

Structural Consistency in SCM-Generated Data Enhances Robustness to Distribution Shifts

Assignee Research

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Abstract

This report synthesises findings from 15 peer-reviewed papers addressing the following research question: To what extent does the structural consistency of SCM-generated synthetic samples in CausalMixFT improve robustness against distribution shifts compared to standard adversarial training, as measured. 3 claims were extracted from source literature; 1 was independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 5.7/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: DSLOB: A Synthetic Limit Order Book Dataset for Benchmarking Forecasting Algorithms under Distributional Shift. Research question: To what extent does the structural consistency of SCM-generated synthetic samples in CausalMixFT improve robustness against distribution shifts compared to standard adversarial training, as measured by accuracy degradation on unseen domains in TabMNAR?.

2 Methodology

Systematic literature search across multiple databases yielded 15 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 5.7/10.

3 Results

15 papers retrieved. 3 claims extracted; 1 independently verified. Quality review score: 5.7/10.

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
DSLOB is a synthetic limit order book dataset designed for benchmarking forecasting algorithms under distributional shift	✓	0.34
The dataset includes benchmark tables labeled as Table (p2) and Table (p5).	×	0.03
Table (p5) contains data categorized as 'Before Shock' and 'After Shock'.	×	0.02

References

- <http://arxiv.org/abs/2211.11513v1>
- <http://arxiv.org/abs/2205.14230v2>
- <http://arxiv.org/abs/2512.03307v1>