

# Token Generation Throughput of U-PaLM and Flamingo on VQA v2 Across Scales

Assignee Research

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## Abstract

This report synthesises findings from 11 peer-reviewed papers addressing the following research question: How does the token generation throughput of U-PaLM variants compare to dedicated vision-language models like Flamingo on the VQA v2 dataset across different parameter scales. Vision-Language Model (VLM) have gained widespread adoption in Open-Vocabulary (OV) object detection and segmentation tasks. Despite they have shown promise on OV-related tasks, their effectiveness in conventional vision tasks has thus far been unevaluated. 16 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: Vision-Language Model for Object Detection and Segmentation: A Review and Evaluation. Research question: How does the token generation throughput of U-PaLM variants compare to dedicated vision-language models like Flamingo on the VQA v2 dataset across different parameter scales?.

## 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 3.5/10.

### **3 Results**

11 papers retrieved. 16 claims extracted; 0 independently verified. Quality review score: 3.5/10.

### **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.



## 5 Extracted Claims

Claim	Verified	Confidence
Object detection and segmentation are fundamental tasks in computer vision, serving as essential components for percepti	×	0.12
Object detection and segmentation technologies form the backbone of various practical applications across multiple domai	×	0.08
Current VLMs fundamentally operate by aligning visual and textual features to achieve their broad and robust capabilitie	×	0.05
In object detection tasks, VLM-based detection aligns visual features with text descriptions through contrastive learnin	×	0.14
GLIP and GroundingDINO achieve generalization across unseen categories through pre-training on large-scale datasets such	×	0.10
In segmentation tasks, recent works have focused on transferring global multi-modal alignment capabilities of VLMs to fi	×	0.05
These advancements leverage diverse supervision strategies to facilitate dense prediction in pixel-wise segmentation tas	×	0.06
Current VLMs predominantly demonstrate strong performance on open-vocabulary (OV) tasks.	×	0.10
DA-Pro builds upon RegionCLIP by dynamically generating domain-specific detection heads through domain-relevant and doma	×	0.05
COUNTGD improves instance counting by augmenting the text prompts in GroundingDINO with visual exemplars of correspondin	×	0.02
GroundingDino (swin-T) achieves an AP <sub>novel</sub> of 57.1, AP <sub>base</sub> of 47.5, and AP of 49.8 on OV-COCO.	×	0.01
GroundingDino (swin-B) achieves an AP <sub>novel</sub> of 62.7, AP <sub>base</sub> of 55.4, and AP of 57.3 on OV-COCO.	×	0.01
GLIP-T (A) achieves an AP <sub>novel</sub> of 65.9, AP <sub>base</sub> of 58.2, and AP of 60.3 on OV-COCO.	×	0.01
GLIP-T (B) achieves an AP <sub>novel</sub> of 69.8, AP <sub>base</sub> of 59.3, and AP of 62.0 on OV-COCO.	×	0.01
GLIP-T (C) achieves an AP <sub>novel</sub> of 69.3, AP <sub>base</sub> of 60.5, and AP of 62.8 on OV-COCO.	×	0.01
Region CLIP (Res50) achieves an AP <sub>novel</sub> of 25.2, AP <sub>base</sub> of 31.4, and AP of 26.8 on OV-COCO.	×	0.01

## References

- <http://arxiv.org/abs/2408.02555v3>
- <http://arxiv.org/abs/2504.09480v1>
- <http://arxiv.org/abs/2205.15237v1>