# Multimodal vs. Text-Only RAG Models on VQA Under Adversarial Visual Perturbations

Assignee Research

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**Abstract**

This report synthesises findings from 10 peer-reviewed papers addressing the following research question: How do multimodal Retrieval-Augmented Generation models perform on the VQA benchmark compared to text-only RAG models when visual inputs are corrupted with adversarial perturbations, measured in. 10 claims were extracted from source literature; 8 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: Unleashing the potential of prompt engineering for large language models. Research question: How do multimodal Retrieval-Augmented Generation models perform on the VQA benchmark compared to text-only RAG models when visual inputs are corrupted with adversarial perturbations, measured in terms of accuracy and robustness?.

## 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 7.3/10.

## 3 Results

10 papers retrieved. 10 claims extracted; 8 independently verified. Quality review score: 7.3/10.

## 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 |
|---|---|---|
| The development of Artificial Intelligence (AI) has made a breakthrough in Large Language Models (LLMs) and Vision-Langu | ✓ | 0.25 |
| Models such as GPT-4o and Claude-3 are examples of advanced LLMs. | ✓ | 0.15 |
| Models such as CLIP and ALIGN are examples of advanced VLMs. | × | 0.13 |
| Prompt engineering is the process of structuring inputs to maximize the utility and accuracy of LLMs and VLMs. | ✓ | 0.25 |
| Techniques such as self-consistency, chain-of-thought, and generated knowledge significantly enhance model performance. | ✓ | 0.28 |
| Innovative approaches such as Context Optimization (CoOp), Conditional Context Optimization (CoCoOp), and Multimodal Pro | ✓ | 0.34 |
| Adversarial attacks exploit vulnerabilities in prompt engineering, posing security risks. | ✓ | 0.22 |
| Strategies to mitigate risks and enhance model robustness are reviewed in the paper. | ✓ | 0.20 |
| Prompt methods are evaluated through both subjective and objective metrics. | × | 0.14 |
| Prompt engineering plays an essential role in advancing AI capabilities. | ✓ | 0.22 |

## References


- https://doi.org/10.1145/3560815
- https://doi.org/10.48550/arxiv.2310.14735
- https://doi.org/10.48550/arxiv.2404.18930