Literature Review Outline

Paper: http://www.cs.iit.edu/~glavic/cs520/2023-fall/paperreview/

Abstract

- We will summarize up to the end of the discussion section with the following sections highlighted: methodology, RQ1, RQ2, results, conclusion of the original literature.

Introduction

We will discuss:

- Data quality and fairness in production ML
- Quantifying the impact automated data cleaning on fair decision-making
- Focused on two main research questions

Methodology

We will discuss:

- The methodology used in the paper, which includes the use of 5 datasets from the census, healthcare and finance domain, 26,000 ML models, etc
- The use of Error Detection Strategies and its limitation in terms of fairness and precision
- The application of automated repair strategies and how it applies and differs between different models

Research Question 1 (RQ1)

- We will introduce RQ1: "Does the incidence of data errors track demographic Demographic group membership fairness datasets?" as well as its relevance

Research Question 2 (RQ2)

- We will introduce RQ2: "Do common automated data cleaning techniques impact the fairness of ML models trained on the cleaned datasets?" as well as its relevance

RQ1 Results and Discussion:

- We will discuss the results for RQ1 and relevant TLF (tables, listings, and figures) will be included

RQ2 Results and Discussion:

- We will discuss the results for RQ2 and relevant TLF will be included

Conclusion

We will discuss

- the implications found in the literature and present summarized results
- the future direction of the paper
- Contributions (which were discussed in the introduction of the literature)

Discussion

This section will include a discussion of the paper including critiques. Some critiques include:

- page 5 "59.3% of the times it has no significant impact on fairness. Worryingly however, when cleaning does have an impact on fairness, it is more likely to have an adverse impact (23.6%) than a positive one (17.1%)."
    - Why is 9.3% considered "no significant impact" while the 6.5% difference is considered an impact? What is their criteria? → this was a call from the authors (can include this in our critique)
- general structure of the paper because the conclusion is reiterated several times before the conclusion section

References

- Any references will be cited here