NLP without Annotated Dataset

Course Review

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Topics we covered

1. NLP Overview
2. NLP system development pipeline
3. Corpus collection, extraction, exploration
4. Automatically labeling data
5. Snorkel: Spam Classification without annotated data, Data augmentation with annotated data
6. Text Embeddings and Transfer Learning: An overview
7. Other shorter topics: NLP for Endangered Languages, NLP for Language Learning
8. Group Discussions on various topics.

NLP Overview

- Different faces of NLP: Research, Industry, Other disciplines
- Various day to day applications
- Challenges with NLP
- Some common tasks and
- Degrees of language processing

NLP Pipeline

- How does one build NLP based software?
- How do we represent text for NLP?
- A real world case study
- A code walk through of the pipeline

Corpus collection, extraction, exploration

- How can we get data for NLP?
- How do we extract text from various file formats?
- What is inside our corpus?
- What are some issues to consider while developing/using a corpus?

Automatic Data Creation

- Different ways of labeling data
- Weak supervision
- Data augmentation
- Other topics:
  - Text anonymization
  - Text classification

Snorkel

- Generating training data for spam classification
- Using text augmentation for improving spam classification

Text Embeddings and Transfer Learning

- Bag of words to BERT
- What happens during fine-tuning?

Other Topics

- NLP for Endangered Languages
- NLP for Language Learning
- NLP careers
- Lot of interesting discussion papers

Graded Part

- Assignments
- Group discussion (DONE!)
- Term paper
- Classroom participation (DONE!?)

Some Ideas for Termpaper

I am taking text classification as an example a I covered it in class

- Compare different data augmentation methods for a simple text classification task
- Explore different *BERT models for a simple task
- Generating a labeled dataset for some new classification/IE task with Snorkel
- Surveying existing resources and software for a new language, and listing a few directions on how to extend them
- Exploring already existing datasets for its coverage, identifying potential issues with using it etc (e.g., following datasheets paper)
- Evaluating an existing tool (e.g., Spacy NER) in terms of how it does for various categories of text, using standard evaluation sets.

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Initial ideas: Course Objectives

- Provide an overview of NLP system development pipeline
- Discuss some common approaches for collecting, cleaning and exploring text data
- Introduce some methods to develop labeled data for NLP

Initial ideas: Learning Outcomes

Students should be able to:

- Understand the end to end NLP system development pipeline
- Compile and explore labeled/annotated corpora for NLP
- Build some basic text classification and information extraction systems

... upon successful completion of the course..

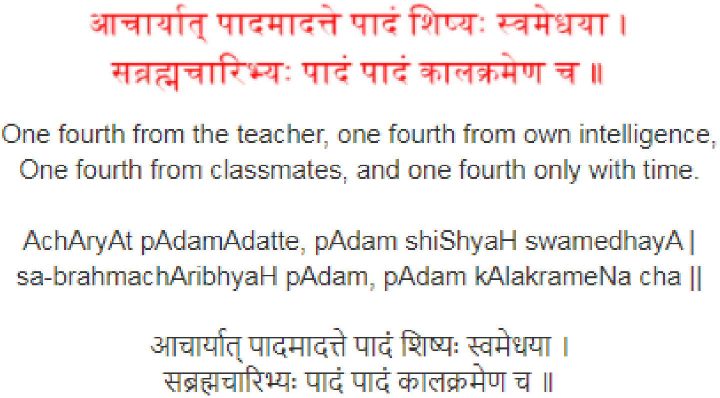
Initial ideas: What the course can't do

- Don't expect to become an NLP expert with one compact course.
- Contents may not always meet your own expectations, but there is a term paper and a group discussion, which gives you opportunities to explore your specific interests related to this topic.
- The course won't teach you programming.

Upcoming Deadlines

- March 1st: Assignments, Term paper
- Today: Make a decision on whether or not you want to submit a term paper, and let me know! (thanks for those who already informed!)
- Soon: Start working on assignments and term paper!

How we learn and grow



आचार्यात् पादमादत्ते पादं शिष्यः स्वमेधया ।
सब्रह्मचारिभ्यः पादं पादं कालक्रमेण च ॥

One fourth from the teacher, one fourth from own intelligence,
One fourth from classmates, and one fourth only with time.

AchAryAt pAdamAdatte, pAdam shiShyaH swamedhayA |
sa-brahmachAribhyaH pAdam, pAdam kAlakrameNa cha ||

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Source

Thank you!

contact: sowmya.vajjala @ nrc-cnrc.gc.ca
Feel free to connect on social networks (Linkedin, twitter etc) if you want to (finding me is up to you)

Wish you all good luck!!