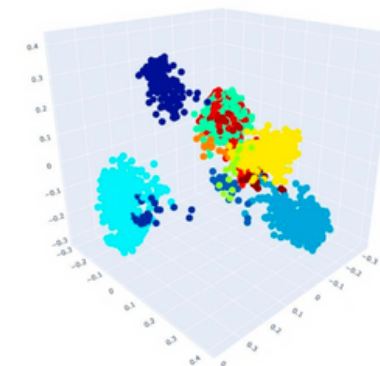


Some application fields

- Machine translation
- Image search and retrieval
- Person Re-identification
 - Image captioning
- Recommendation systems
- Multimodal translation

What does *Embedding* stand for?



Have you ever thought of other ways of improving your city's life quality?

join the Hackathon
deadline January 17, 2023



PROJECT NUMBER: 2018-IT-IA-0101
DURATION: 01/12/2019 - 31/01/2023



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Embedding is the result of converting high-dimensional data into low-dimensional data

in such a way that the two are semantically similar.

Thus, embeddings are numerical vectors that can be **generated from structured data, images, audio data and more complex formats.**



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How embeddings can be generated?

Embeddings can be obtained by using different techniques such as: **unsupervised algorithms** (T-SNE, UMAP etc.) or **deep learning models** trained in supervised way and stripped of their last classification layers.

Examples of models are:

Word2Vec (text embedder) and **Img2Vec** (image embedder) usually derived from deep architecture such as ResNet, SqueezeNet and other ones.

What are the main purposes of embedding?

Embeddings are useful for many applications like:

- 1 Lowering features space of high dimensional data
- 2 Eliminate data sparsity
- 3 Represent categorical features in continuous space
- 4 Check similarity between two or more records
- 5 Make clustering
- 6 Help annotation of unlabeled data
- 7 Search and retrieval of images
- 8 Pre-processing data and feeding embeddings to asupervised model



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