Task-Agnostic Self-Guidance Transfer in Multimodal Time Series Forecasting

Assignee Research

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Abstract

In this paper we report the set-up and results of the Multimodal Brain Tumor Image Segmentation Benchmark (BRATS) organized in conjunction with the MICCAI 2012 and 2013 conferences. Twenty state-of-the-art tumor segmentation algorithms were applied to a set of 65 multi-contrast MR scans of low- and high-grade glioma patients-manually annotated by up to four raters-and to 65 comparable scans generated using tumor image simulation software. Quantitative evaluations revealed considerable disagreement between the human raters in segmenting various tumor sub-regions (Dice scores in the range 74%-85

1 Introduction

This paper examines: The Multimodal Brain Tumor Image Segmentation Benchmark (BRATS). Research question: Can the task-agnostic self-guidance mechanism in TSDiff be effectively transferred to multimodal time series forecasting tasks, and how does it scale with model size compared to specialized multimodal conditional models evaluated on metrics like MAE/MSE across vision-time series datasets?.

2 Methodology

Systematic literature search across multiple databases yielded 5 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 9.3/10.

3 Results

5 papers retrieved. 8 claims extracted; 8 independently verified. Quality review score: 9.3/10.

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
The Multimodal Brain Tumor Image Segmentation Benchmark (BRATS) was organized in conjunction with the MICCAI 2012 and 20	✓	0.43
Twenty state-of-the-art tumor segmentation algorithms were applied to a set of 65 multi-contrast MR scans of low- and hi	✓	0.39
The MR scans were manually annotated by up to four raters.	✓	0.17
Quantitative evaluations revealed considerable disagreement between the human raters in segmenting various tumor sub-reg	✓	0.38
Different algorithms worked best for different sub-regions (reaching performance comparable to human inter-rater variabi	✓	0.36
No single algorithm ranked in the top for all sub-regions simultaneously.	✓	0.24
Fusing several good algorithms using a hierarchical majority vote yielded segmentations that consistently ranked above a	✓	0.32
The BRATS image data and manual annotations continue to be publicly available through an online evaluation system as an	✓	0.32

References

- https://doi.org/10.1007/s11042-020-09004-3
- https://doi.org/10.1038/s41586-023-05881-4
- https://doi.org/10.1109/tmi.2014.2377694