

# What is the impact of causal depth variation in synthetic training data on the few-shot learning performance o

Assignee Research

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## Abstract

Artificial intelligence (AI) is currently being utilized in a wide range of sophisticated applications, but the outcomes of many AI models are challenging to comprehend and trust due to their black-box nature. Usually, it is essential to understand the reasoning behind an AI model's decision-making. Thus, the need for eXplainable AI (XAI) methods for improving trust in AI models has arisen. XAI has become a popular research subject within the AI field in recent years. Existing survey papers have tackled the concepts of XAI, its general terms, and post-hoc explainability methods but there have

## 1 Introduction

This paper examines: Explainable Artificial Intelligence (XAI): What we know and what is left to attain Trustworthy Artificial Intelligence. Research question: What is the impact of causal depth variation in synthetic training data on the few-shot learning performance of tabular foundation models across diverse distribution shift scenarios?.

## 2 Methodology

Systematic literature search across multiple databases yielded 8 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.3/10.

## 3 Results

8 papers retrieved. 10 claims extracted; 10 independently verified. Quality review score: 8.3/10.

## 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
AI is currently being utilized in a wide range of sophisticated applications.	✓	0.21
The outcomes of many AI models are challenging to comprehend and trust due to their black-box nature.	✓	0.27
It is essential to understand the reasoning behind an AI model's decision-making.	✓	0.21
XAI has become a popular research subject within the AI field in recent years.	✓	0.24
Existing survey papers have tackled the concepts of XAI, its general terms, and post-hoc explainability methods.	✓	0.33
There have not been any reviews that have looked at the assessment methods, available tools, XAI datasets, and other rel	✓	0.27
The study provides an overview of the current research and trends in XAI with a case study example.	✓	0.19
The review divides XAI techniques into four axes: data explainability, model explainability, post-hoc explainability, an	✓	0.28
The study introduces available evaluation metrics as well as open-source packages and datasets with future research dire	✓	0.25
The study discusses the significance of explainability in terms of legal demands, user viewpoints, and application orien	✓	0.24

## References

- <https://doi.org/10.1016/j.inffus.2023.101805>

- <https://doi.org/10.1561/22000000071>
- <https://doi.org/10.1007/s10462-022-10304-3>