From Fully Supervised to Zero Shot Settings for Twitter Hashtag Recommendation

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Paper# 325

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Introduction

➢ We propose a comprehensive end-to-end pipeline for Twitter hashtags recommendation system including data collection, supervised training setting and zero shot training setting.

➢ However, it is not feasible to collect data for all possible hashtag labels and train a classifier model on them.

➢ To overcome this limitation, we propose a Zero Shot Learning (ZSL) paradigm for predicting unseen hashtag labels by learning the relationship between the semantic space of tweets and the embedding space of hashtag labels.

Proposed Approach

➢ **Zero Shot Learning:** In Zero-shot learning setting, we train a classifier from la-beled training exemplars from seen classes and learn a mapping from input fea-ture space to semantic embedding space. ZSL aims to classify class labels, which were never exposed during training pipeline. ZSL methods used are-

1. **ConSE: Convex Combination of Semantic Embeddings**
2. **ESZSL: Embarrassingly Simple Approach to Zero Shot Learning**
3. **DEM-ZSL: Deep Embedding Model for Zero Shot Learning**

➢ **Few Shot Learning:** Few Shot Learning (FSL) paradigm is based on feeding a limited amount of training data. This is an extension of ZSL setting, where few examples of unseen (in ZSL setting) class labels are also exposed during the training process.

Results

Cleaned Tweets	Expected Hashtag	Top 5 Hashtags
high time girls women troubled under user should come out on there are cases of girls exploited need to give courage to those souls to take up on him	#metoo	#metoo, #justice, #netflix, #privacy, #fakenews
fact: The uncertainty of a parameter estimate goes to zero as the sample size approaches infinity. The variability of a parameter estimate does not.	#datascience	#ai, #datascience, #church, #privacy, #bitcoin
So it's obvious the refs don't want us to win, but guess what bitches, here we come champs	#superbowl	#superbowl, #church, #fitness, #movies,#thankful
History of gun violence is long & still unresolved & unsolved for many victims & those seeking	#justice	#trumpresign, #justice, #fakenews, #metoo, #church
wtf why should we fill up their pockets, anybody who is paying to watch these 2 is a direct victim of msm	#fakenews	#fakenews, #movies, #metoo, #privacy, #trumpresign

Poster Screenshot