Learnable Precision Matrix Dimensionality in RBF Feature Extractors: Stability and Accuracy on High-Dimensional Tabular Data

Assignee Research

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Abstract

This report synthesises findings from 15 peer-reviewed papers addressing the following research question: How does increasing the dimensionality of learnable precision matrices in RBF-based feature extractors impact convergence stability and test accuracy on high-dimensional tabular benchmarks. 10 claims were extracted from source literature; 10 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Remote Sensing Image Scene Classification Meets Deep Learning: Challenges, Methods, Benchmarks, and Opportunities. Research question: How does increasing the dimensionality of learnable precision matrices in RBF-based feature extractors impact convergence stability and test accuracy on high-dimensional tabular benchmarks?.

2 Methodology

Systematic literature search across multiple databases yielded 15 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.3/10.

3 Results

15 papers retrieved. 10 claims extracted; 10 independently verified. Quality review score: 7.3/10.

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
Remote sensing image scene classification aims at labeling remote sensing images with a set of semantic categories based	✓	0.44
Remote sensing image scene classification has broad applications in a range of fields.	✓	0.36
Deep neural networks possess powerful feature learning capabilities.	✓	0.19
Remote sensing image scene classification driven by deep learning has achieved significant breakthroughs.	✓	0.40
A comprehensive review of recent achievements regarding deep learning for scene classification of remote sensing images	✓	0.36
This article provides a systematic survey covering more than 160 papers.	✓	0.20
The survey discusses autoencoder-based remote sensing image scene classification methods.	✓	0.37
The survey discusses convolutional neural network-based remote sensing image scene classification methods.	✓	0.40
The survey discusses generative adversarial network-based remote sensing image scene classification methods.	✓	0.40
The article summarizes the performance of more than two dozen representative algorithms on three commonly used benchmark	✓	0.21

References

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- https://doi.org/10.1109/jstars.2020.3005403

- https://doi.org/10.1007/978-1-4302-5990-9