Performance of Attention-Informed Mixed-Language Training in Multilingual VQA Benchmarks

Assignee Research

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Abstract

While several benefits were realized for multilingual vision-language pretrained models, recent benchmarks across various tasks and languages showed poor cross-lingual generalisation when multilingually pre-trained vision-language models are applied to non-English data, with a large gap between (supervised) English performance and (zero-shot) cross-lingual transfer. In this work, we explore the poor performance of these models on a zero-shot cross-lingual visual question answering (VQA) task, where models are fine-tuned on English visual-question data and evaluated on 7 typologically diverse l

1 Introduction

This paper examines: Improving the Cross-Lingual Generalisation in Visual Question Answering. Research question: How does the performance of Attention-Informed Mixed-Language Training (MLT) compare to other zero-shot adaptation methods like cross-lingual transfer learning or multi-task learning on the Multilingual Visual Question Answering (ML-VQA) benchmark when evaluated on languages with varying levels of linguistic and structural similarity to the training language?.

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 8.7/10.

3 Results

13 papers retrieved. 6 claims extracted; 6 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
Recent benchmarks across various tasks and languages showed poor cross-lingual generalisation when multilingually pre-tr	✓	0.54
The paper explores the poor performance of multilingually pre-trained vision-language models on a zero-shot cross-lingua	✓	0.49
The paper introduces a linguistic prior objective to augment the cross-entropy loss with a similarity-based loss to guid	✓	0.30
The paper learns a task-specific subnetwork that improves cross-lingual generalisation and reduces variance without mode	✓	0.31
The paper augments training examples using synthetic code-mixing to promote alignment of embeddings between source and t	✓	0.28
The paper's experiments on xGQA using the pretrained multilingual multimodal transformers UC2 and M3P demonstrate the co	✓	0.42

References

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- https://doi.org/10.18653/v1/2023.emnlp-main.85
- https://doi.org/10.1609/aaai.v37i11.26574