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CS510: Exploration of Data Science
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Midpoint Report

Updates to the Project Topic, Research Planned, and Team Structure:

We have not made any significant changes to the project topic, subtopics, or to the team structure since our initial project proposal. Our overarching theme is how algorithms that affect individuals can unintentionally end up reinforcing societal prejudices and stereotypes due to data collection processes and/or training methods. We survey several areas of machine learning to showcase how widespread and insidious issues of bias can be. Hannah Galbraith will talk about gender bias in natural language processing algorithms, including word embeddings, machine translation, and sentiment analysis. Trina Rutz will look at automatic gender recognition in facial recognition software and the effects this has on non-binary populations. Chad Tolleson will discuss facial recognition software and algorithms for sentencing guidelines, and the very dire consequences this software has on minorities in the criminal justice system. Annie Merlin will look at the current and potential implications of AI in the medical field, including biases in machine learning algorithms using health record data and missing data/patients that are not identified by the algorithms. Will Mass will provide the introduction and conclusion where he will give an overview of the topics, provide definitions of biases, and give an overview of how Amazon's facial recognition software, Rekognition, works. So far it has

been difficult to find a journal publication which goes into any depth on Rekognition; much of this information may end up being gleaned from TED and Google talks from Amazon on the matter.

We have all done some intensive research into these topics and aren't lacking for primary sources for our paper (except with regard to Rekognition). Our focus going forward will be on synthesizing the information and presenting it in a way that is cohesive. We would also like to incorporate some of the information we learned from Dawn Nafus' presentation into the paper, such as the definitions she gave of bias, the different types of biases, and where bias can creep into the stack. We intend to reach out to her soon, to see if she can provide us (or the class, via the Google drive) with a copy of her slides.

Update on progress with respect to Project Milestones from the Project Plan

When we wrote up our project plan, we came up with the following 7 milestones:

1. July 2nd @ 4pm: meet with Kristen to discuss presentation outline
2. July 2nd-7th: team members research their subtopics and create presentation notes, questions, and related slides for in-class presentation
3. July 7th-9th: team consolidates subtopic materials to create a comprehensive presentation; do a timed trial of presentation
4. July 9th: team presents to the class
5. July 19th: provide project plan/update to Professor Tufte
6. July 19th-Aug 13th: additional research as necessary; write and edit final research paper
7. Aug 13th-15th: turn in final paper and present to the class

We have accomplished milestones 1 through 5 and are on track to complete our remaining milestones by the end of the term. The team has discussed the possibility of adding another milestone to the project, which would be to find an outlet, such as a journal of student

research, to showcase our work. We plan to look into this some more, and Trina Rutz has a connection at Out in Tech PDX that she will reach out to.

Date / time of scheduled midpoint meeting with Prof. Tufte

We have scheduled a meeting with Prof. Tufte for Thursday, August 1st at 5pm.