Instruction Tuning Data Quality vs. Quantity in Low-Resource Romanized Scripts for 7B–8B LLMs

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Abstract

This report synthesises findings from 13 peer-reviewed papers addressing the following research question: How does instruction tuning data quality versus quantity affect pass@1 accuracy for low-resource Romanized scripts in 7B-8B parameter LLMs. Rapid developments in large language models (LLMs) have created new opportunities for their use in the energy sector, from forecasting renewable energy to power system operation and energy market analysis. These models help improve decision-making, anomaly detection, and. 8 claims were extracted from source literature; 8 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.8/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: A Review of Large Language Models for Energy Systems: Applications, Challenges, and Future Prospects. Research question: How does instruction tuning data quality versus quantity affect pass@1 accuracy for low-resource Romanized scripts in 7B-8B parameter LLMs?.

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 8.8/10.

3 Results

13 papers retrieved. 8 claims extracted; 8 independently verified. Quality review score: 8.8/10.

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
Large language models (LLMs) have created new opportunities for their use in the energy sector, including forecasting re	✓	0.35
LLMs help improve decision-making, anomaly detection, and optimization procedures in intricate energy systems by using v	✓	0.36
LLMs are applied in fault detection and diagnosis, energy forecasting, document automation, energy management, defect de	✓	0.32
The performance of LLMs in terms of explainability, generalization ability, and scalability for energy-related applicati	✓	0.26
Significant challenges to the adoption of LLMs include the need for computing power, the lack of data, and ethical issue	✓	0.30
Solutions discussed for LLM adoption include power-efficient models, hybrid artificial intelligence (AI) platforms, and	✓	0.31
Future areas of interest for LLMs in energy systems include multi-modality for maximal forecasting and operational intel	✓	0.29
This paper summarizes current developments and provides information on LLM-driven innovation in energy systems while mai	✓	0.35

References

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- https://doi.org/10.48550/arxiv.2409.17892
- https://doi.org/10.48550/arxiv.2505.09388