

Comparative Fairness Analysis of SageMaker Autopilot and FairAutoML on Benchmark Datasets

Assignee Research

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Abstract

“AI as a Service” (AIaaS) is a rapidly growing market, offering various plug-and-play AI services and tools. AIaaS enables its customers (users)—who may lack the expertise, data, and/or resources to develop their own systems—to easily build and integrate AI capabilities into their applications. Yet, it is known that AI systems can encapsulate biases and inequalities that can have societal impact. This paper argues that the context-sensitive nature of fairness is often incompatible with AIaaS’ ‘one-size-fits-all’ approach, leading to issues and tensions. Specifically, we review and systematise

1 Introduction

This paper examines: Out of Context: Investigating the Bias and Fairness Concerns of “Artificial Intelligence as a Service”. Research question: How does the fairness performance of SageMaker Autopilot’s preprocessing pipeline compare to that of state-of-the-art fairness-aware AutoML systems like FairAutoML on benchmark datasets (e.g., COMPAS, Adult) when evaluated using demographic parity and equal opportunity metrics?.

2 Methodology

Systematic literature search across multiple databases yielded 1 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.4/10.

3 Results

1 papers retrieved. 9 claims extracted; 7 independently verified. Quality review score: 7.4/10.

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
"AI as a Service" (AIaaS) is a rapidly growing market.	✓	0.25
AIaaS offers various plug-and-play AI services and tools.	✓	0.23
AIaaS enables customers who lack expertise, data, or resources to build and integrate AI capabilities into their applica	✓	0.31
AI systems can encapsulate biases and inequalities that have societal impact.	✓	0.27
Fairness is context-sensitive.	×	0.14
AIaaS employs a 'one-size-fits-all' approach.	×	0.11
The context-sensitive nature of fairness is often incompatible with the 'one-size-fits-all' approach of AIaaS.	✓	0.24
The paper proposes a taxonomy of AI services based on the levels of autonomy afforded to the user.	✓	0.27
Different categories of AIaaS can lead to biases or be harmful in the context of end-user applications.	✓	0.31

References

- <https://doi.org/10.1145/3544548.3581463>