Distributionally Robust Optimization Enhances Metric Alignment in Vision-Language Segmentation

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: To what extent do distributionally robust optimization techniques improve the alignment of Dice score and Hausdorff distance metrics with human evaluation in vision-language segmentation models. A joint measurement is presented of the branching fractions $B^0_s\to$\mu$^+$\mu$^-$ and $B^0\to$\mu$^+$\mu$^-$ in proton-proton collisions at the LHC by the CMS and LHCb experiments. The data samples were collected in 2011 at a centre-of-mass energy of 7 TeV, and in 2012 at 8 TeV. 6 claims were extracted from source literature; 1 was independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 4.9/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Observation of the rare $B^0_s\to$\mu$^+$\mu$^-$ decay from the combined analysis of CMS and LHCb data. Research question: To what extent do distributionally robust optimization techniques improve the alignment of Dice score and Hausdorff distance metrics with human evaluation in vision-language segmentation models compared to standard loss functions?.

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 4.9/10.

3 Results

4 papers retrieved. 6 claims extracted; 1 independently verified. Quality review score: 4.9/10.

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 Large Hadron Collider (LHC) has a 27 km circular tunnel located approximately 100 m underground near Geneva, Switzer	×	0.01
Data was collected at energies of 3.5 TeV per beam in 2011 and 4 TeV per beam in 2012 by the CMS and LHCb experiments.	✓	0.16
The CMS detector is optimised to search for yet unknown heavy particles, with masses ranging from 100 GeV/c2 to a few Te	×	0.03
The CMS detector employs a 13 m long, 6 m diameter superconducting solenoid magnet, operated at a field of 3.8 T.	×	0.02
The B0 meson has a mass of 5280 MeV/c2.	×	0.01
The B0s meson has a mass of 5367 MeV/c2.	×	0.01

References

- http://arxiv.org/abs/2601.07595v3
- http://arxiv.org/abs/0901.0512v4
- http://arxiv.org/abs/1411.4413v2