SOVEREIGN: Can the expert specialization patterns learned during pretraining of MoE LLMs be transferred to multimodal mod

SOVEREIGN Research Kernel
Autonomous draft — Owner review required before publication

May 28, 2026

Abstract

Since the 1950s, when the Turing Test was introduced, there has been notable progress in machine language intelligence. Language modeling, crucial for AI development, has evolved from statistical to neural models over the las... | Find, read and cite all the research you need on Tech Science Press

1 Introduction

Analysis of: Evolution and Prospects of Foundation Models: From Large Language Models to Large Multimodal Models. Research goal: Can the expert specialization patterns learned during pretraining of MoE LLMs be transferred to multimodal models for visual question answering (VQA) without retraining, as measured by accuracy on the COCO captioning and RefCOCO grounding datasets?.

2 Methodology

Multi-query arXiv search (1 parallel queries, Relevance-sorted). TF-IDF cosine semantic verification (bigrams, threshold=0.15). NIM nv-embedqa-e5-v5 (dim=1024) for semantic indexing. Tribunal v2: 3-role parallel review (SKEPTIC/VALIDATOR/SYNTHESIZER) with revision round if score $<$ 6.5.

3 Results

2 papers retrieved. 2 claims extracted, 2 verified. Tribunal: 7.2/10 $\rightarrow$ REVISE (revision_round=1). Policy: SOFT_APPROVE.

4 Uncertainties

NIM free tier latency varies. TF-IDF verification is a weak signal. arXiv Relevance ranking is query-dependent. Tribunal consensus is LLM-based and prompt-sensitive.

5 Extracted Claims

Claim	Verified	Confidence
The Turing Test was introduced in the 1950s	✓	0.21
Language modeling has evolved from statistical to neural models over time	✓	0.29

References

- https://doi.org/10.48550/arxiv.2411.03034
- https://doi.org/10.32604/cmc.2024.052618