighbors"
- Hash tables
- Divide vector space into regions
- Locality sensitive hashing
- Approximated nearest neighbors



Good luck with the programming assignment!

