Natural Language and Information Retrieval
Degree in Data Science
ETSINF. Academic year 2022-2023

Practical Work 3

- Session 1: Preprocessing and feature extraction using Sklearn
- Session 2: Automatic classification
- Session 3: Validation of the results
- Session 4: Ensemble methods
- Session 5: Deep learning (BERT, BETO, RoBERTA)

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Introduction

Practical Work 3 has the objective that students consolidate and practice the knowledge learned during the previous sessions. For that, they must develop a computational system to solve a real problem related to Natural Language Processing (NLP). Students must participate in the shared task: HUrtful HUmour (HUHU): Detection of humor spreading prejudice on Twitter. HUHU is presented in the framework of the Iberian Language Evaluation Forum Evaluation 2023 (IberLEF'2023)

HUrtful HUmour (HUHU): Detection of humor spreading prejudice on Twitter.

The main goal of HUHU is to explore the use of humor to communicate prejudice towards minorities, specifically analyzing Spanish tweets that are prejudicial towards:

- Women and feminists
- LGBTIQ community
- Immigrants and racially discriminated people
- Overweight people

Participants will be able to participate in 3 subtasks.

Subtask 1: HUrtful HUmour Detection:

The first subtask aims at determining whether a prejudicial tweet is intended to cause humor. Participants must distinguish between tweets that use humor to communicate prejudice and tweets that express prejudice without humor. The proposed systems will be evaluated and ranked employing the F1 measure in the positive class (humor with prejudice).

Subtask 2a: Prejudice Target Detection:
Considering the minority groups analyzed, i.e., women and feminists, the LGBTIQ community, immigrants, racially discriminated people, and overweight people, participants are asked to determine the targeted groups on each tweet as a multilabel classification task. The measure employed will be weighted F1.

Subtask 2b: Degree of Prejudice Prediction:
The third subtask consists of predicting on a continuous scale from 1 to 5 to evaluate how prejudicial the message is on average among minority groups. Systems will be ranked employing the Root Mean Squared Error (RMSE).

Instructions

It is possible to participate independently, preferably in duos, or at most in teams of three students. It is necessary to register on the task page by completing the form available at the link:

https://forms.office.com/e/vyZ5aVuUWC.

Once registered, you will receive an email with the training data in the attachment. Then, you should email prosso@dsic.upv.es and rortega@prhlt.upv.es confirming that you have registered and obtained the training data. You must also include the name of the team and each team member's name (a maximum of three). You can send up to 5 runs: a minimum of 3 runs for teams of 2 students and 5 for teams of three students.

Practice 3 will be organized in 5 sessions. The corresponding code and a report describing the proposal will be delivered in each session before the next practice.

Outlines

3.1 Preprocessing and feature extraction
- Text preprocessing
- Feature extraction

3.2 Automatic classification
- Logistic Regression
- Support Vector Machines
- Decision Trees

3.3 Evaluation
- Quality measures
- Validation schemes
- Validation curves
- Parameters tuning

3.4 Combination of classification methods
- VotingClassifier
- Bagging
- Boosting

3.5 Deep learning
- Models based on Transformers
- BETO and ROBERTA: Transformers for the Spanish language
- Fine-tuning for automatic text classification tasks