

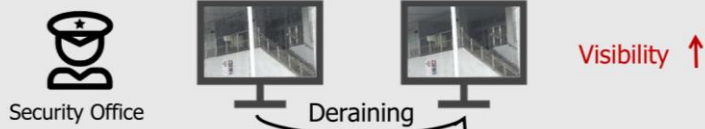
Visual Representation Alignment Guided Fine-Tuning Based Realistic Dataset Generation for Real-World Image Deraining

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Background



Application : Surveillance

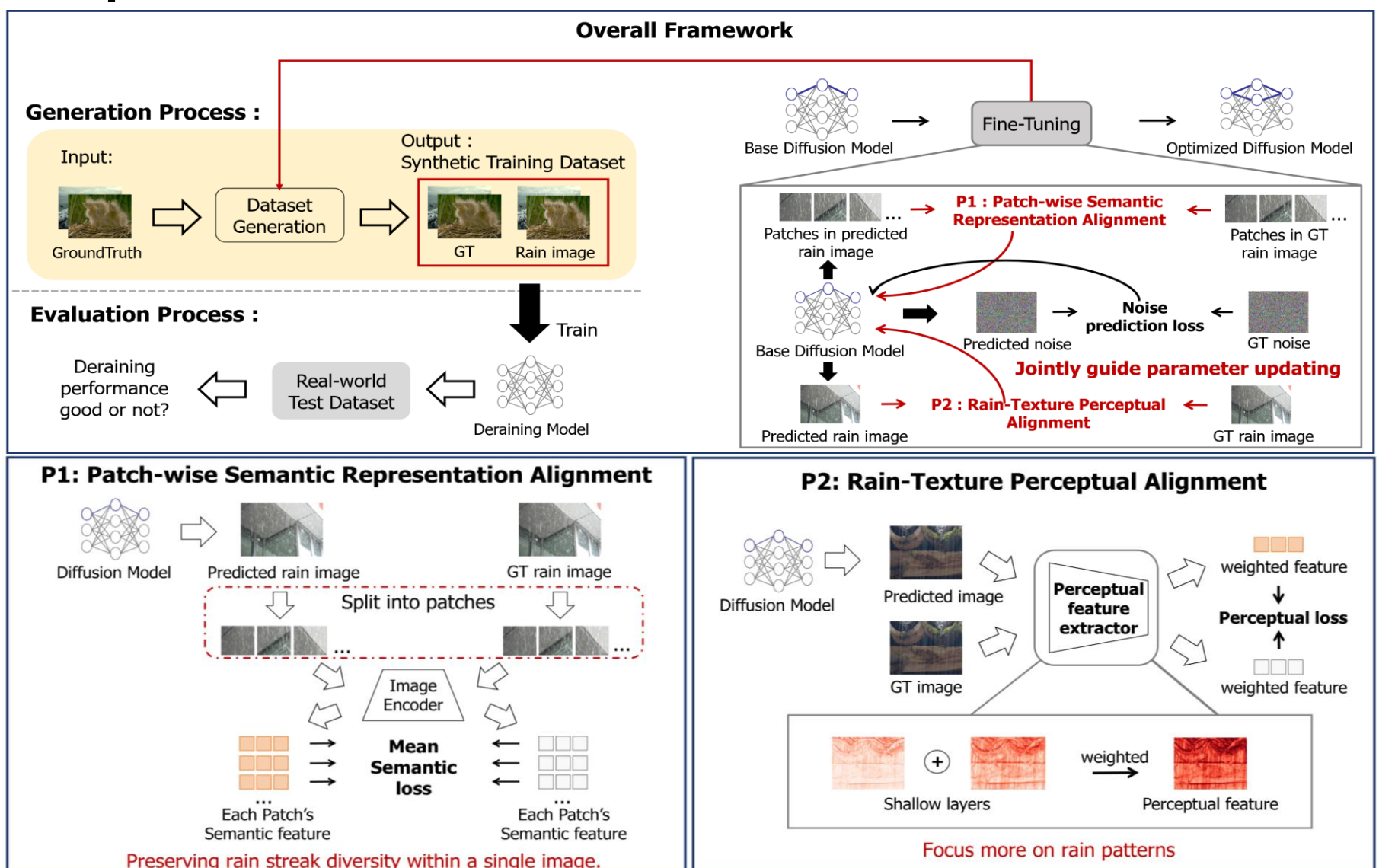


Challenges

- Performance of Deraining model is limited in real-world scenes.
 - Few real-world datasets existed → Limited coverage of diverse real-world rain patterns.
 - Sprinkler simulated rain is different from real rain (**size, velocity and trajectory**).



Proposals



Experiment Results

Training Dataset	Real-world Testing Dataset											
	RealRain1k-L		RealRain1k-H		LHP		Self-made		RainDS		SPA	
	PSNR	SSIM	PSNR	SSIM	PSNR	SSIM	PSNR	SSIM	PSNR	SSIM	PSNR	SSIM
Baseline	29.7363	0.9355	26.1351	0.8894	29.3186	0.7989	34.7630	0.9307	23.7676	0.5697	33.1487	0.9210
+P1	31.1390	0.9427	28.1877	0.9105	29.8452	0.8146	35.8304	0.9408	24.1207	0.5937	33.5526	0.9271
+P2	31.0743	0.9398	27.9145	0.9019	29.5134	0.8026	34.8046	0.9196	23.9369	0.5805	33.5378	0.9241
+P1+P2	32.2126	0.9481	29.0881	0.9163	28.7172	0.7962	33.8053	0.9284	23.6327	0.5804	33.9105	0.9264

Conclusion

- Compared with the baseline, the proposed method achieves an average improvement of 0.7495dB in PSNR and 0.0084 in SSIM on real-world datasets.



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