NTU DIP 2020 Spring Final Project Proposal

Group 02

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Paper Title

Halftone Visual Cryptography Via Error Diffusion

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- IEEE Transactions on Information Forensics and Security, VOL. 4, NO. 3, SEPTEMBER 2009

Motivation

課堂上老師在講digital halftone時,最後有提到一種在visual cryptography的應用,實作的方式為將兩張以上有意義的圖片,經過疊加後變成一張完全不同的圖片,這與以往辨識鈔票真偽上的浮水印又有些不同。我們覺得這部分蠻有趣的,想朝這方面去做研究,而HVC也有著許多層面的應用,諸如:management of secret information, copyright protection, authentication, entertainment等等。
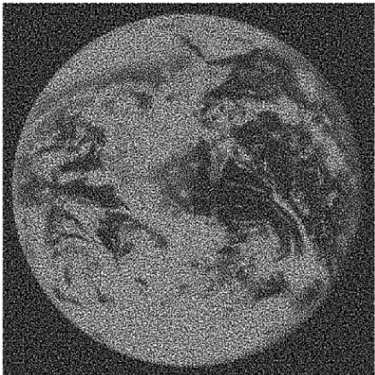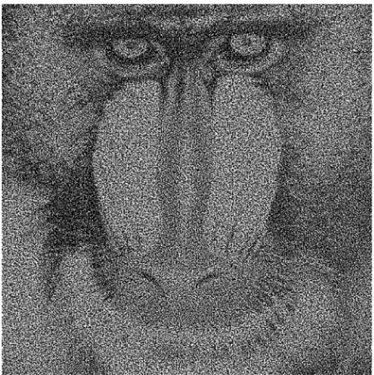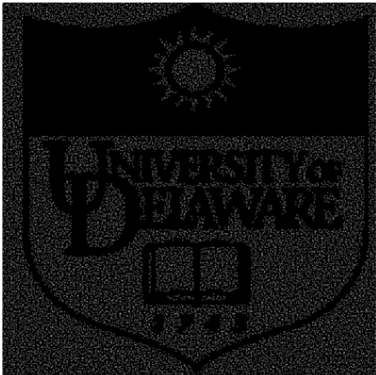
Problem Definition

How to preprocess at least two pictures without losing their visual appearance, and decode them into the final secret picture which is selected of our choice.

Algorithm

- (Grayscale) Halftoning
- (Binary / Multitone) Error Diffusion
- VAC - Void and Cluster
- DBS - Direct Binary Search
- VSS - Visual Secret Sharing

Expected Results

Input 1	Input 2	Input 3
	Output	

Reference

- **Color Extended Visual Cryptography Using Error Diffusion, 2011**
  https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5504215
  (https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5504215)

- **Halftone Visual Cryptography for Grayscale Images using Error Diffusion and Direct Binary Search, 2018**
  https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8553863
  (https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8553863)

- **Halftone Visual Cryptography, 2006**
  https://ieeexplore.ieee.org/document/1658106
  (https://ieeexplore.ieee.org/document/1658106)