CLIP-Guided Cross-Modal Feature Fusion and Domain-Adaptive Feature Aggregation based Few-Shot Learning for Night Pavement Defect Detection

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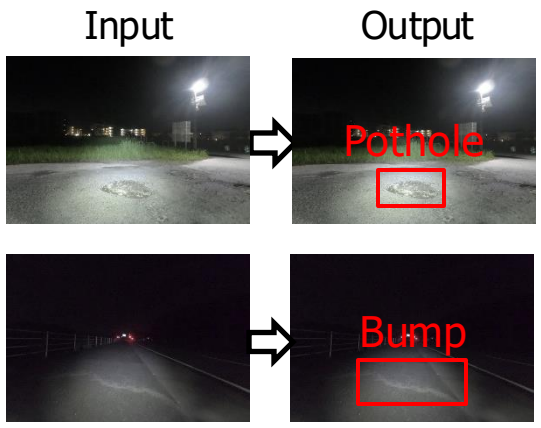
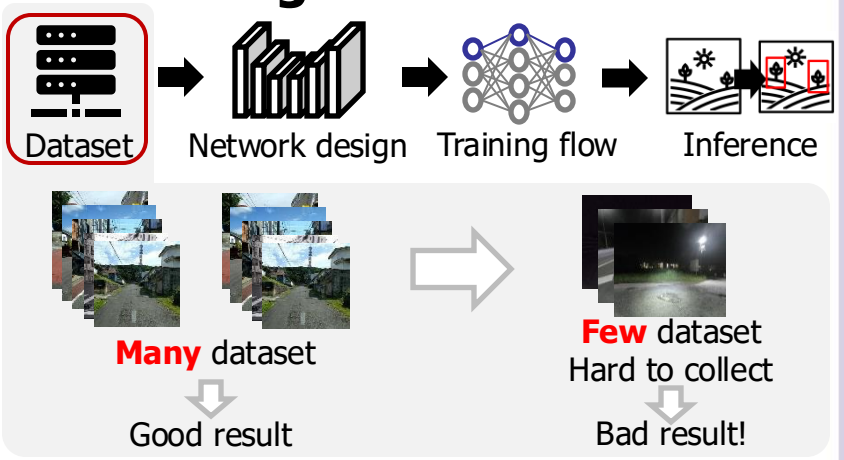
Background

Application

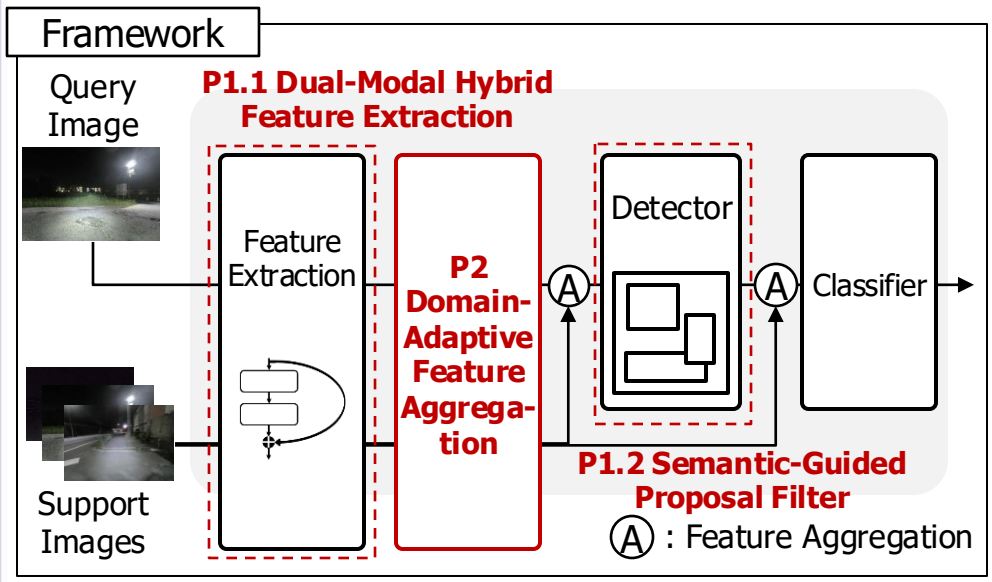
- Traffic safety
- Road maintenance
- Vehicle quality
- .....

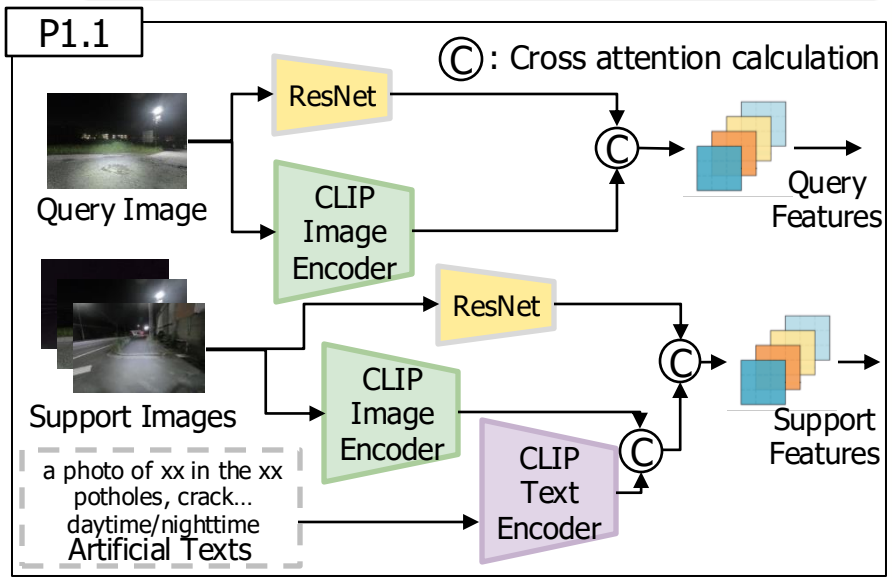


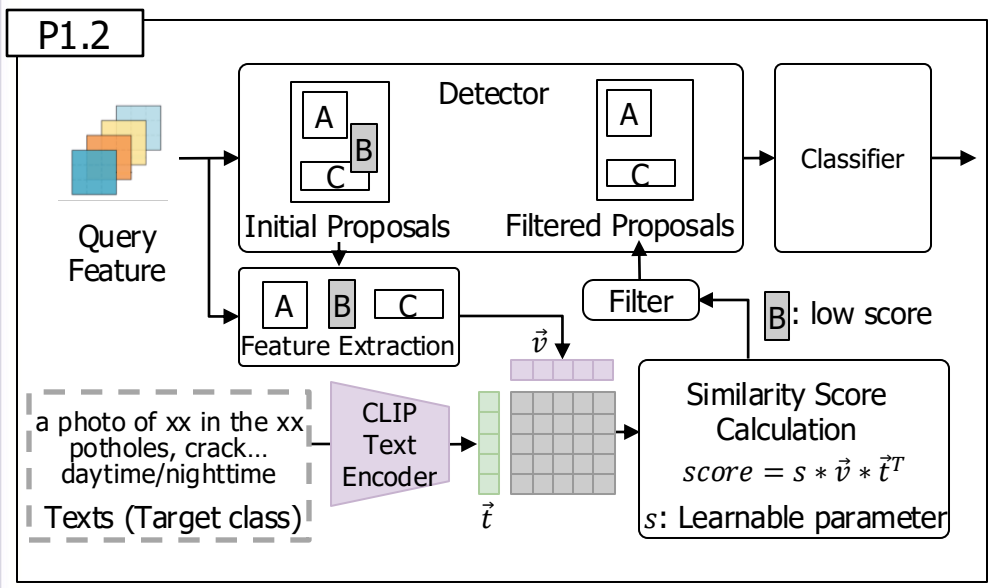
Challenges

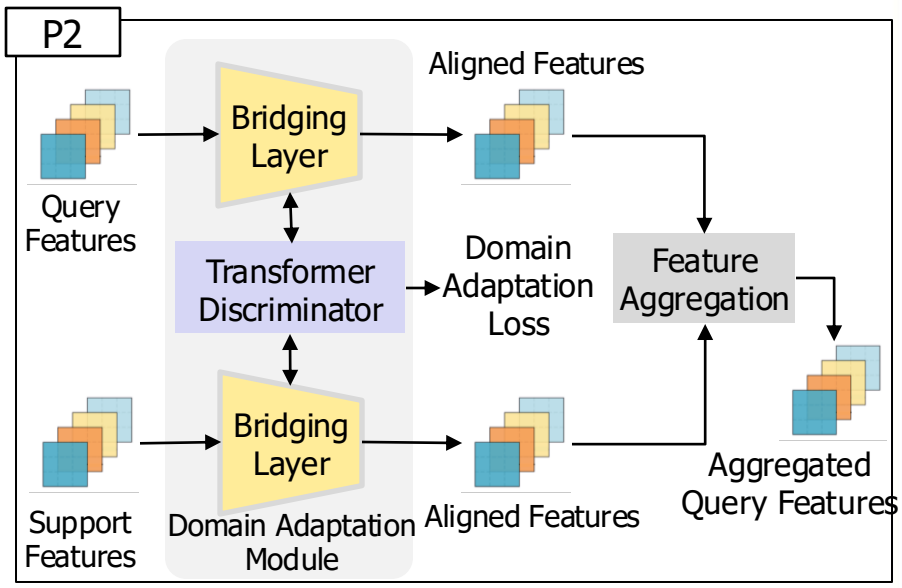


Proposals









Experiment Results

Method	1shot			3shot			5shot			10shot		
	mAP	Prec.	Rec.	mAP	Prec.	Rec.	mAP	Prec.	Rec.	mAP	Prec.	Rec.
Baseline	9.1	10.5	24.5	19.2	18.2	41.5	23.4	22.2	48.1	29.9	34.7	54.6
P1	18.7	12.5	27.4	33.2	22.9	48.9	39.1	27.3	54.9	45.1	38.4	59.8
P1+P2	26.2	14.6	22.8	41.8	27.5	52.7	49.6	35.3	60.2	55.6	41.5	62.1

Conclusion

- Evaluation results show that P1+P2 achieves mAP 55.6% at 10-shot, outperforming the baseline by 25.7%

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