# Synthetic-to-Real Data Ratios Governing Convergence and Accuracy in Low-Resource Tabular Foundation Models

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June 12, 2026

**Abstract**

Abstract Nowadays, machine learning (ML) has attained a high level of achievement in many contexts. Considering the significance of ML in medical and bioinformatics owing to its accuracy, many investigators discussed multiple solutions for developing the function of medical and bioinformatics challenges using deep learning (DL) techniques. The importance of DL in Internet of Things (IoT)-based bio- and medical informatics lies in its ability to analyze and interpret large amounts of complex and diverse data in real time, providing insights that can improve healthcare outcomes and increase effi

## 1 Introduction

This paper examines: The deep learning applications in IoT-based bio- and medical informatics: a systematic literature review. Research question: What is the impact of varying the ratio of SCM-generated synthetic samples to real data on the convergence speed and final accuracy of fine-tuned tabular foundation models in low-resource settings?.

## 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 7.5/10.

## 3 Results

13 papers retrieved. 4 claims extracted; 4 independently verified. Quality review score: 7.5/10.

## 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 in IoT-based bio- and medical informatics can analyze and interpret large amounts of complex and diverse d | ✓ | 0.36 |
| Applications of deep learning in IoT-based bio- and medical informatics include diagnosis, treatment recommendation, cli | ✓ | 0.40 |
| The review categorizes deep learning solutions for medical and bioinformatics issues into five categories: convolutional | ✓ | 0.34 |
| The systematic literature review evaluated each deep learning category based on effective properties including main idea | ✓ | 0.25 |

## References


- https://doi.org/10.1007/s00521-023-09366-3
- https://doi.org/10.3390/fi15080260
- https://doi.org/10.1111/mice.13357