Sample Worth Guided Shadow Manipulation Based Data Augmentation for Image Shadow Removal

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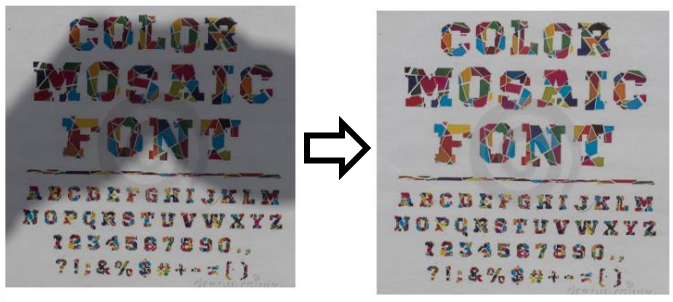
Background

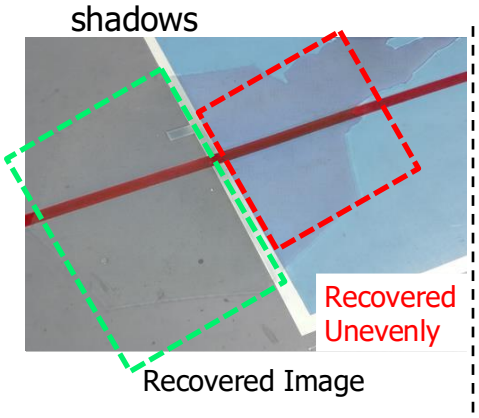


Can better recognize the text in the image

- Applications of Image Shadow Removal:
  - image to text, surveillance, etc.

Challenges

- Existing methods often produce uneven results and perform poorly when facing irregular and fragmented shadows



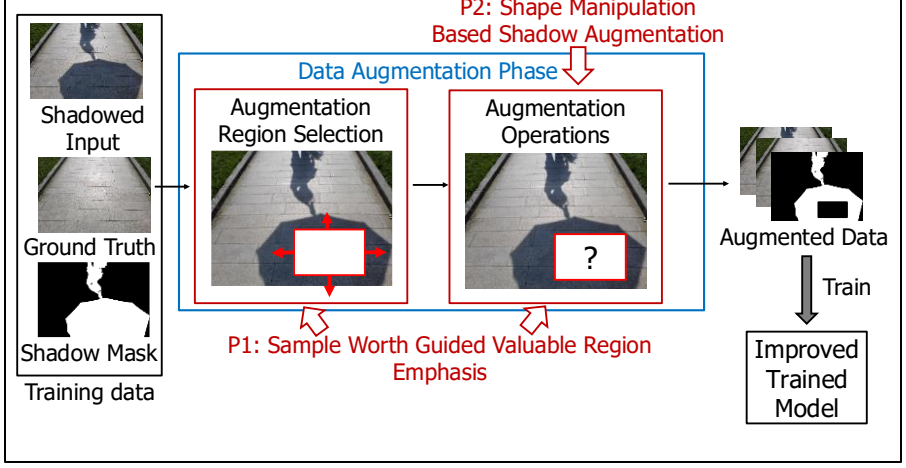
Recovered Image

Shadow Patterns in the Training Dataset

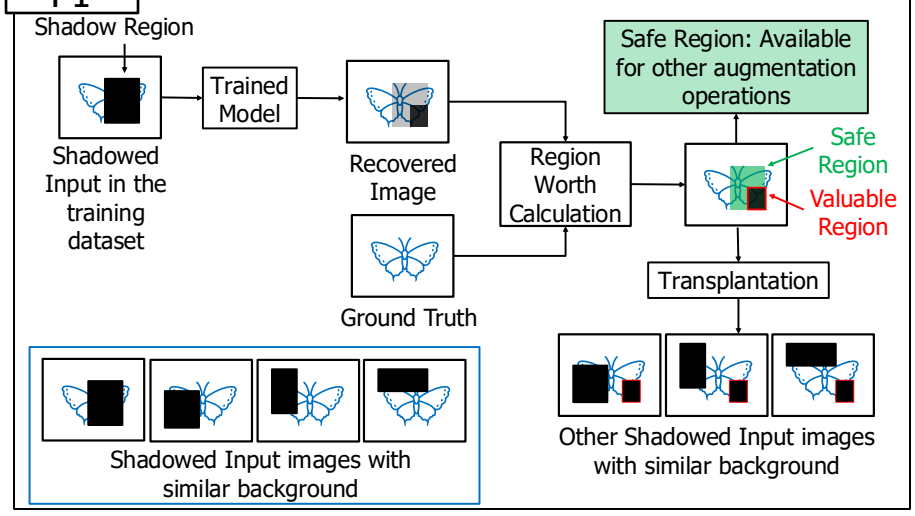
Poor Cases in the Testing Dataset

Proposals

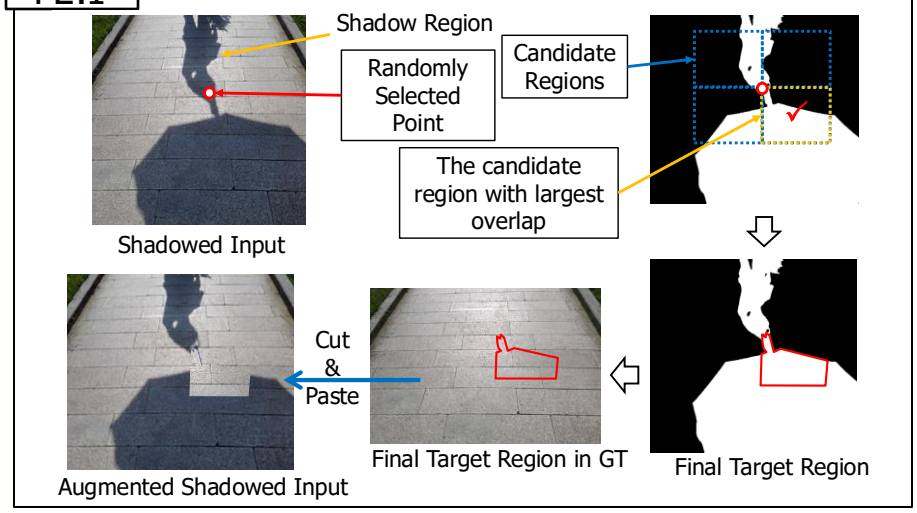
Framework



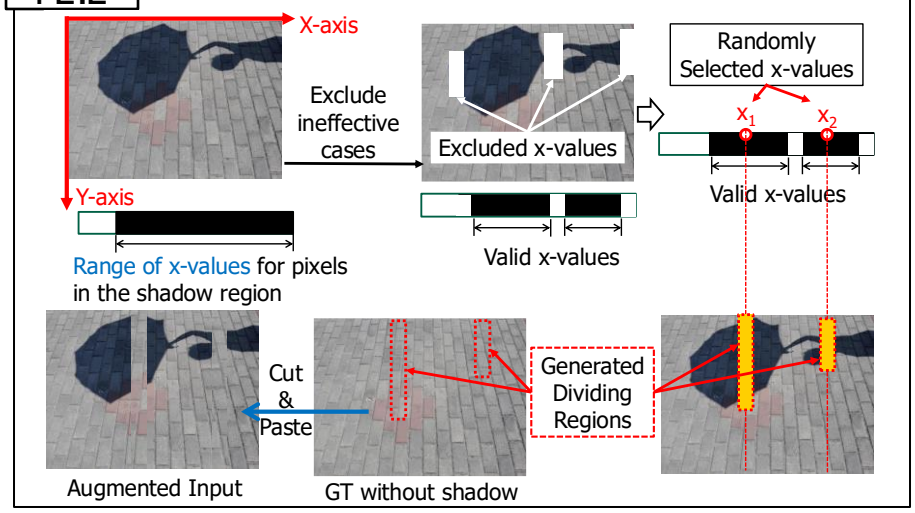
P1



P2.1

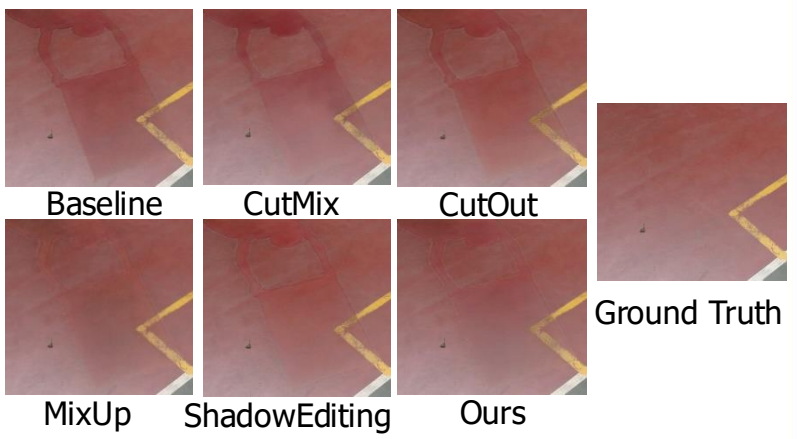


P2.2



Experiment Results

	PSNR	SSIM	RMSE		PSNR	SSIM	RMSE
Baseline	36.42	0.9853	6.35	P1	36.61	0.9853	6.28
CutMix	35.64	0.9847	7.23	P2.1	36.67	0.9853	6.40
MixUp	36.08	0.9850	6.59	P2.2	36.66	0.9856	6.21
CutOut	36.39	0.9851	6.55	P2.1+P2.2	36.85	0.9856	6.19
ShadowEditing	36.52	0.9849	6.30	P1+P2	36.93	0.9857	6.15



Conclusion

- P1+P2 achieves the best PSNR boost of 0.51 dB and the largest RMSE decrease of 0.20.

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