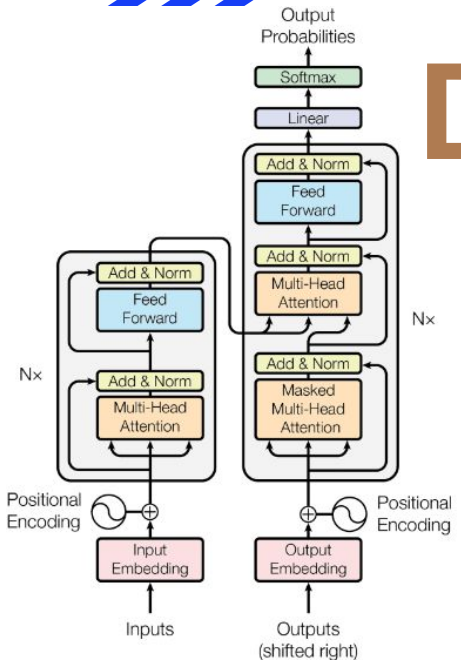


# Deep Learning

1. Data Pre-Processing
2. Data Exploration
3. Name Entity Recognition (NER)
4. Sentiment Analysis
5. Zero-Shot Classification

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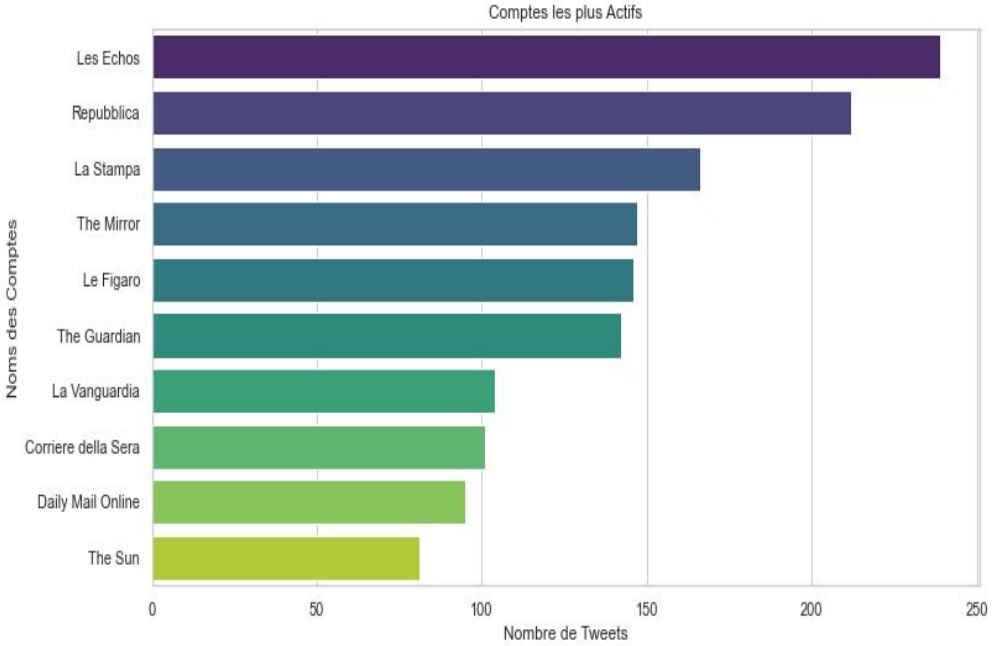
# 1. Data Pre-Processing

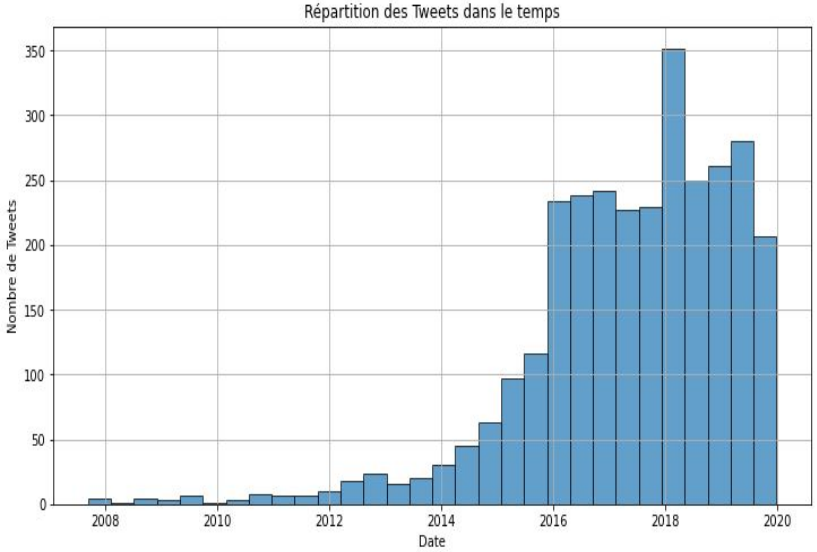
## Translation task

```
from googletrans import Translator
```

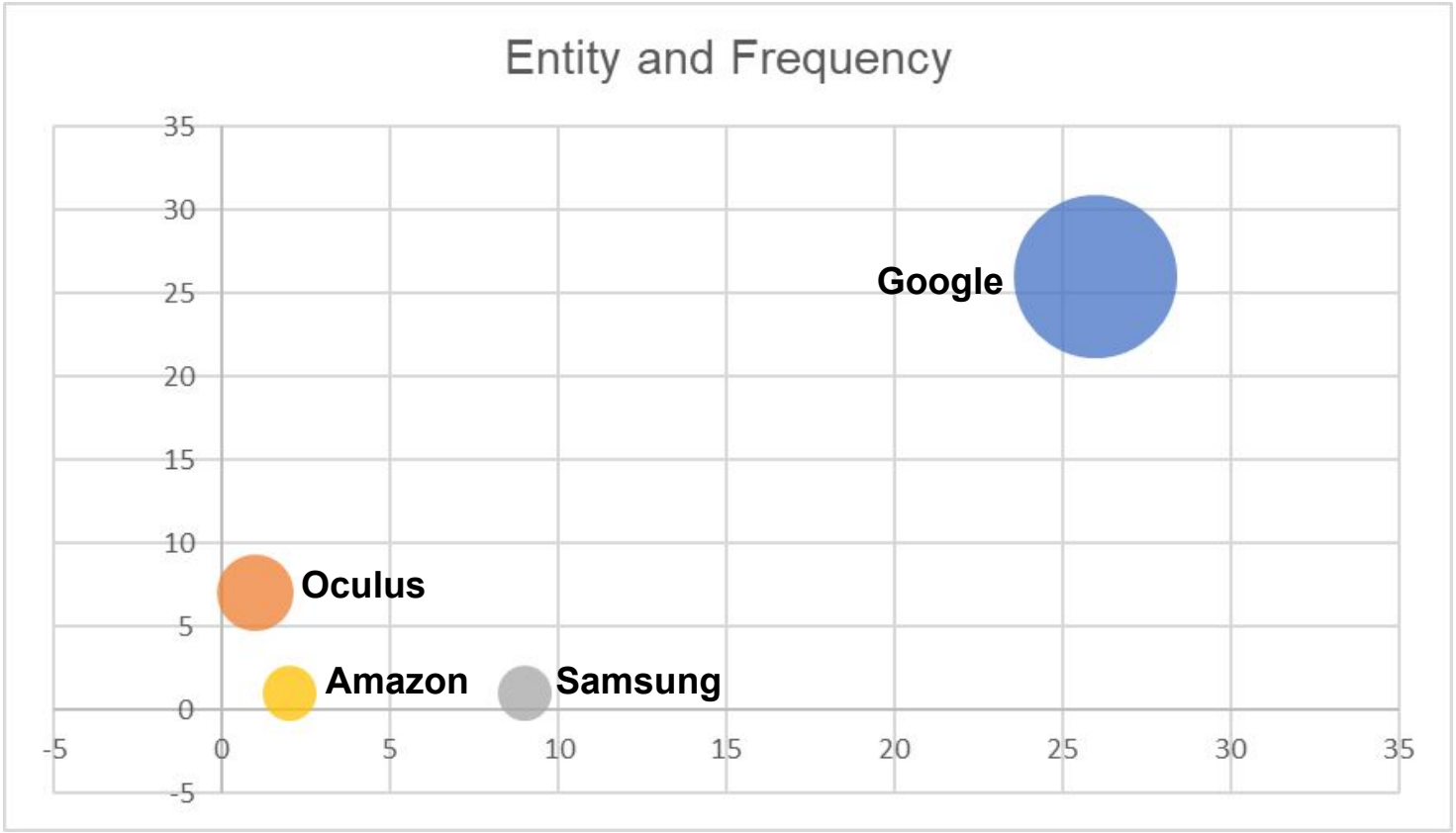

```
def cleaning(text):
    text = text.lower()
    text = re.sub(r"\[.*?\]", "", text)
    text = re.sub(r"(@[A-Za-z0-9]+)|([^0-9A-Za-z \t])|(\w+:\/\/\S+)|^rt|http.+?",
    text = re.sub(r'\bgt\s+gt\b', '', text)
    text = " ".join([word for word in text.split() if word not in (stop)])
    return text
```

# 2. Data Exploration



# 3. Name Entity Recognition (NER) - Key entities

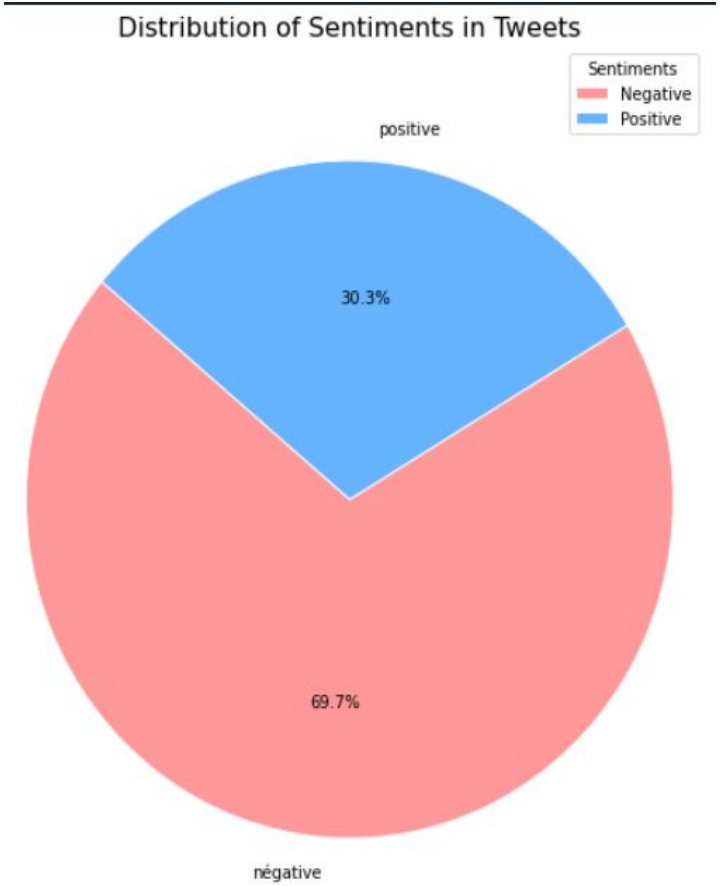


# 4. Sentiment Analyse

```
# Packages :
from transformers import AutoTokenizer,
AutoModelForSequenceClassification

# Map numerical sentiment to words
sentiment_mapping = {0: "négative", 1: "positive", 2: "neutre"}

# Apply the sentiment analysis function to the dataset of tweets
df["sentiment"] = df["text"].apply(analyze_sentiment)
```



# 5. Zero-Shot Classification

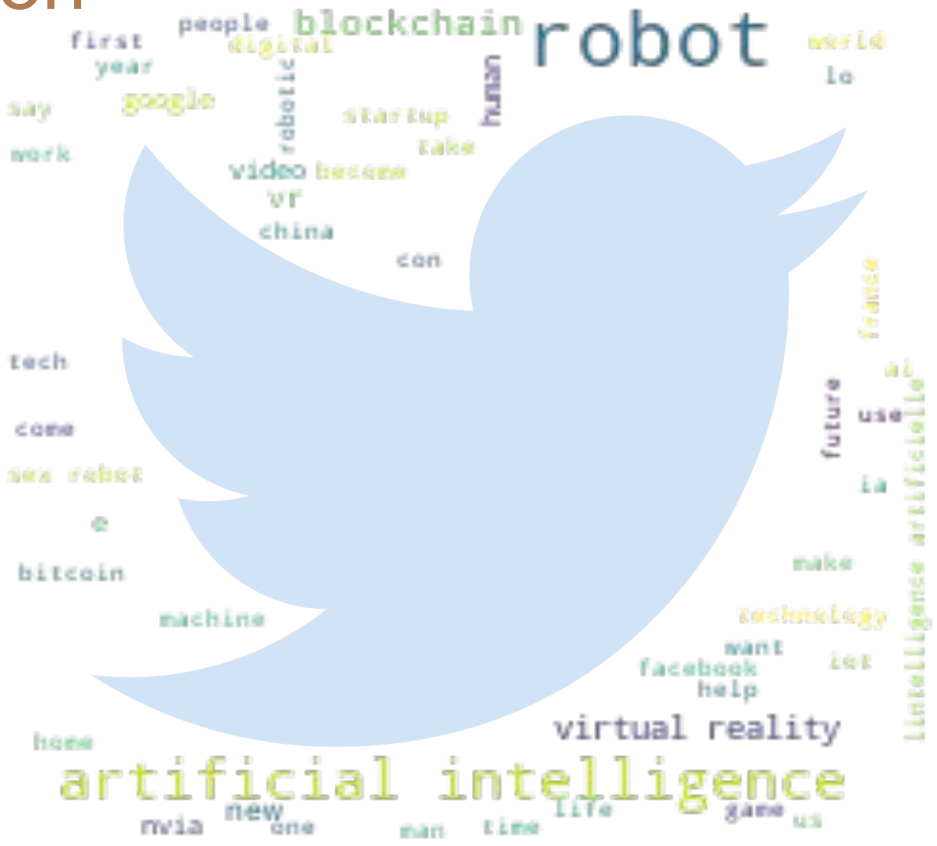
- Finding topics using WordCloud
- Thus, topics = ‘Opportunity’ or ‘Threat’

- Extracting country of origin of tweets from col ‘author.location’

  Why location?

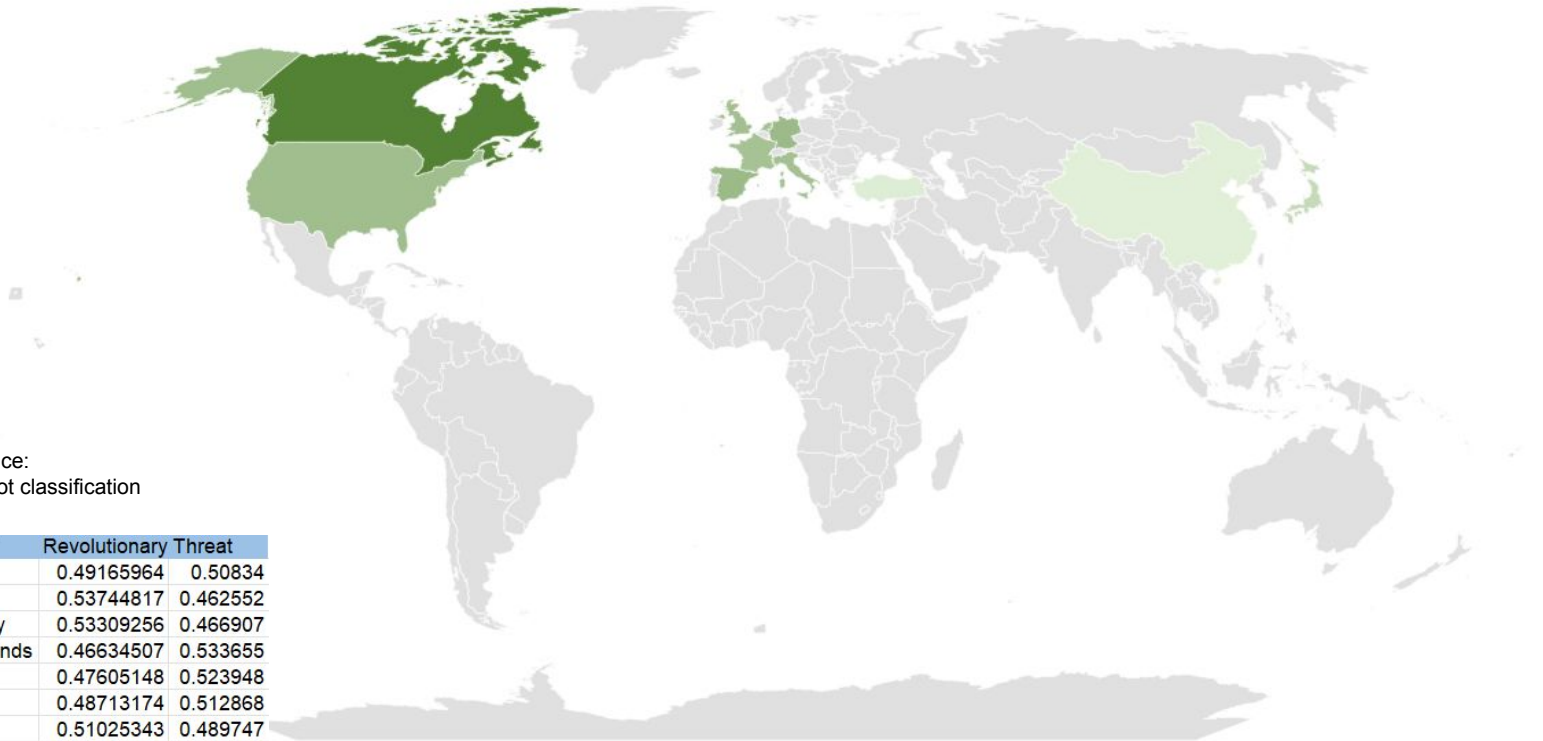
```
from geopy.geocoders import Nominatim
```

*Milan, Italy > Italy*
*Milan, Milano, Italy > Italy*
*Paris > France*



# How 4th Industrial Revolution is perceived by countries

## (Opportunity or Threat?)




Reference:
zero-shot classification
[out]

| Country | Revolutionary | Threat |
|---|---|---|
| UK | 0.49165964 | 0.50834 |
| Spain | 0.53744817 | 0.462552 |
| Germany | 0.53309256 | 0.466907 |
| Netherlands | 0.46634507 | 0.533655 |
| France | 0.47605148 | 0.523948 |
| Italy | 0.48713174 | 0.512868 |
| USA | 0.51025343 | 0.489747 |
| Turkey | 0.14168108 | 0.858319 |
| China | 0.11836612 | 0.881634 |
| Japan | 0.28506303 | 0.714937 |
| Canada | 0.9764334 | 0.023567 |

*based on 3000 tweet samples

Thank you