Natural Language Processing Introduction

What is NLP?

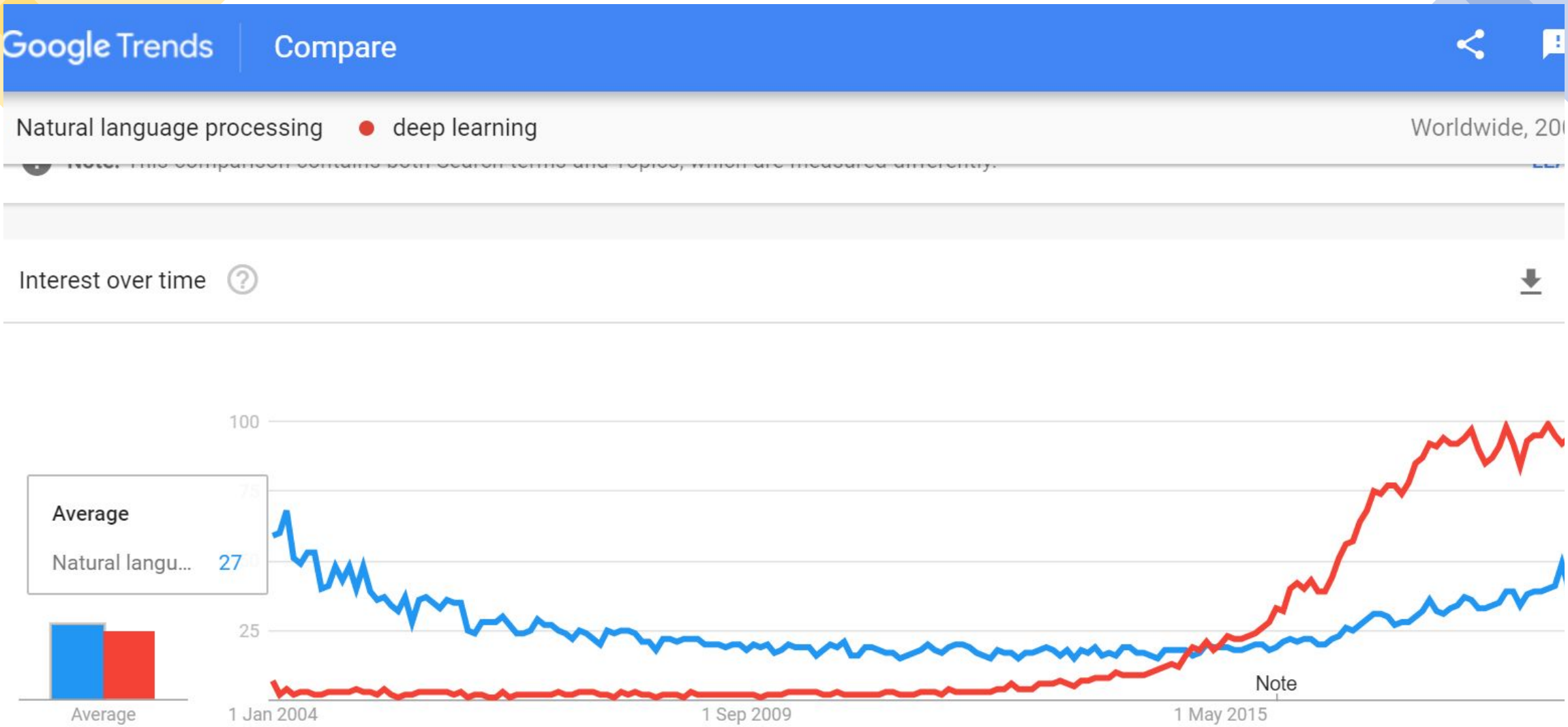
NLP is a branch of Computer Science where we study about the processing of Text Data and Human Language.

Traditionally, computers are only able to process numerical data.

We map the given text input or language data into the numerical representation of it thereafter we apply machine learning algorithms

Use Cases of NLP

- NLP enables the recognition and prediction of diseases based on electronic health records and patient's own speech.
- Determination of customer satisfaction based on reviews left on services
- Google uses it in search engine for accurate recommendation
- Amazon's Alexa and Apple's Siri are an example of intelligent system using NLP
- Used in talent recruitment


Google Trends
Compare
Natural language processing
deep learning
Worldwide, 20
Interest over time
100
75
50
25
Average
Natural langu... 27
Average
1 Jan 2004
1 Sep 2009
1 May 2015
Note

Some Basic NLP Techniques & Applications

- Named Entity Recognition (NER)
- Tokenization
- Stemming and Lemmatization
- Bag of Words
- Natural language generation
- Sentiment Analysis
- Sentence Segmentation
- Chat Bots

NLP PIPELINE

1. TEXT INFORMATION

2. SEGMENTATION AND TOKENIZATION

3. TEXT CLEANING

4. VECTORIZATION AND FEATURE ENGINEERING

5. TEXT LEMMATIZATION AND STEAMING

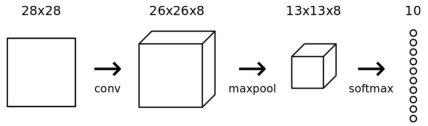
6. MACHINE LEARNING ALGORITHMS

7. INTERPRETATION OF THE RESULT

Tools

These are famous tool for text preprocessing

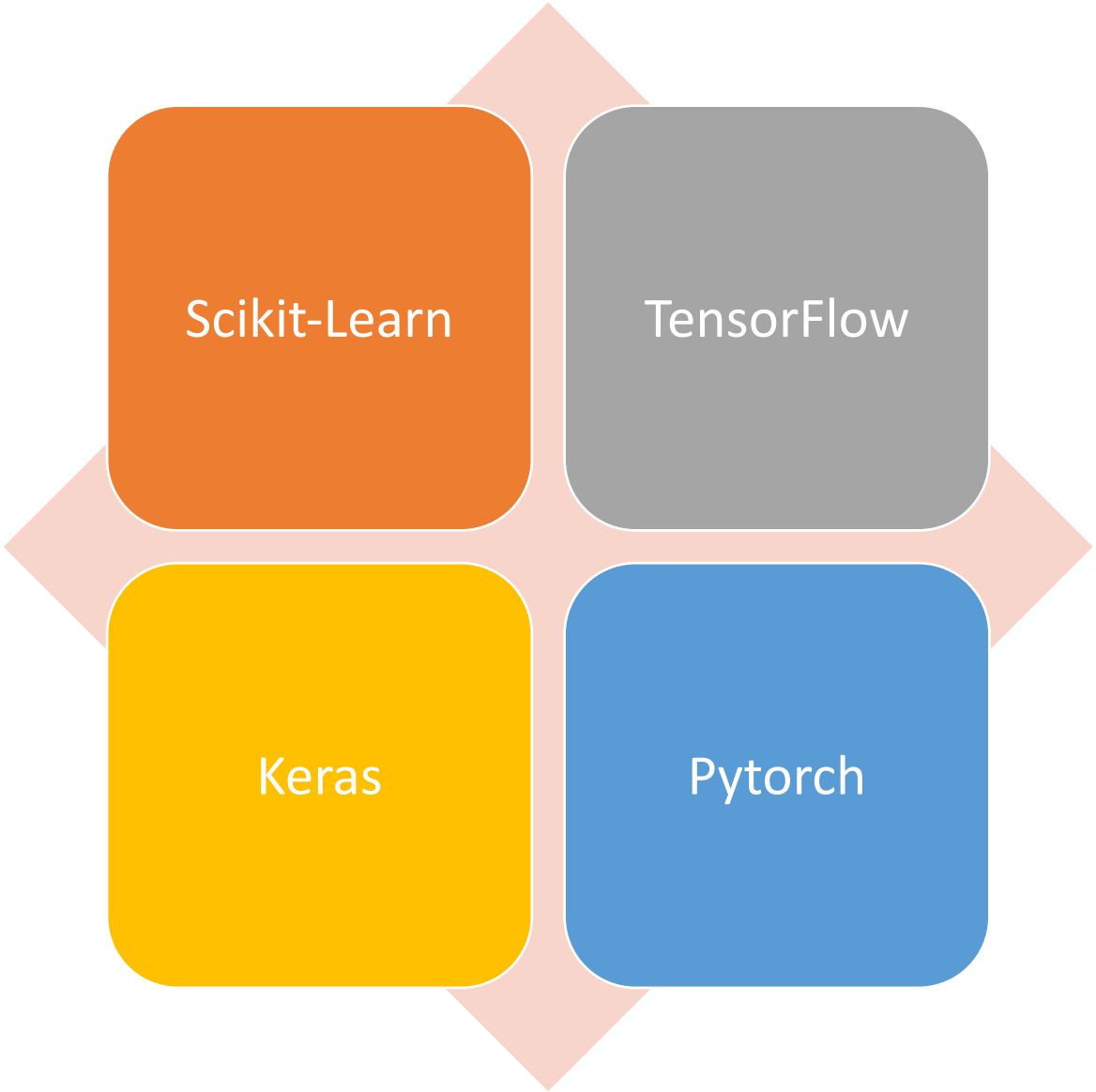
Keras



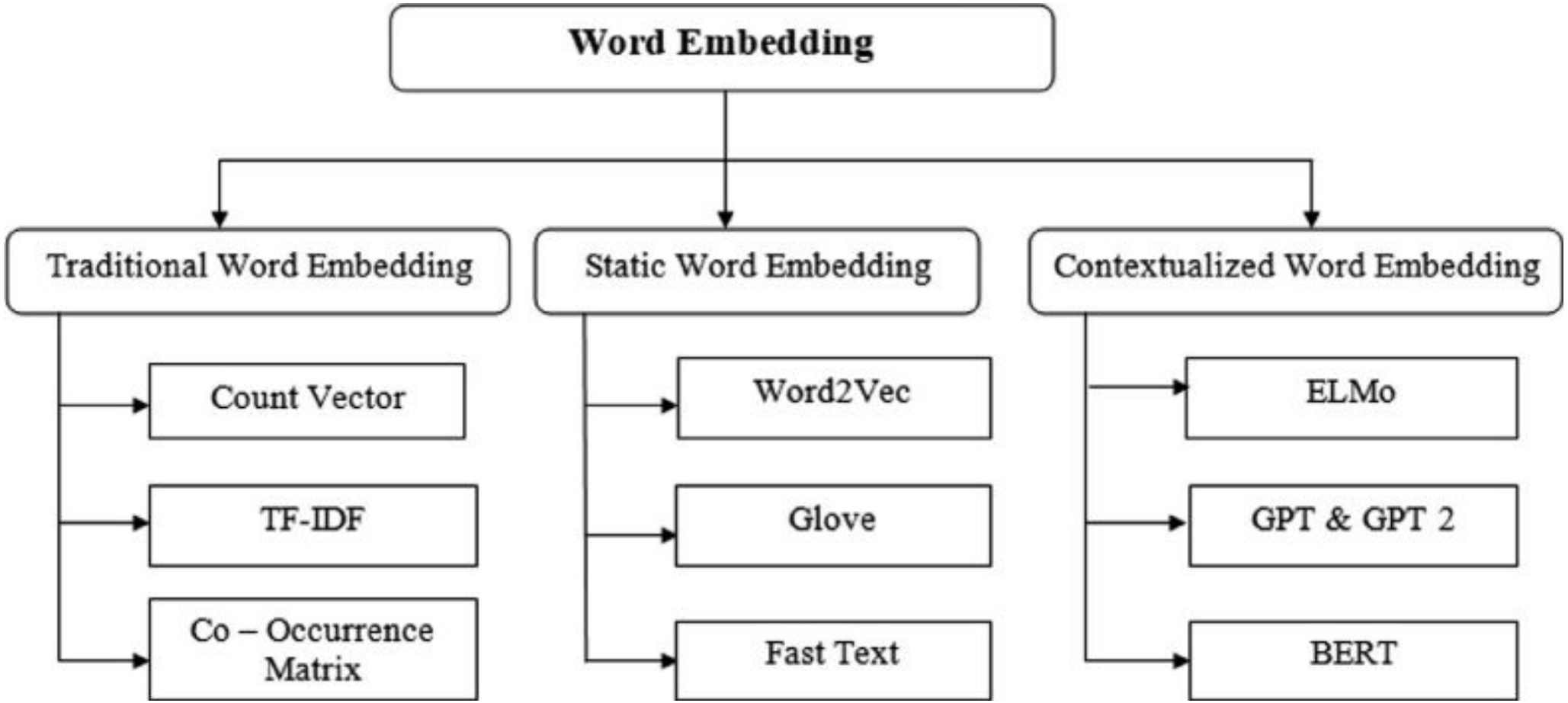
spaCy

NLTK

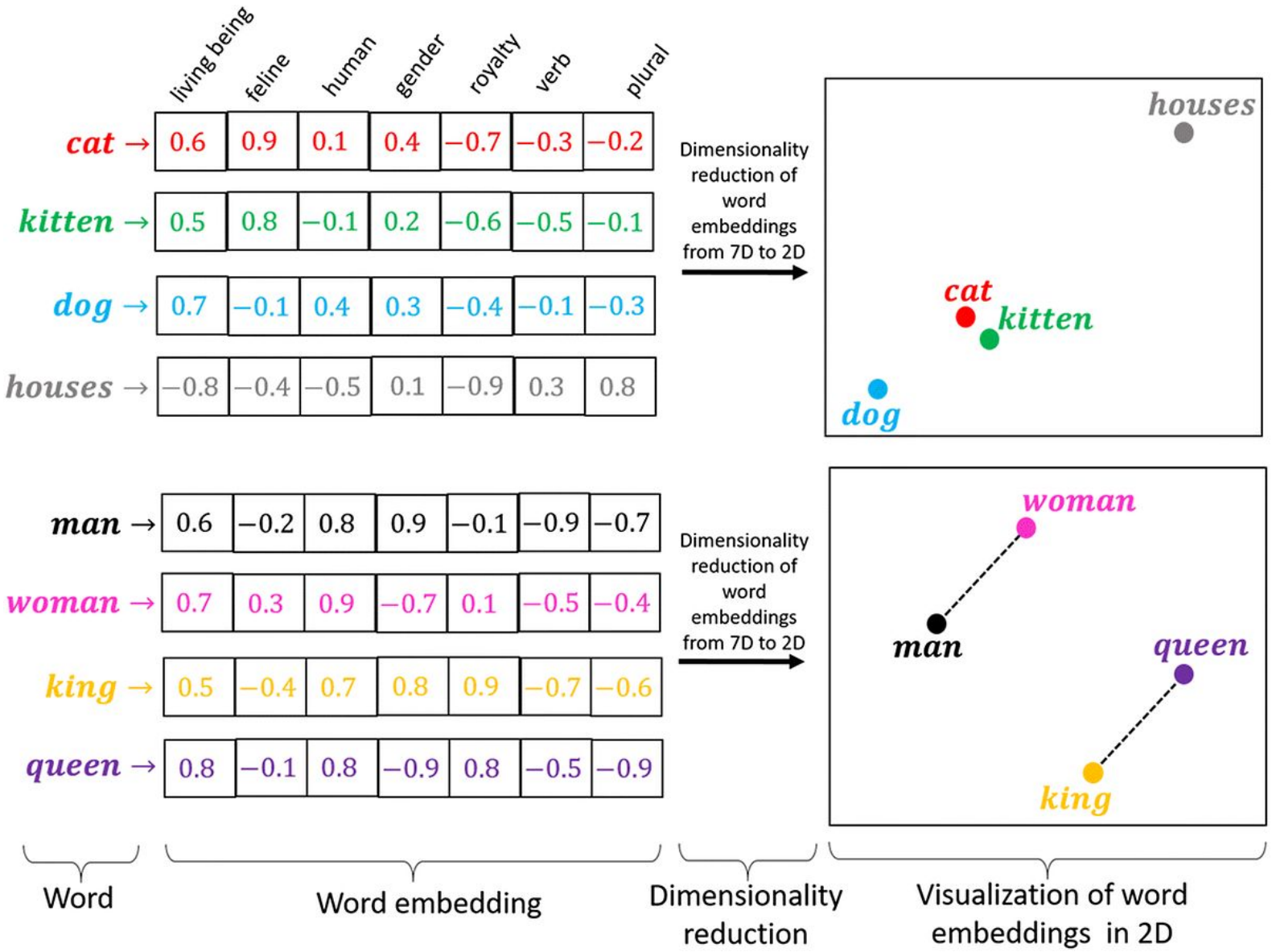
Algorithms Tools



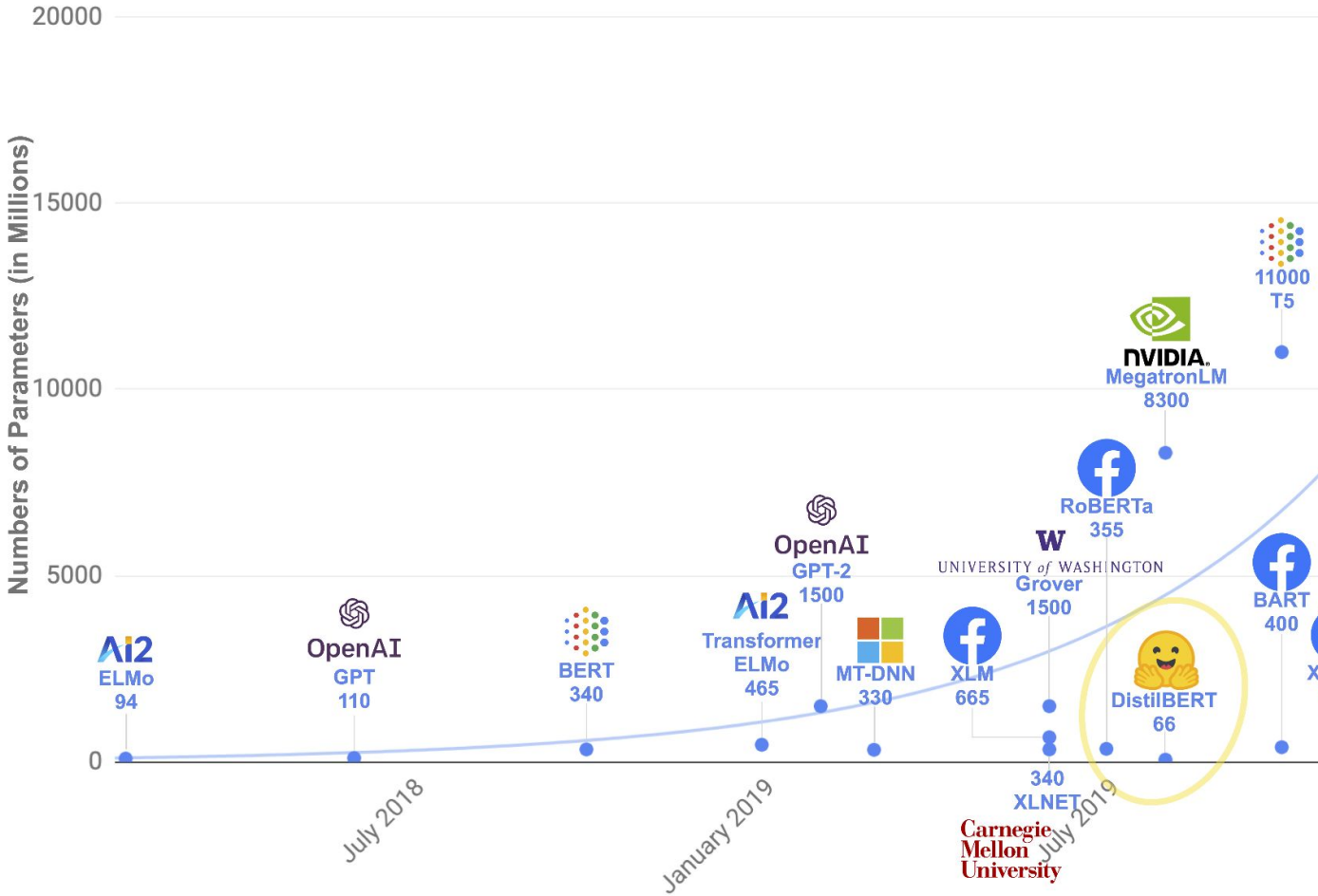
Word Embeddings



Word Embeddings



NLP Applications



Large Language Models

BCV

Application Layer

Copywriting
Jasper
copy.ai
Headlime
co:here
HyperWrite
Writesonic
Contenda
unbounce
copysmith

Coding
tabnine
MUTABLE AI
Codiga
co:here
GitHub Copilot
CODEGEN

Dev Tools
algolia
warp
Mintlify
cogram
Debuild
repl.it

Chat / Comms
MessageBird
Replier.ai
Sapling
FABLE

BizOps
viable
Enterpret
tabulate
Anecdote
OTHERSIDE AI
casetext
Dover

Infrastructure Layer

Model Creation
AI21labs
OpenAI
NVIDIA
Adept
EleutherAI
ANTHROP\C
Google AI

Hardware
habana
NVIDIA
SambaNova SYSTEMS
cerebras
GRAPHCORE

Fine Tuning
Google AI
aws
OpenAI
Hugging Face

Inference
OpenAI
Hugging Face