Motivation

- The majority of methods used to study the different NLP problems employed shallow machine learning models and time-consuming, hand-crafted features. They intensively rely on substantially richer prior knowledge in the form of structured models, NLP resources and the availability of rich training datasets.

- Challenges: How to leverage the text semantic for NLP problems? How to reduce the training overhead?

- Our solutions inspired by the usage of ontologies and deep learning techniques.

Challenges

- Multi-label text Classification:
  - Traditional techniques suffer from training overhead, imbalanced dataset and low performance in case of few training samples.

- Recommendation System:
  - Traditional techniques poorly consider the text semantics and often suffer from homophily.

Contributions

- Comparative analysis of state-of-the-art techniques for multi-label text classification against Deep Learning approaches.

- Training-less text classification using knowledge bases and word embeddings.

- Unsupervised query-based document recommendation using deep learning.