Seminar I, Summer Term 2020

Deep Learning for Natural Language Processing

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Outline

1. Introduction to Seminar
2. Seminar Logistics
3. Administrative Stuff

Outline

Introduction to Seminar

- Structure of the Seminar
  - Instead of a lecture format, students give presentations all term
  - These presentations are focused on a core research area
  - Presentations of state-of-the-art methods in that field/research area
- Aims of the Seminar
  - Students learn first-hand how research is fundamentally carried out.
  - How scientific papers are to be read and critiqued.
  - Understanding how scientific notation is used to describe ideas.
  - Additional goals include getting accustomed to holding scientific presentations.

Introduction to Deep Learning

- Deep Learning for Natural Language Processing
  - Modern deep learning architectures have taken the fields of Computer Vision, Natural Language Processing and Recommender Systems by storm.
  - The deep learning revolution is relatively modern circa. 2012.
  - Natural Language Processing as a scientific field has existed for decades, with various fruitful research as outcome that we consume in our daily lives.
- Deep Learning architectures include most prominently
  - Recurrent Neural Networks and types thereof.
  - Convolutional Neural Networks and types thereof.

Introduction to Natural Language Processing

- Research Problems in Natural Language Processing
  - Natural Language Understanding
    - Sentiment Analysis of Tweets
    - Question Answering Chatbots
  - Natural Language Translation
    - Google Translate
  - Natural language Generation
    - Generating creative writing
    - Code Automation
- Deep Learning architectures discussed previously have been successfully applied to the above problems.

Outline

Seminar Logistics

- Paper selection
  - A list of research papers would be made available.
  - Students select up-to 3 papers from the list and submit them with ordinal preferences.
  - Selection criteria could include prior interests, familiarity with the topic, or the method complexity itself.
  - Papers will be sorted in order of growing complexity.
  - Students trade-off between delaying presentations and choosing less-complex papers.
  - Additional Caveat: Less-complex and classical presentations will be judged more strictly.

Seminar Logistics

- Group Formations
  - Most importantly, presentations are to be carried out in groups of 2.
  - Grouping is left to the instructor's will.
  - Criteria would include:
    - Aligned interests.
    - Country-wise inhomogeneity.
    - Lastly, first come-first serve principle could be used to break ties.

Seminar Logistics

- Grading policy
  - There are 2 components contributing equally to the final-grade.
    - Presentation in the term.
    - Summary paper submitted at term end.
  - Cherry on top: Peer-review
    - 3 of the fellow classmates will receive your presentation beforehand.
    - Will submit half-a-page review of the presentation.
    - A good review will result into bonus points for the final-grade.

Seminar Logistics

- Deadlines to submit the final presentations:
  - Please submit the final presentation at-least 1 week in advance on the Learnweb portal.
  - Say you were to present this Tuesday, then the assignment was due for you last Tuesday at midnight.
  - All submissions are to be made via the Learnweb portal.
- Exact due-date for the summary papers is to be communicated later.

Stucture of the Presentations

- Presentations are to be held for 30 minutes followed by a 15 minute discussion round.
- Presentations are to include most-importantly:
  - An introduction to the topic (group introduction).
  - Summarization of the related work.
  - A thorough explanation of the theoretical underpinnings of the method.
  - Followed by analyzing the experiment side.
- Important to:
  - Not omit crucial parts of the paper, theoretical derivations or explanation of baselines.
  - Provide your own interpretation of the method.

Stucture of the Summary Papers

- Summary papers will be written in a similar fashion to the allocated papers.
- The sections here would follow the guidelines mentioned before for presentations
- But most importantly, would be detailed to the point of standalone explanations in contrast to the presentations.
- Content again:
  - An introduction to the topic (group introduction).
  - Summarization of the related work.
  - A thorough explanation of the theoretical underpinnings of the method.
  - Followed by analyzing the experiment side.

Stucture of the Summary Papers

- Students are encouraged to use LaTeX for writing the summary papers.
- A template would also be provided in due course.
- Again,
  - Not omit crucial parts of the paper, theoretical derivations or explanation of baselines.
  - Critique the method in your own words.

Semester Plan

- In total 13 meetings planned.
- 1/13 used today. Next lecture on how to read a paper.
- From thereon,
  - 2 presentations every week from a group of 2 students.

Outline

Useful Administrative Stuff

- When? Tuesdays always from 14h-16h.
- Where? Just like today, on Zoom, meeting ID: 946-1839-0980
- LSF Registration: Not mandatory.
- Learnweb Registration: Mandatory and would be used all term for submissions of presentations and summary papers.
  - Course ID on Learnweb: SoSe 2020: 3113 Data Analytics I
- **Attendance**: You are allowed to skip only 2 sessions.
  - In compliance with the aims listed before.
- If you have any problems with registration then email me at shayan@ismll.de