Strided Convolutions vs Max-Pooling in Large-Scale CNN Memory and Accuracy

Assignee Research

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Abstract

This report synthesises findings from 11 peer-reviewed papers addressing the following research question: What is the impact of replacing max-pooling layers with strided convolutions on the memory usage and classification accuracy of 60-million parameter CNNs trained on large-scale image datasets. Convolutional neural networks (CNNs) have made resounding success in many computer vision tasks such as image classification and object detection. However, their performance degrades rapidly on tougher tasks where images are of low resolution or objects are small. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 4.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: No More Strided Convolutions or Pooling: A New CNN Building Block for Low-Resolution Images and Small Objects. Research question: What is the impact of replacing max-pooling layers with strided convolutions on the memory usage and classification accuracy of 60-million parameter CNNs trained on large-scale image datasets?.

2 Methodology

Systematic literature search across multiple databases yielded 11 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 4.5/10.

3 Results

11 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 4.5/10.

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.

References

- http://arxiv.org/abs/2109.01561v1
- http://arxiv.org/abs/2208.03641v1
- http://arxiv.org/abs/1509.08985v2