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TERRITOIRE ENVIRONNEMENT TÉLÉDÉTECTION
INFORMATION SPATIALE

TETIS Text Mining

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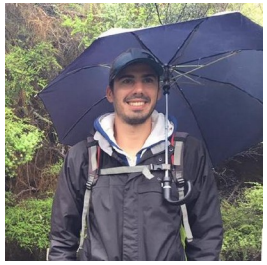
Introduction



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Motivation

In the context of our research, we apply text mining:

- Epidemiology Event Based Surveillance
- Food Security

On tasks such as:

- Graph based analysis
- Text classification

… And we already use QCRI data (crisisNLP)

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Methodology

Hypothesis

1. Fine-tune Bert like models accessible on HuggingFace

2. Use a Gazetteer (OSM) to improve results

3. Apply Data augmentation to enlarge the training dataset

Hypothesis

Reality

1. Fine-tune Bert like models accessible on HuggingFace
→ The best trained models are the best models
(see Where to start? Analyzing the potential value of intermediate models)

2. Use a Gazetteer (OSM) to improve results
→ The models were good enough for City / State / Country

3. Apply Data augmentation to enlarge the training dataset
→ It introduces to much noise

Architecture

Draw.io schema

Input: BILOU file
Models: differents models from huggingFace
Engrenage: data augmentation + hyperparameters tuning

Then we packaged it into a dockers (with a post-processing steps)


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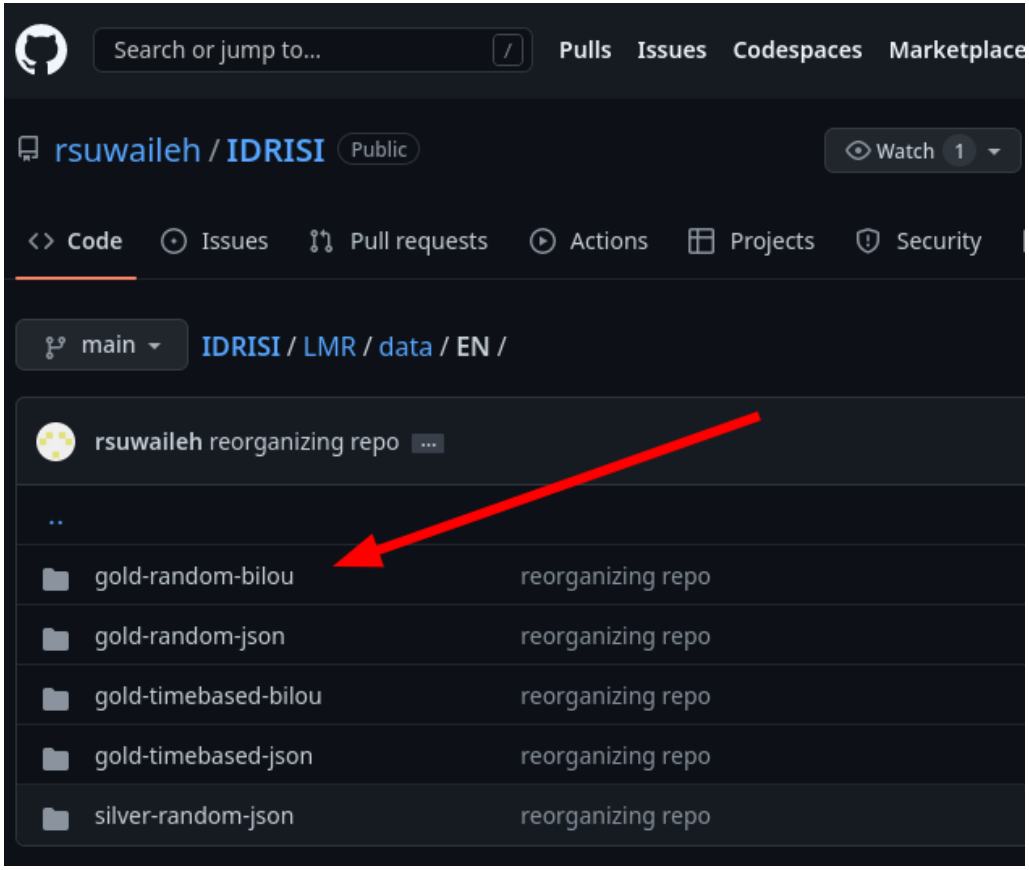
Evaluation

Training data



Mettre taille des corpus

Training data

```
label_encoding_dict =
{"B-CONT" : 1, "B-CTRY" : 2, "B-STAT" : 3, "B-CNTY" : 4, "B-CITY" : 5, "B-DIST" : 6,
"B-NBHD" : 7, "B-ISL" : 8, "B-NPOI" : 9, "B-HPOI" : 10, "B-ST" : 11, "B-OTHR" : 12, "I-
CONT" : 13, "I-CTRY" : 14, "I-STAT" : 15, "I-CNTY" : 16, "I-CITY" : 17, "I-DIST" : 18,
"I-NBHD" : 19, "I-ISL" : 20, "I-NPOI" : 21, "I-HPOI" : 22, "I-ST" : 23, "I-OTHR" : 24,
"L-CONT" : 25, "L-CTRY" : 26, "L-STAT" : 27, "L-CNTY" : 28, "L-CITY" : 29, "L-DIST" :
30, "L-NBHD" : 31, "L-ISL" : 32, "L-NPOI" : 33, "L-HPOI" : 34, "L-ST" : 35, "L-OTHR" :
36, "U-CONT" : 37, "U-CTRY" : 38, "U-STAT" : 39, "U-CNTY" : 40, "U-CITY" : 41, "U-DIST"
: 42, "U-NBHD" : 43, "U-ISL" : 44, "U-NPOI" : 45, "U-HPOI" : 46, "U-ST" : 47, "U-OTHR"
: 48,
"O":0}
```

```
B: Begining of a NER
I: Inside the current NER
L: Last: the final token of a multi-token
U: Unit: a single-token entity
O: Out: a non-entity token
```

Tuning the model

Compare the results with baseline

Issues to address

Mettre une table latex comparant les types full : pour dire ce qu'on peut améliorer

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Takeaway messages

Good to know

1. Use a tools to tracks experiments (such as mlflow)

2. As always analyse manually the data