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Arabic Natural Language Processing and Machine Learning

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Abstract

The object of this work is to give reader an overview on the state-of-the-art methods and techniques used in Arabic Natural Language Processing (ANLP). As a branch of artificial intelligence, NLP is at the heart of scientific research that tries to mimic, in the computer, the human ability to produce and understand textual and spoken linguistic data.

A general overview on the three major approaches to solve an NLP problem was given. In particular, the ANLP problem particularities were explained while giving the Arabic language families. Despite the effort made by the ANLP research community, Arabic is still considered by rating companies as an under-resourced language. The terrible lack of linguistic resources and processing tools for Arabic leads ANLP researchers to adopt the new techniques of machine learning and deep learning.

ANLP community, like other languages, tends to promote Arabic NLP tools and resources. Nowadays, we are witnessing a remarkable demand for new technologies such as machine learning, deep learning and word embedding to process Dialectal Arabic textual data.

In the purpose of recommending these techniques to reader, a review of these new techniques is also given.

Key words: Arabic Natural language Processing, Machine Learning, Deep Learning, FNN, RNN