

Ethical Risks of Omitting Error Analysis in Machine Learning Models

Assignee Research

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Abstract

This report synthesises findings from 8 peer-reviewed papers addressing the following research question: error. 17 claims were extracted from source literature; 2 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 4.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Is it ethical to avoid error analysis?. Research question: error.

2 Methodology

Systematic literature search across multiple databases yielded 8 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 4.5/10.

3 Results

8 papers retrieved. 17 claims extracted; 2 independently verified. Quality review score: 4.5/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
Omitting part of the results in research has a direct link to research fraud, thus presenting an ethical concern.	×	0.03
Feeding a model with unbalanced data can lead to faking the performance of the algorithm or solution.	×	0.04
Avoiding error analysis can be considered falsification if intent can be proven, as the research and results are not acc	×	0.09
Confirmation bias is the tendency to search for, interpret, favor, and recall information in a way that confirms one's p	×	0.01
A researcher might not proceed further into analyzing the results of the model because they obtained positive results, c	×	0.03
A person might falsify data to make it fit with the desired end result of a study.	×	0.03
Not doing error analysis might lead to a model working differently than what is published, with the researcher being una	✓	0.15
Testing algorithm A against algorithm B in only one dataset could result in outcomes due to pure chance.	×	0.04
The lack of understanding of the model and the results is an ethical concern.	×	0.05
Omitting results intentionally is considered falsification and fraud.	×	0.02
Avoiding further model evaluation and analysis is unethical, unprofessional, and not a good research practice.	×	0.05
Avoiding error analysis can lead to a model being trained with biased data, creating discriminative predictions, such as	×	0.06
There needs to be an understanding of the limitations of a model.	×	0.01
Avoiding error analysis can present two ethical issues: falsification of results and discrimination.	✓	0.19
Falsification in research ethics includes omitting relevant data and manipulating research materials, images, data, equi	×	0.02
If a researcher is unaware of the type of data the model is being trained on, a discriminative situation can occur.	×	0.02
One approach to avoid discriminative situations is by conducting error analysis.	×	0.09

References

- <http://arxiv.org/abs/2311.00235v1>
- <http://arxiv.org/abs/2408.16972v3>
- <http://arxiv.org/abs/1706.10237v1>