

# Small Language Models for Hallucination Detection Across LLM Architectures on TruthfulQA

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## Abstract

This report synthesises findings from 10 peer-reviewed papers addressing the following research question: How do small language models for hallucination detection generalize across different LLM architectures when evaluated on TruthfulQA with varying token misalignment thresholds. Small Language Models (SLMs) offer computational efficiency and accessibility, yet a systematic evaluation of their performance and environmental impact remains lacking. We introduce SLM-Bench, the first benchmark specifically designed to assess SLMs across multiple dimensions. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: SLM-Bench: A Comprehensive Benchmark of Small Language Models on Environmental Impacts–Extended Version. Research question: How do small language models for hallucination detection generalize across different LLM architectures when evaluated on TruthfulQA with varying token misalignment thresholds?.

## 2 Methodology

Systematic literature search across multiple databases yielded 10 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 3.3/10.

### **3 Results**

10 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 3.3/10.

### **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.

### **References**

- <http://arxiv.org/abs/2508.15478v2>
- <http://arxiv.org/abs/2506.22486v1>
- <http://arxiv.org/abs/2410.14259v2>