

# What is the comparative impact of overlap class augmentation versus standard SMOTE on the F1-score of minority

Assignee Research

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## Abstract

Data is commonly stored in tabular format. Several fields of research are prone to small imbalanced tabular data. Supervised Machine Learning on such data is often difficult due to class imbalance. Synthetic data generation, i.e., oversampling, is a common remedy used to improve classifier performance. State-of-the-art linear interpolation approaches, such as LoRAS and ProWRAS can be used to generate synthetic samples from the convex space of the minority class to improve classifier performance in such cases. Deep generative networks are common deep learning approaches for synthetic sample gen

## 1 Introduction

This paper examines: ConvGeN: Convex space learning improves deep-generative oversampling for tabular imbalanced classification on smaller datasets. Research question: What is the comparative impact of overlap class augmentation versus standard SMOTE on the F1-score of minority classes when training deep generative models for imbalanced tabular classification?.

## 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 2.7/10.

## 3 Results

15 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 2.7/10.

## 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.

## References

- <http://arxiv.org/abs/2206.09812v2>
- <http://arxiv.org/abs/2308.15457v2>
- <http://arxiv.org/abs/2105.03855v1>