

Peer Review

Review of: "Partial Convolution Meets Visual Attention"

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Here's a brief review based on the article you shared:

The article presents **PATNet**, a novel neural network design aimed at enhancing efficiency and accuracy in computer vision tasks. Traditional depthwise convolutions (DWConv), though popular, suffer from low throughput due to frequent memory access. **FasterNet** introduced partial convolution (PConv) as a faster alternative but at the cost of reduced accuracy. To address this, the authors propose a **Partial visual Attention mechanism (PAT)**, which combines PConv with an efficient attention mechanism to better utilize feature channels and reduce computational overhead. PAT leads to the creation of three new attention blocks: **Partial Channel-Attention (PAT_ch)**, **Partial Spatial-Attention (PAT_sp)**, and **Partial Self-Attention (PAT_sf)**. Built on these, **PATNet** outperforms FasterNet on both ImageNet-1K classification and COCO object detection and segmentation tasks, offering notable improvements in accuracy, GPU throughput, and CPU latency. The work effectively balances speed and performance, making it a significant advancement in lightweight neural network design.

Declarations

Potential competing interests: No potential competing interests to declare.