Self-Invoking Code Generation Accuracy Under Problem Complexity in Multimodal Models

Assignee Research

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Abstract

This report synthesises findings from 15 peer-reviewed papers addressing the following research question: What is the sensitivity of self-invoking code generation accuracy to variations in problem complexity when using multimodal models trained via supervised fine-tuning versus reinforcement learning. Deep learning (DL) is playing an increasingly important role in our lives. It has already made a huge impact in areas, such as cancer diagnosis, precision medicine, self-driving cars, predictive forecasting, and speech recognition. 6 claims were extracted from source literature; 6 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Review of Deep Learning Algorithms and Architectures. Research question: What is the sensitivity of self-invoking code generation accuracy to variations in problem complexity when using multimodal models trained via supervised fine-tuning versus reinforcement learning?.

2 Methodology

Systematic literature search across multiple databases yielded 15 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

15 papers retrieved. 6 claims extracted; 6 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
Deep learning has made a huge impact in areas such as cancer diagnosis, precision medicine, self-driving cars, predictiv	✓	0.36
Handcrafted feature extractors used in traditional learning, classification, and pattern recognition systems are not sca	✓	0.35
Deep learning can overcome the limitations of earlier shallow networks that prevented efficient training and abstraction	✓	0.38
Deep neural networks (DNN) use multiple (deep) layers of units with highly optimized algorithms and architectures.	✓	0.30
The paper reviews several optimization methods intended to improve training accuracy and reduce training time.	✓	0.19
The review covers different types of deep architectures, including deep convolution networks, deep residual networks, re	✓	0.38

References

- https://doi.org/10.1007/s12559-023-10179-8
- https://doi.org/10.1109/access.2021.3140175
- https://doi.org/10.1109/access.2019.2912200