

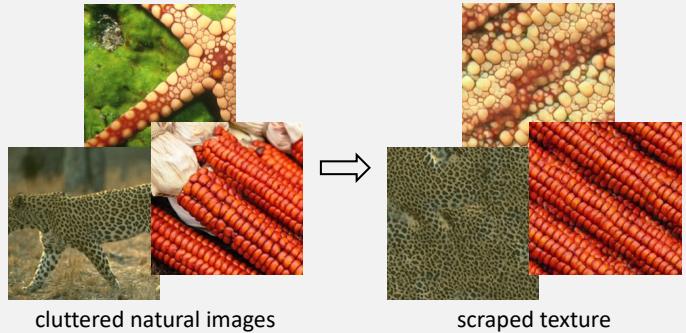
Scraping Textures from Natural Images for Synthesis and Editing

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Overview

Task

- Scraping textures from cluttered natural images.



Challenges:

- Natural images are cluttered.
- No image grouping or segmentation labels.
- Synthesize diverse photo-realistic texture image.

Main Idea:

- Learn texture synthesis from natural images by simultaneously learning texture synthesis and image grouping.
- Represent each texture pattern as a texture code and sine wave to model both regular and irregular texture.
- Test-time tune the model on an unseen image for high-quality texture synthesis.

Project page:

<https://sunshineatnoon.github.io/texture-from-image/>

References

¹Texture networks: Feed-forward synthesis of textures and stylized images

²Texture synthesis by non-parametric sampling

³Learning texture manifolds with the periodic spatial GAN

Method

Framework Overview

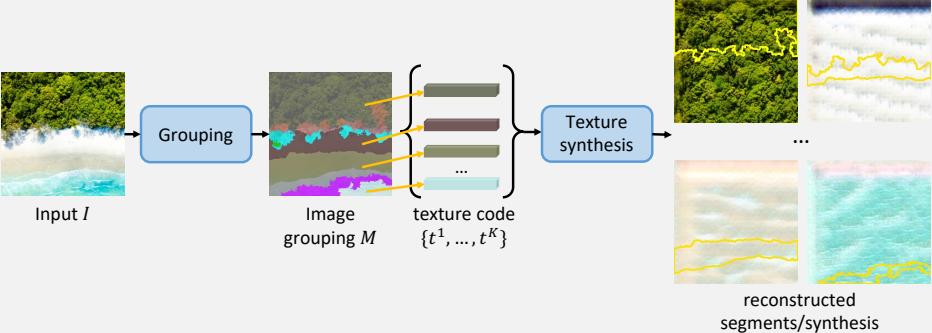
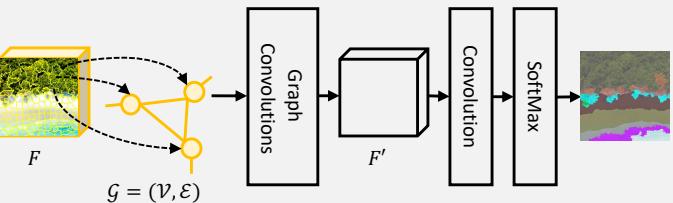
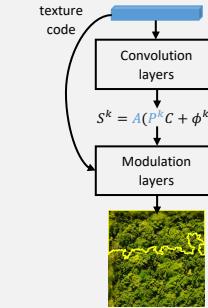


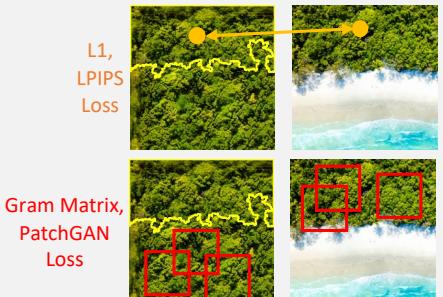
Image Grouping



Texture Synthesis



Objectives

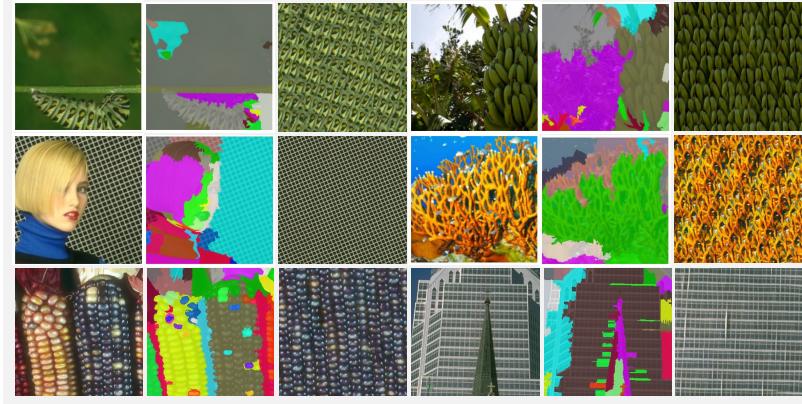


Quantitative Results

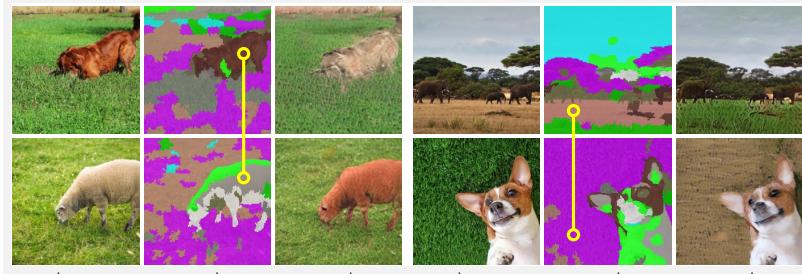
Method	c-FID	c-LPIPS
DeepTexture ¹	107.34	0.3825
Quilting ²	63.64	0.3568
PSGAN ³	83.32	0.3697
Ours	60.91	0.3193

Experiments

Texture Synthesis & Image Grouping



Texture Swapping



Texture Editing

