

Generation of Pareidolia-inducing Visual Stimuli

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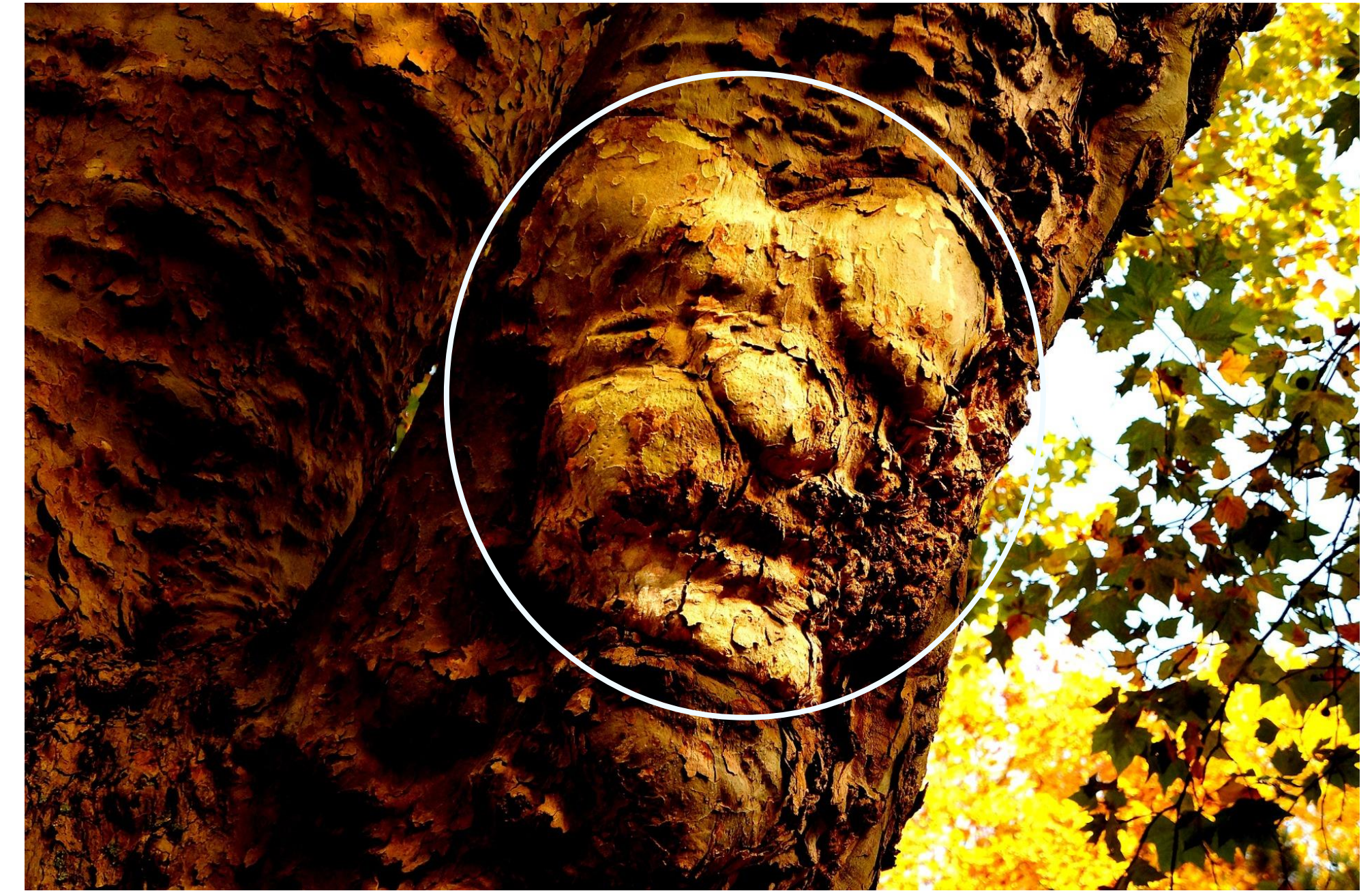
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Background

What is pareidolia?

- Normal psychological tendency
 - Face perception in non-face objects
 - ◆ Rock surface
 - ◆ Wallpaper
- Useful for diagnosis
 - Discrimination Dementia with Lewy bodies



Face pareidolia example : In the white ellipse, we perceive as a face

Research Objective

Systematically generation of Pareidolia-inducing visual stimuli via artificial intelligence (AI)

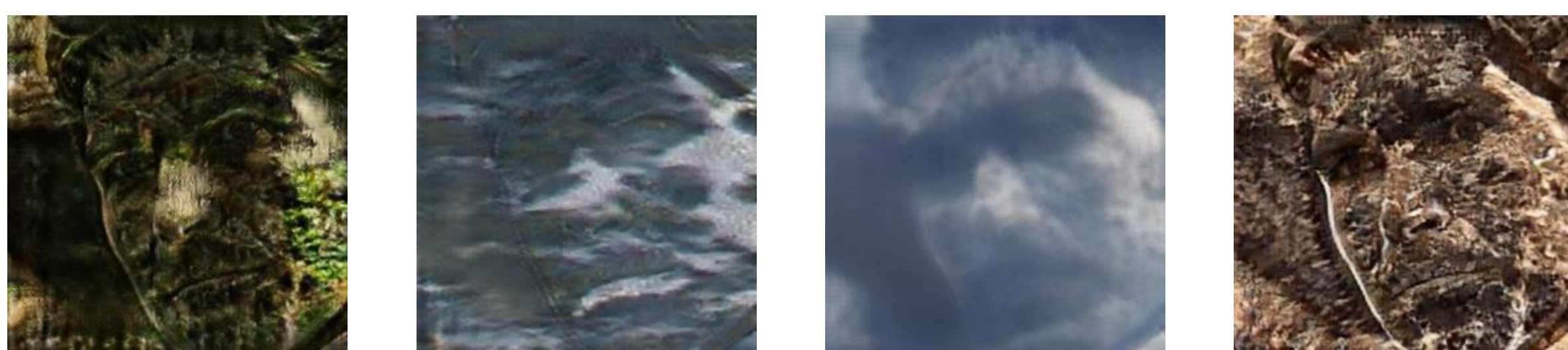
- Analysis the detection mechanism
 - Investigation of what to be learned at each layer in AI
 - Development of human-like AI
- However... → Hard to collect many training images

As first step

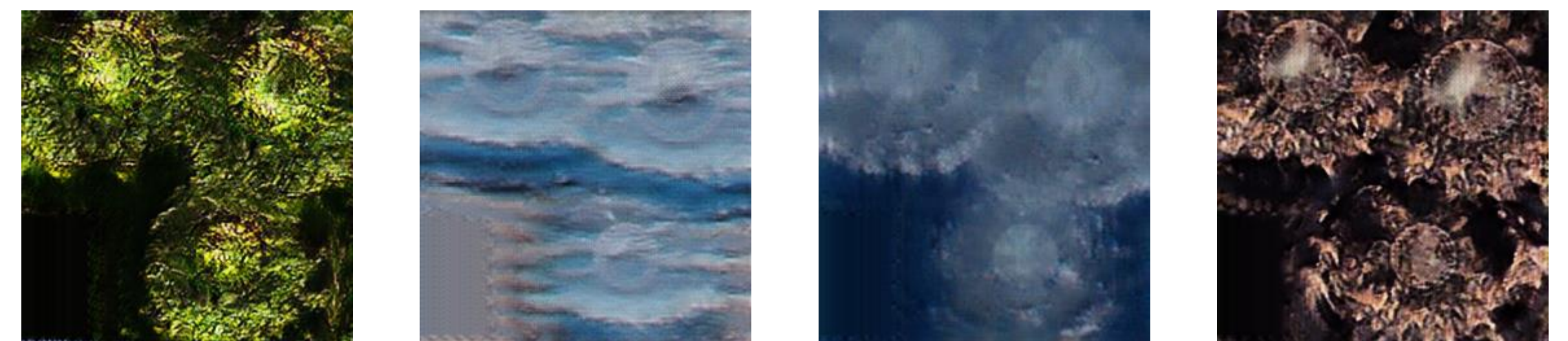
- Approach by using CycleGAN
 - Utilization of translation of unpaired images
- Train face (-like) images and natural scene
- Easy to collect images
 - Systematically generation

Result

- Training iteration number : 1100
- Training data : Face and natural scene



Forest Ocean Sky Ground



Forest Ocean Sky Ground

Conclusion

- Research object
 - Generation of Pareidolia-inducing visual stimuli
- Proposed method
 - CycleGAN
- Result
 - Generation images that have the both images features

Future Works

- Three investigations targets
- Calculation of face-likeness by questionnaire
 - Verification of generated images
 - Transition of training iteration numbers