ARF project proposal:
Stance detection and author profiling through neural model

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Chapter 1

Problem description

In the present chapter will be illustrated the problem under observation and the proposed approach to tackle it. Complete description of the tackled problem can be found at [1].

1.1 Problem

The aim of this task is to detect the author's gender and stance with respect to the target *independence of Catalonia* in tweets written in Spanish and/or Catalan.

1.2 Proposed approach

The approach that will be developed to tackle to problem exploit technique from pattern recognition and machine learning fields, in detail we are going to use neural networks as classifiers for the above task.

In details, we are going to develop different neural model and estimate their best hyper-parameters. The neural models we are going to use are the following:

- LSTM: long short-term memory
- Bi-LSTM: bidirectional long short-term memory
- CNN: convolutional neural network
- CNN+LSTM: convolutional neural network followed by a long short-term memory

Moreover, we are going to approach the problem through a classical *n-gram* model (i.e. NGRAM).

1.3 Technical notes

For the development of the whole project we are going to use the following tools:

- Tensorflow: as backend engine
- Keras: as high-level neural network API
- Hyperas: as hyper-parameters estimator

Chapter 2

Objectives planning

In the following is shown the development cycle of the proposed approach. To do so, is presented a scheduling-timeline where the whole development is decomposed in objectives/milestone over a concrete timeline.

2.1 Milestone

For the best of our knowledge, we decomposed the proposed project thought the following milestones:

1. corpus processing module (preprocessing, filtering, features' extraction)
2. models' topology definition and implementation
3. models' training and evaluation automation
4. hyper-parameters' estimation automation
5. collection and presentation of the results

2.2 Timeline

In the following, a scheduling table with the proposed dead line for each of the identified milestone is proposed.

Milestone	Dead Line
1	26/04/16
2	26/04/16
3	03/05/16
4	10/05/16
5	- -/05/16

Bibliography

[1] Stance-ibereval2017 web page. http://http://stel.ub.edu/Stance-IberEval2017/.