CS 7180: Special Topics in Artificial Intelligence

Instructor: Prof. Lu Wang

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Time and Location

- **Time**: Wednesdays and Fridays from 11:45 am - 1:25 pm

- **Location**: Richards Hall 233

- You can bring lunch!
Why this course?

• From the instructor
  – Not only about what natural language processing or machine learning research work looks like
  – But also on how to really do some cool research
Philosophy

• Hands-on experience is very necessary in this course!
Your turn!

• Tell us about yourself!
  – Who are you?
  – What research are you interested in?
  – What do you want to learn from this course?
Format of the Course

• Presenting research papers and leading discussions
  – What do you think of the paper?
  – Is the approach solid? Are the results convincing?
  – Is there anything you like or dislike?
  – For the parts you dislike, what will you do for improvement?

• Research project
Grading

• Presentation and discussion leading: 20%

• Discussion participation: 20%

• Project: 60%:
  – Presentations: 10% * 3
  – Reports: 10% * 3
Topics

- Sentiment analysis
- Text summarization
- Information extraction
- NLP for social media
- Representation learning
- Deep learning for NLP
Projects

• Choosing a research question
  – Why it’s important?
  – Why existing work is not good enough?
  – Why your idea is brilliant?
  – Can it be published at top-tier conferences? E.g. ACL, NAACL, SIGIR, WWW, KDD…

• How to evaluate?
  – Dataset(s): is there existing dataset(s) or you need to get it by yourselves
  – Evaluation metrics
Projects

• Team: 1 or 2 people

• Open source software: ok

• Prerequisites
  – Being able to write code in some programming languages proficiently.
  – Finishing at least one course in natural language processing, machine learning, information retrieval, or any relevant subfield of artificial intelligence.
Projects

• Three presentations + three reports
  – Proposal
    • What do you want to do? Why this is important? What is related work? Why do you think this is a publishable idea? What dataset(s) can be used? How do you evaluate?
  – Progress
    • What have you done? Positive results vs. negative results.
  – Final
    • A publishable paper
Project Ideas

• Picking an NLP research area:
  – Sentiment analysis
  – Text summarization
  – Information extraction
  – NLP for social media
  – Representation learning
  – Deep learning for NLP

• Finding an interdisciplinary task between NLP and your research
TODO

• Due: Sep 11\textsuperscript{th}, 11:45am (before class)
• Who should submit
  – Students that are interested in enrolling or auditing the course
• To whom
  – Instructor: Lu Wang (luwang@ccs.neu.edu)
TODO

• Name and contact (email)
• Are you enrolled in or going to enroll in or going to audit the course? If you want to audit the course, do you want to do the project?
• Are you a PhD or master student? And which year are you in?
• Are you doing research with any professor(s)? And which projects are you working on?
TODO

• What are your goals for taking this course?

• What kind of projects do you want to do? (rough ideas are okay)
Next Class

• Sentiment Analysis
  – Sarcasm as Contrast between a Positive Sentiment and Negative Situation, by Riloff et al., EMNLP 2013
  – Open Domain Targeted Sentiment, by Mitchell et al., EMNLP 2013
  – Learning to Relate Literal and Sentimental Descriptions of Visual Properties, by Yatskar et al., NAACL 2013
Discussing Project with Instructor

• Make appointment to discuss research project
  – Email me with your availability on Sep 17, 18, 21

• Idea selling day: Sep 23rd