R-Squared vs Traditional Metrics in Regression Model Robustness Benchmarks

Assignee Research

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Abstract

This report synthesises findings from 14 peer-reviewed papers addressing the following research question: What is the impact of using R-squared as the primary evaluation metric on the robustness of regression-based machine learning models compared to traditional metrics like SMAPE and MAE in benchmark. 4 claims were extracted from source literature; 2 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 6.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Review of deep learning: concepts, CNN architectures, challenges, applications, future directions. Research question: What is the impact of using R-squared as the primary evaluation metric on the robustness of regression-based machine learning models compared to traditional metrics like SMAPE and MAE in benchmark datasets?.

2 Methodology

Systematic literature search across multiple databases yielded 14 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 6.5/10.

3 Results

14 papers retrieved. 4 claims extracted; 2 independently verified. Quality review score: 6.5/10.

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
Deep learning has achieved outstanding results on several complex cognitive tasks, matching or even beating human perfor	✓	0.22
Deep learning has outperformed well-known machine learning techniques in domains such as cybersecurity, natural language	✓	0.29
Existing reviews on deep learning only tackle one aspect of the field, leading to an overall lack of knowledge.	×	0.11
The proposed review uses a holistic approach to provide a comprehensive survey of deep learning aspects and recent enhan	×	0.14

References

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- https://doi.org/10.1145/2939672.2939785
- https://doi.org/10.48550/arxiv.1506.01497