Assignment

Marking [100%] due Fri 08 Apr 2022 at 16:00 (UK time)
60%: Project report
10%: Colab notebook to demo your project
10%: Short 5min recording of a spotlight talk about your project
20%: Individual peer feedback

Project Report
For this assignment, work as a group on a machine learning project in Natural Language Processing. You will prepare a report (maximum eight pages; excluding references) that delivers (i) an introduction including a well defined research hypothesis, (ii) a literature review, critically discussing work related to your project, (iii) a methods section describing your model/approach, (iv) a clear description of your experiments, (v) a critical discussion of your findings including a quantitative and qualitative analysis of your empirical results, and (vi) a conclusion and description of future work.

You can choose to either work on one of the default projects that we outline below or to propose your own project. We highly encourage you to do the latter and to propose your own project. Your project should (a) have a strong machine learning or deep learning component and (b) make extensive use of natural language data.

Submit a report as a single PDF with a maximum of eight pages (excluding references and an optional appendix). The report should at least include the following (for more details see the marking scheme appended to this document):
- An abstract briefly summarizing the research problem and the outcome of your work
- An introduction describing the problem/research question on a high-level as well as the main outcomes of your work.
- A related work section discussing how what you did relates to prior work.
- A methods section, detailing what you did, how you did it and with what motivation. Make sure to formalize your models.
- An experiments section, describing the empirical setup of your research and metrics.
- A results and discussion section, presenting your findings as well as critically analyzing your findings.
- A conclusions section, summarizing your research outcome, as well as discussion of future work if you or others were to build upon your work.

For advice on writing a good report, see [1] and [2].

Talk Recording and Demo Notebook
In addition to the project report, we ask you to prepare and submit a recording of a short 5min spotlight talk about your project. For the talk, prepare a few slides that outline the problem setting, your approach and results. Furthermore, we ask to demonstrate that your findings are reproducible. To this end, submit a single zip file containing the source code of your project. In addition to the zip file, prepare a self-contained notebook demonstrating your approach so that it can be uploaded and executed on Colab. If your project is less about a predictive model but more about an explorative or descriptive research, the notebook should demonstrate your

finding. If your project has a stronger machine learning component then please avoid training a model in the notebook. Instead, give us an **easy way** to test your system on unseen inputs. In case you need to train models, do this training offline and load the model into Colab.

Groups

Please form groups of exactly four students and add your group to [Assignment Groups 2022](#) If you have difficulties finding a fourth member, add your group to the corresponding column "We are looking for a fourth member" in the "Blackboard" tab. Similarly, if you are looking for a group, add yourself to the corresponding column "I am looking for a group" in the "Blackboard" tab.

We are only accepting submissions from groups with exactly four students. If there are multiple three student groups by the end of February, we will randomly split and reassign these groups.

Ethics and Project Feedback

Before you commit to a project, please send a 100 word abstract of your proposed work in private to the lecturers and TAs on Moodle via the "Discuss with TA/LecturerForum" area. This will help us to understand and approve the ethical implications of your projects, and give light feedback if we see any obvious practical pitfalls. To this end, please include a description of the data you plan to use. We aim to give feedback within three days (excluding weekends). Note that grading of the final project will depend on execution of the project idea only, not on the idea itself or our approval thereof.

Default Projects

Develop a new model for one of the challenges below:
- Cross-lingual Extractive Question Answering
  - Dataset: https://github.com/facebookresearch/MLQA
  - Paper: https://arxiv.org/abs/1910.07475
- CoNaLa challenge
  - Dataset: https://conala-corpus.github.io/
  - Paper: https://arxiv.org/abs/1805.08949
- WikiHow Text Summarization
  - Dataset: https://github.com/mahnazkoupaee/WikiHow-Dataset
  - Paper https://arxiv.org/abs/1810.09305
- Utilize the ATlas Of MachIne Commonsense (ATOMIC) dataset of commonsense knowledge for a downstream NLP task
  - Dataset: https://homes.cs.washington.edu/~msap/atomic/
  - Paper: https://arxiv.org/abs/1811.00146
- WinoGrande
  - Dataset: http://winogrande.allenai.org/
  - Paper: https://arxiv.org/abs/1907.10641

Options for Computational Resources
- Colab (see https://research.google.com/colaboratory/faq.html#gpu-availability)
  - You get one free GPU per person for 12 consecutive hours
  - 4 people = 4 GPUs
  - You could train for longer than 12 hours if you are clever about checkpointing and regular saving your models
- UCL Cluster

Style Guides and Submission
You are required to use the ACL 2021 style template for your report. You can either use LaTeX or Word (https://2021.aclweb.org/downloads/acl-ijcnlp2021-templates.zip). Submit a single PDF of eight pages maximum (excluding references and an optional appendix) to Moodle. Use only your group ID as the name (e.g. 123.pdf). Do not change the template (e.g. by reducing or increasing the font size, margins etc.).

Marking and Peer Feedback
Your report will be assessed based on the criteria above. In addition to your group project, we ask you to anonymously comment on your collaborators regarding the quality of their contribution to your joint project. We will release a survey to submit your feedback closer to the assignment deadline, but the questions are going to roughly match the template from JHU that is attached to this assignment. Peer feedback will make up 20% of a student's mark in terms of their individual performance in the group project.