Project discussion

CS 585, Fall 2017
Introduction to Natural Language Processing
http://people.cs.umass.edu/~brenocon/inlp2017

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Either *build* natural language processing systems, or *apply* them for some task.

Use or develop a dataset. Report empirical results or analyses with it.

Different possible areas of focus

- Implementation & development of algorithms
- Defining a new task or applying a linguistic formalism
- Exploring a dataset or task

http://people.cs.umass.edu/~brenocon/inlp2017/project.html
Project

Proposal, due in two weeks (10/17): 2-4 page document outlining the problem, your approach, possible dataset(s) and/or software systems to use. Must cite and briefly describe at least two pieces of relevant prior work (research papers). Describe scope of proposed work.

Peer feedback on proposals

Progress report: Longer document with preliminary results (due mid/late Nov)

Poster session (~last week of classes)

Final report

- Groups of 1-3: we encourage size 2
- We expect more work with more team members
Formulating a proposal

- What is the *research question*?
- What’s been done before?
- What experiments will you do?
- How will you know whether it worked?
  - If data: held-out accuracy
  - If no data: manual evaluation of system output. Or, annotate new data
NLP Research

- All the best publications in NLP are open access!
  - Conference proceedings: ACL, EMNLP, NAACL (EACL, LREC...)
  - Journals: TACL, CL
  - “aclweb”: ACL Anthology-hosted papers
    http://aclweb.org/anthology/
  - NLP-related work appears in other journals/conferences too: data mining (KDD), machine learning (ICML, NIPS), AI (AAAI), information retrieval (SIGIR, CIKM), social sciences (Text as Data), etc.

- Reading tips
  - Google Scholar
    - Find papers
    - See paper's number of citations (imperfect but useful correlate of paper quality) and what later papers cite it
    - [... or SemanticScholar...]
  - For topic X: search e.g. [[nlp X]], [[aclweb X]], [[acl X]], [[X research]]...
  - Authors’ webpages
    find researchers who are good at writing and whose work you like
  - Misc. NLP research reading tips:
    http://idibon.com/top-nlp-conferences-journals/
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  • Sentiment detection
  • Sarcasm and humor detection
  • Emoticon detection / learning
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  • Targeted sentiment analysis (i liked __ but hated __)
  • Relation, event extraction (who did what to whom)
  • Narrative chain extraction
  • Parsing (syntax, semantics, discourse...)
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  • Movie revenues based on movie reviews ... or online buzz? http://www.cs.cmu.edu/~ark/movie$-data/
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  - e.g. Urban Dictionary

Tuesday, October 3, 17
Sources of data

• All projects must use (or make, and use) a textual dataset. Many possibilities.
  • For some projects, creating the dataset may be a large portion of the work; for others, just download and more work on the system/modeling side

• SemEval and CoNLL Shared Tasks:
  dozens of datasets/tasks with labeled NLP annotations
  • Sentiment, NER, Coreference, Textual Similarity, Syntactic Parsing, Discourse Parsing, and many other things...
  • e.g. SemEval 2015 ... CoNLL Shared Task 2015 ...
  • https://en.wikipedia.org/wiki/SemEval (many per year)
  • http://ifarm.nl/signll/conll/ (one per year)

• General text data (not necessarily task specific)
  • Books (e.g. Project Gutenberg)
  • Reviews (e.g. Yelp Academic Dataset https://www.yelp.com/academic_dataset)
  • Web
  • Tweets
Tools

• Tagging, parsing, NER, coref, ...
  • Stanford CoreNLP http://nlp.stanford.edu/software/corenlp.shtml
  • spaCy (English-only, no coref) http://spacy.io/
  • Twitter-specific tools (ARK, GATE)

• Many other tools and resources
  tools ... word segmentation ... morph analyzers ...
  resources ... pronunciation dictionaries ... wordnet, word embeddings, word clusters ...

• Long list of NLP resources
  https://medium.com/@joshdotai/a-curated-list-of-speech-and-natural-language-processing-resources-4d89f94c032a