

Multimodal Transformer Code Generation Accuracy Under Varying Image Resolutions

Assignee Research

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Abstract

This report synthesises findings from 14 peer-reviewed papers addressing the following research question: What is the impact of varying image resolution inputs on the code generation accuracy of multimodal transformers on the HumanEval-V benchmark. 12 claims were extracted from source literature; 11 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: Gradient-based learning applied to document recognition. Research question: What is the impact of varying image resolution inputs on the code generation accuracy of multimodal transformers on the HumanEval-V benchmark?.

2 Methodology

Systematic literature search across multiple databases yielded 14 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

14 papers retrieved. 12 claims extracted; 11 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
Multilayer neural networks trained with the back-propagation algorithm constitute the best example of a successful gradi	✓	0.37
Given an appropriate network architecture, gradient-based learning algorithms can be used to synthesize a complex decisi	✓	0.42
The paper compares various methods applied to handwritten character recognition on a standard handwritten digit recognit	✓	0.27
Convolutional neural networks are specifically designed to deal with the variability of 2D shapes.	✓	0.27
Convolutional neural networks outperform all other techniques on the standard handwritten digit recognition task.	✓	0.26
Real-life document recognition systems are composed of multiple modules including field extraction, segmentation recogni	✓	0.33
Graph transformer networks (GTN) allow multimodule systems to be trained globally using gradient-based methods to minimi	✓	0.35
Experiments demonstrate the advantage of global training and the flexibility of graph transformer networks in two descri	✓	0.34
A graph transformer network for reading bank cheques uses convolutional neural network character recognizers combined wi	✓	0.34
The described graph transformer network for reading bank cheques provides record accuracy on business and personal chequ	✓	0.24
The described graph transformer network for reading bank cheques is deployed commercially.	✓	0.23
The commercially deployed system reads several million cheques.	×	0.10

References

- <https://doi.org/10.1017/s0140525x12000477>
- <https://doi.org/10.1109/5.726791>

- <https://doi.org/10.1007/s11704-026-60308-3>