Notes on Dense Representations by Nils Reimers

compiled by D. Gueorguiev, 6/7/2025

Dense Representation Definition

Formally,

dimensional representation (embedding)

Find such function f with which the *semantically similar* text is close with respect to the Euclidean metric

What does *semantically similar* mean and what it depends on?

Universal text representations do not exist. Text representations depend on the context and task.

Example 1: *Nuclear energy is safe* *Nuclear energy is dangerous*

Example 2:

S1: Heidi Klum is pregnant

S2: Heidi Klum is a model S3: Naomi Campbell is pregnant

Applications:

Clustering:

A graph showing a diagram

Description automatically generated with medium confidence

The blue points represent text corpora on the same topic, green are another set of text corpora on the same topic but different than that of the blue ones, and finally the orange dots represent text corpora on a third topic.

# References

[1] [Introduction to Dense Text Representations - Part 1, Nils Reimers, Jun 21, 2021](https://youtu.be/qmN1fJ7Fdmo?si=UDxDVSawWsnH56qJ)

[2] [Introduction to Dense Text Representations - Part 2, Nils Reimers, Jun 21, 2021](https://youtu.be/0RV-q0--NLs?si=8cktLBFigHlNZzi-)

[3] [Introduction to Dense Text Representation - Part 3, Nils Reimers, Jun 21, 2021](https://youtu.be/t4Gf4LruVZ4?si=C2fjB45Vsye0t97p)