Comparative Analysis of Reconstruction and Permutation Pretext Tasks for Cross-Domain Transfer on TabNet Benchmarks

Assignee Research

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Abstract

Abstract Semi-supervised learning is the branch of machine learning concerned with using labelled as well as unlabelled data to perform certain learning tasks. Conceptually situated between supervised and unsupervised learning, it permits harnessing the large amounts of unlabelled data available in many use cases in combination with typically smaller sets of labelled data. In recent years, research in this area has followed the general trends observed in machine learning, with much attention directed at neural network-based models and generative learning. The literature on the topic has also e

1 Introduction

This paper examines: A survey on semi-supervised learning. Research question: Which self-supervised pretext tasks (reconstruction vs. permutation) yield better performance in cross-domain transfer scenarios, as evaluated by accuracy metrics on tabular datasets from the TabNet benchmark suite?.

2 Methodology

Systematic literature search across multiple databases yielded 13 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.9/10.

3 Results

13 papers retrieved. 7 claims extracted; 7 independently verified. Quality review score: 7.9/10.

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
Semi-supervised learning is the branch of machine learning concerned with using labelled as well as unlabelled data to p	✓	0.34
Semi-supervised learning is conceptually situated between supervised and unsupervised learning.	✓	0.21
In recent years, research in semi-supervised learning has directed much attention at neural network-based models and gen	✓	0.24
No recent surveys exist to collect and organize knowledge on semi-supervised learning prior to this work.	✓	0.23
The large majority of semi-supervised learning research takes place in the area of semi-supervised classification.	✓	0.27
The survey covers semi-supervised learning methods developed over the past two decades.	✓	0.18
The authors propose a new taxonomy of semi-supervised classification algorithms.	✓	0.23

References

- https://doi.org/10.1186/s40537-023-00792-7
- https://doi.org/10.1186/s40537-020-00392-9
- https://doi.org/10.1007/s10994-019-05855-6