Split Matching for Inductive Zero-shot Semantic Segmentation

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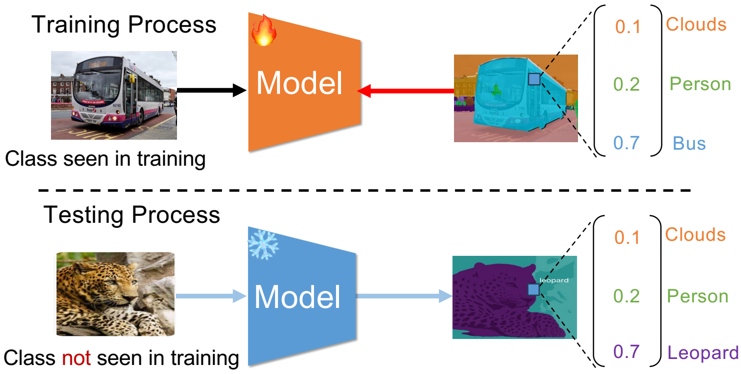
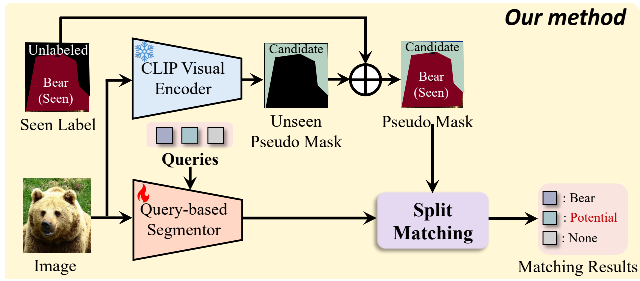
Background & Problems

➢ Zero-shot semantic segmentation (ZSS) aims to achieve pixel-level understanding of novel classes that are unseen during training.



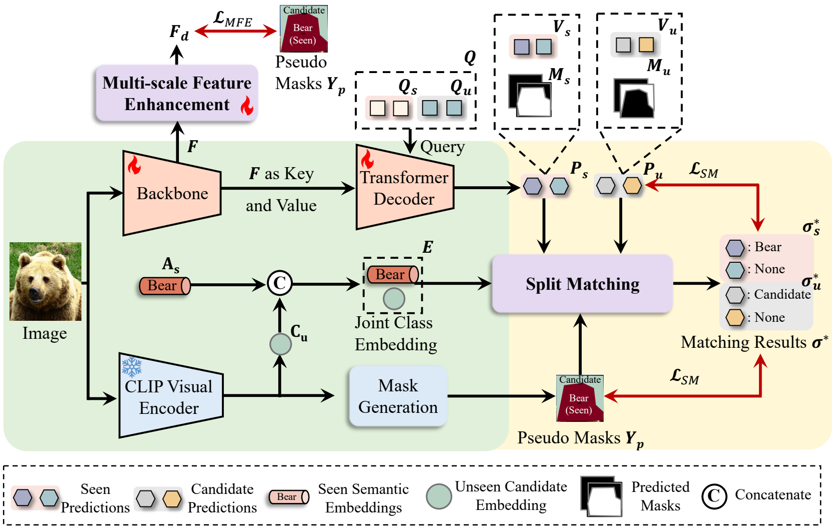
➢ Problem of Existing Methods

Query-based segmentation struggles in zero-shot scenarios due to rigid target assignment, misclassifying unseen classes as background.

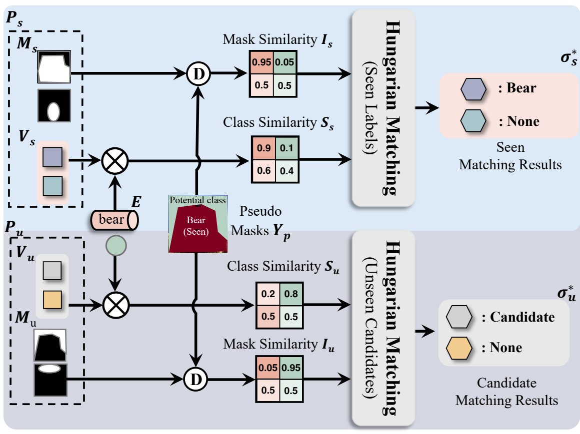


Methods: Split Matching

✓ Method Overview: We split object queries into seen and candidate queries, optimizing different queries respectively



✓ Split Matching: assign different targets to seen and unseen queries based on mask and class similarity, and combine the results



Experimental Results (Comparison with SOTA)

✓ Comparison with SOTA: We achieve higher performance especially on uIoU and hIoU

Models	COCO-Stuff		
	hIoU	**sIoU**	**uIoU**
SPNet [31]	14.0	35.2	8.7
ZS3 [3]	15.0	34.7	9.5
CaGNet [19]	18.2	33.5	12.2
SIGN [14]	20.9	32.3	15.5
ZegFormer [16]	34.8	36.6	33.2
Zzseg [33]	37.8	39.3	36.3
DeOP [21]	38.2	38.0	38.4
ZegCLIP [40]	40.8	40.2	41.4
OTSeg [35]	41.4	41.4	41.4
Ours	**42.5**	**42.6**	**42.4**

✓ Visualization: Our method can better distinguish classes that are very similar to the seen classes