Project Proposal Submission CS 594

Responsible Data Science and Algorithmic Fairness

Submission of project proposal via Blackboard due Th, 10/1/2020, 11:59 pm

For your final project you should explore any topic you are interested in related to responsible data science and algorithmic fairness. You can Explore the ACM FAccT Conference for some related topics.

The project is a chance to explore the topic in more depth. Novel research ideas are welcome but are not expected nor required to receive full credit. Pick a research area that *interests* you, and has the following specifications:

- Impacts human-being (either directly and indirectly)
- Has the potential of being biased You can search the news articles for some issues, in addition to the existing research
- If it is an under-investigated topic, you should be able to formulate a problem that fits your (i) interest and (ii) expertise
- I also encourage to reproduce recent results of the existing work. If you are going to reproduce the result of existing work, *you should show what you have done*, either by implementing the algorithms, comparing multiple methods, etc. Not just using a code in a GitHub repository and running it.
 - For AI, you may find the IBM's AI Fairness 360 toolkit useful.

Once you have identified a topic of interest, it can be useful to look up existing research on relevant topics by searching related keywords on an academic search engine such as: <u>http://scholar.google.com</u>.

You can find the list of top-tier conferences in different fields in <u>https://csrankings.org/</u> Here are a few:

- ACM FaccT: <u>https://facctconference.org</u>
- ML: ICML, NeurIPs, ICLR
- DB: SIGMOD, VLDB
- DM: KDD, TheWebConf (WWW)
- Computer Vision: CVPR, ECCV, ICCV
- Algorithms: FOCS, SODA, STOC
- AI: AAAI, IJCAI
- ECON: EC
- NLP: ICL, EMNLP, NAACL
- HCI: HCI, UIST, UbiComp

The proposal should also include a brief overview, *1 page limit* (11-point font, single-spaced), of the proposed project and project plan that includes the following (if relevant):

- 1. (Motivation, Novelty) What is the problem that you will be investigating? Why is it interesting?
- 2. (Technical Challenges) What are the challenges of this project?
- 3. (Vison of Technical Contribution) How will you solve the problem? What method, algorithm or methodology are you proposing?
- 4. (Literature) What reading will you examine to provide context and background? If relevant, what papers do you refer to?
- 5. (Data) What dataset are you using? How do you plan to collect it?
- 6. (Evaluation) How will you evaluate your results? Qualitatively, what kind of results do you expect (e.g. plots or figures)? Quantitatively, what kind of analysis will you use to evaluate and/or compare your results (e.g. what performance metrics or statistical tests)?