Short Story Assignment Advanced Deep Learning

Zero-Shot Cross-Lingual Transfer with Meta Learning

Abstract

There are more than 7,000 language spoken in the world, as per some studies over 90 of which is having more than 10 million native speakers each and despite this, very few languages have proper linguistic resources. Although this is very hot research topic, XNLI is the evidence that most NLP research still only considers English. One solution to this issue is to collect annotated data for all the languages, which is very time consuming and expensive on top of this it is not trivial to train a model for a task language (e.g., English) and apply it to another language where limited training data is available. Therefore, it is necessary to explore strategies that will allow one to use the large amount of training data available for English for the benefit of other languages.

Research says that recently Meta learning has shown to be beneficial for several machine learning tasks. Benefits of sharing between tasks and domain has been showed in a recent work for NLP. In this paper, we see cross-lingual transfer with meta-learning for machine translation Although some work on Cross lingual transfer with meta learning has been done in past this paper proposes

- X-MAML1 , a cross-lingual metal earning architecture, and study it for two natural language understanding tasks (Natural Language Inference and Question Answering).
- Testing X-MAML across a total of 15 languages on cross lingual, cross-domain, standard supervised, few-shot as well as zero-shot learning.
- Observing consistent improvements over strong models including Multilingual BERT and XLM-RoBERTa.
- Performing an extensive error analysis which shows that typological commonalities between languages can be useful in explaining cross-lingual trends partly.

Survey paper for reference:
https://arxiv.org/pdf/2003.02739.pdf

More references:
https://papers.nips.cc/paper/9632-semantic-guided-multi-attention-localization-for-zero-shot-learning.pdf.
https://papers.nips.cc/paper/8300-zero-shot-learning-via-simultaneous-generating-and-learning.pdf.