

Inference Latency of 3D CNN-CRF Hybrids vs. Vision Transformers in Medical Imaging

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: How does the inference latency of 3D CNN-CRF hybrids compare to Vision Transformer variants on high-resolution 3D medical imaging benchmarks. 5 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.7/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: A Comprehensive Survey of Convolutions in Deep Learning: Applications, Challenges, and Future Trends. Research question: How does the inference latency of 3D CNN-CRF hybrids compare to Vision Transformer variants on high-resolution 3D medical imaging benchmarks?.

2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.7/10.

3 Results

4 papers retrieved. 5 claims extracted; 5 independently verified. Quality review score: 8.7/10.

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
CNNs are widely used for various computer vision tasks such as image classification, object detection, and image segment	✓	0.28
There are numerous types of CNNs designed to meet specific needs and requirements, including 1D, 2D, and 3D CNNs, as wel	✓	0.38
Each type of CNN has its unique structure and characteristics, making it suitable for specific tasks.	✓	0.28
Studying the performance, limitations, and practical applications of each type of CNN can aid in the development of new	✓	0.33
The survey paper provides a comprehensive examination and comparison of various CNN architectures, highlighting their ar	✓	0.43

References

- <https://doi.org/10.1186/s12903-025-05984-6>
- <https://doi.org/10.1109/access.2024.3376441>
- <https://doi.org/10.14569/ijacsa.2024.0150276>