

Evidential Deep Learning with Non-Negative Constraints for Cross-Modal Retrieval Accuracy

Assignee Research

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Abstract

This report synthesises findings from 14 peer-reviewed papers addressing the following research question: How does evidential deep learning with non-negative evidence constraints affect cross-modal retrieval accuracy on CLIP and ALBEF compared to standard softmax-based metric learning. 5 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.8/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: A Multimodal Deep Learning Approach for Legal English Learning in Intelligent Educational Systems. Research question: How does evidential deep learning with non-negative evidence constraints affect cross-modal retrieval accuracy on CLIP and ALBEF compared to standard softmax-based metric learning?.

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. 5 claims extracted; 5 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
The proposed cross-modal legal English question-answering system achieved an Accuracy of 0.87, Precision of 0.88, and Re	✓	0.34
The proposed method outperformed the traditional ASR+SVM classifier, image-retrieval-based QA model, and unimodal BERT Q	✓	0.31
The proposed method achieved a Matching Accuracy of 0.85 in multimodal matching performance.	✓	0.25
The proposed method surpassed mainstream cross-modal models such as VisualBERT, LXMERT, and CLIP in multimodal matching	✓	0.24
The user study verified the system's practical effectiveness in real teaching environments, with learners' understanding	✓	0.34

References

- <https://doi.org/10.1109/rbme.2024.3408456>
- <https://doi.org/10.1007/s11633-022-1410-8>
- <https://doi.org/10.3390/s25113397>