



FLOW-BASED IMAGE ABSTRACTION

CS663 PROJECT REPORT

22 OCTOBER 2018

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Project Description

There are three main parts of the project :

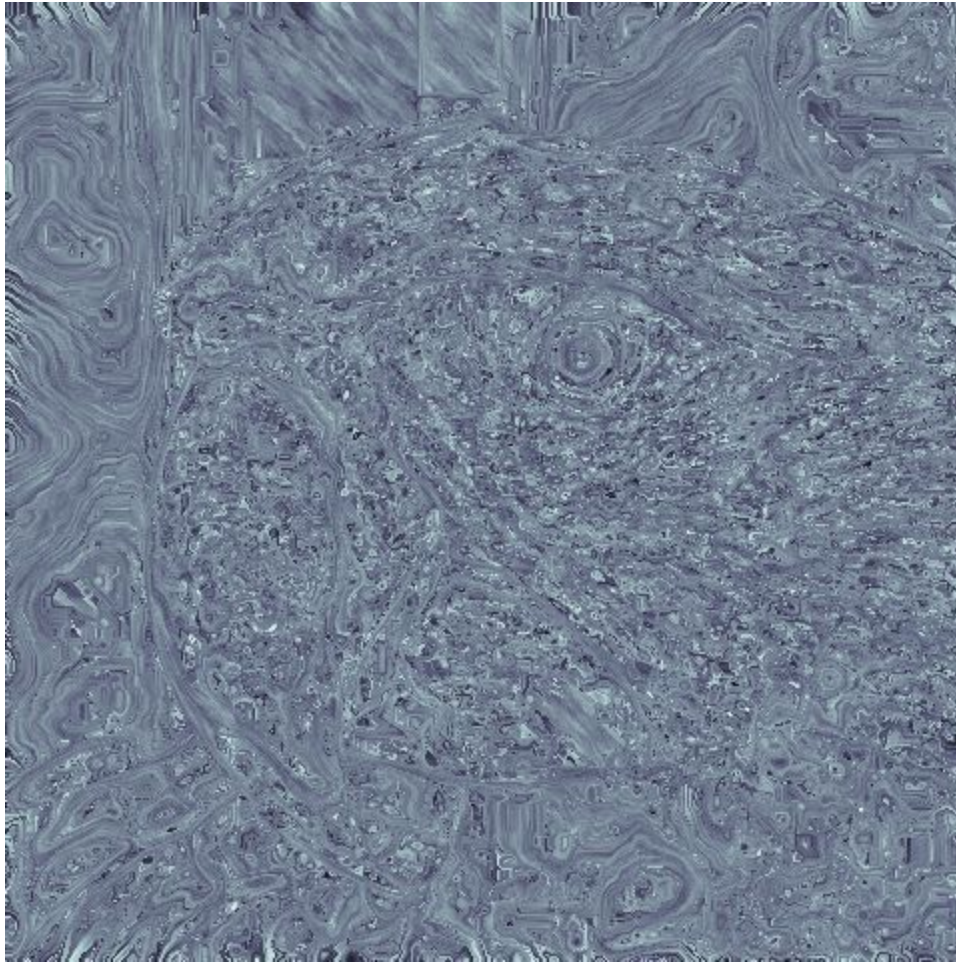
1. Edge Tangent Flow Calculation
2. Edge Detection using FDoG
3. Color Quantization along with FBL

Edge Tangent Flow

Input Image



Initial Tangent



For the above input image (480x480), time taken for one iteration of ETF generation is :

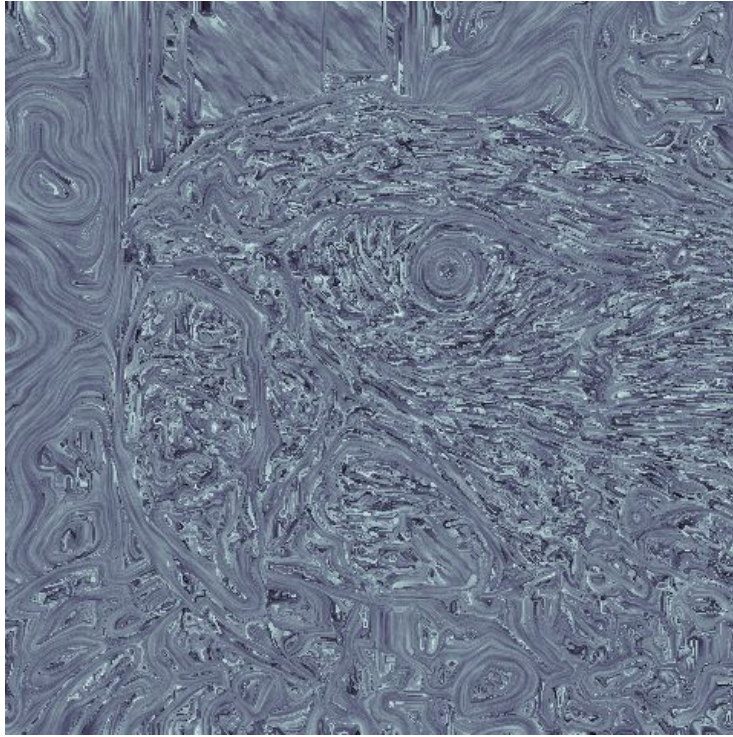
Full Bilateral Filtering - 170 s

Separable Bilateral Filtering - 32 s

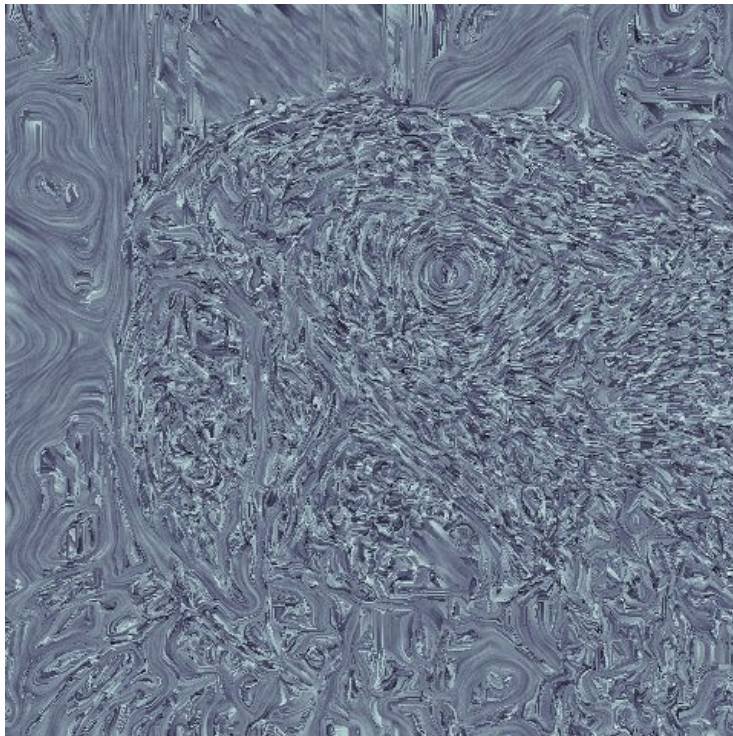
It can be seen from results below that although full bilateral filtering gives better results than separable bilateral filtering (ie. stronger flow around edges), but overall separable bilateral filtering is better, because of its computational efficiency.

After Iteration 1

Full Bilateral Filtering

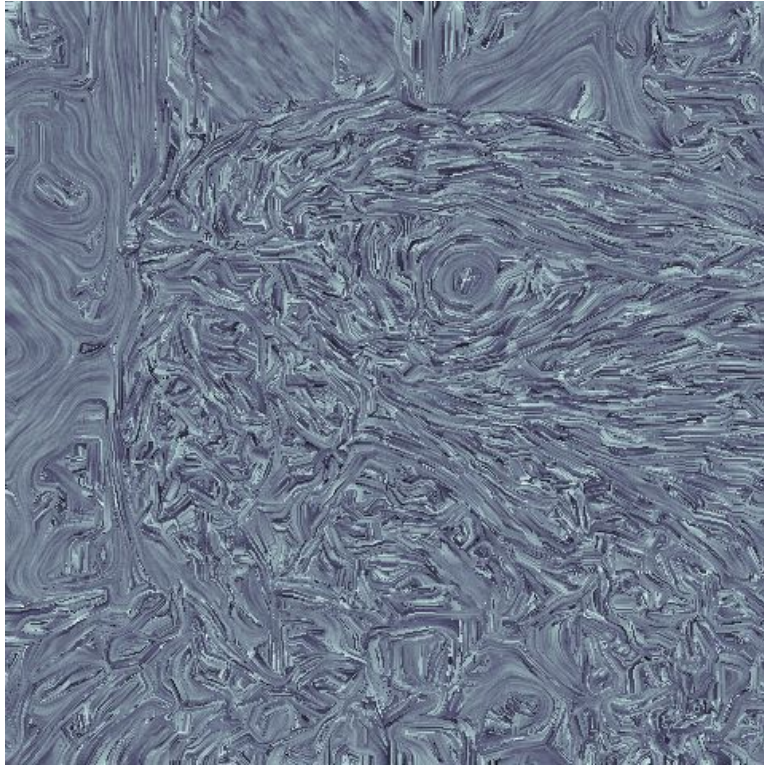


Separable Bilateral Filtering

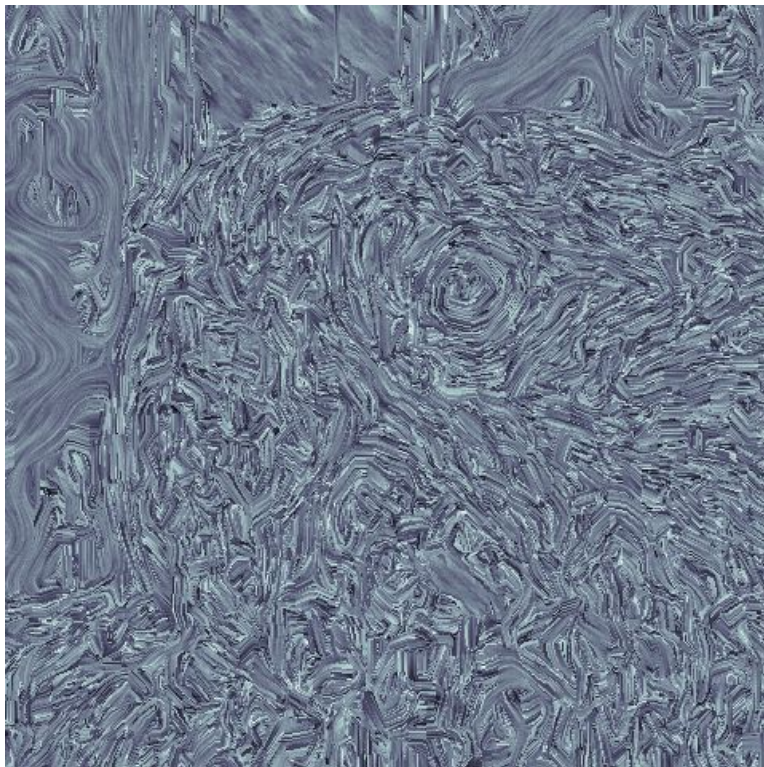


After Iteration 2

Full Bilateral Filtering



Separable Bilateral Filtering

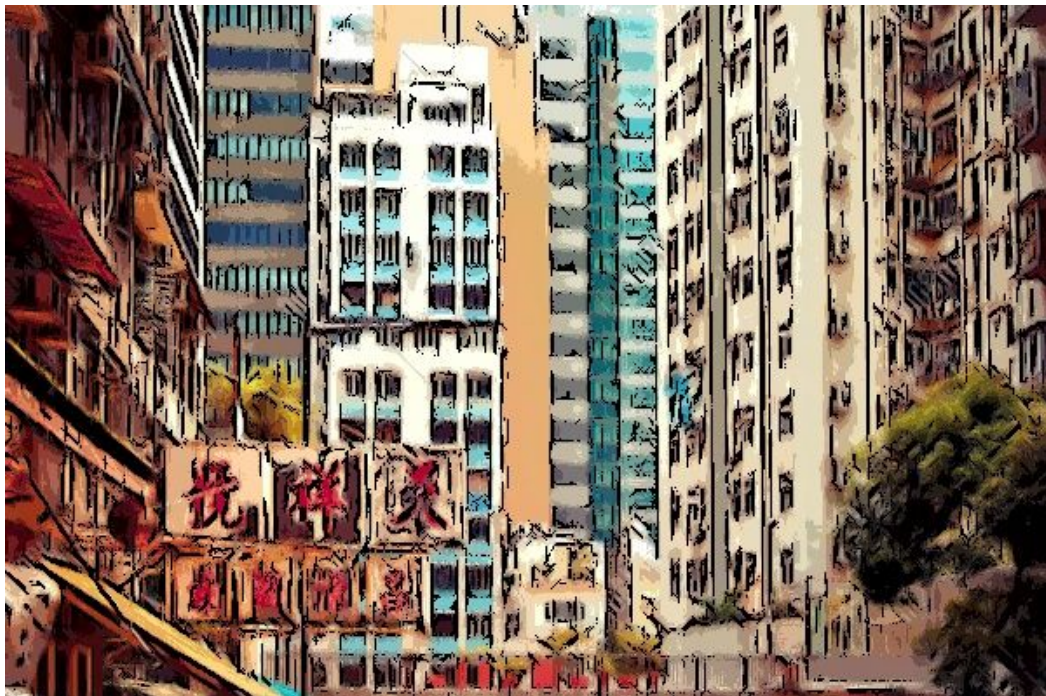


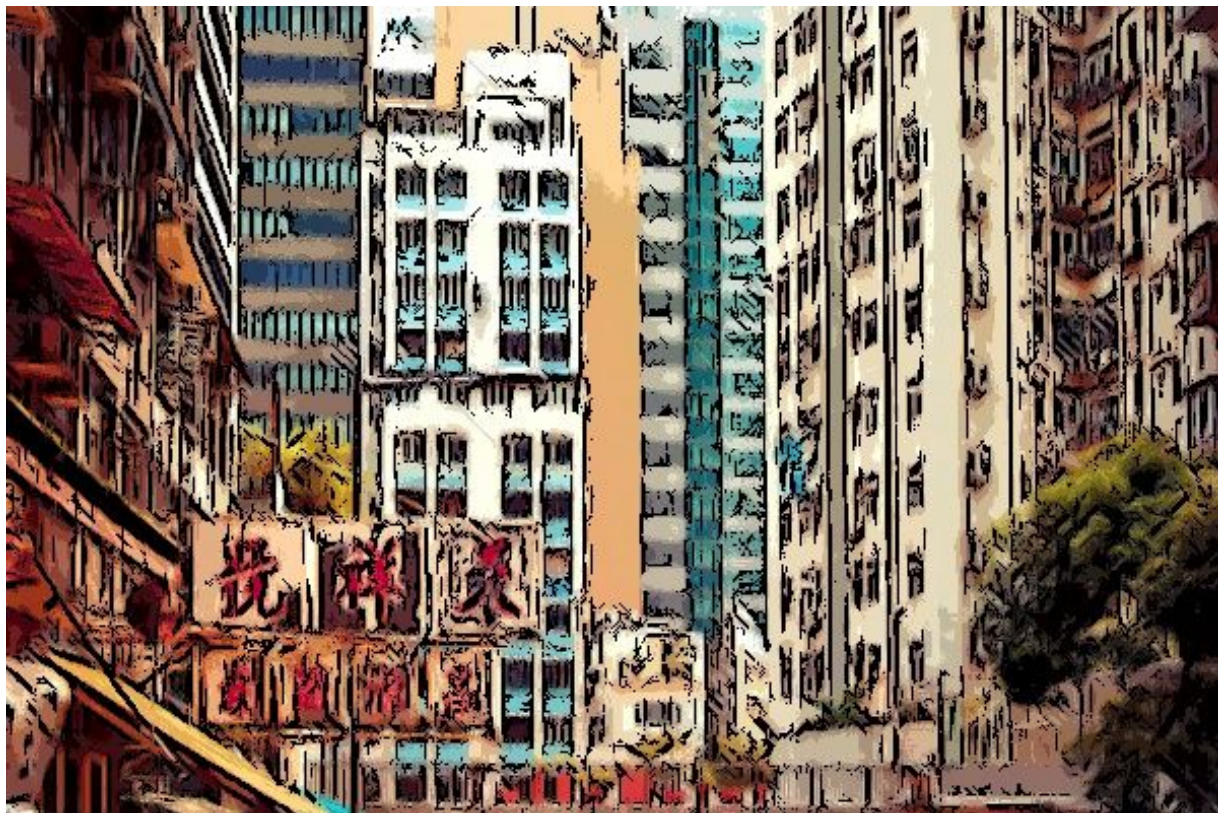
Flow-based Difference of Gaussians

Input Image



Outputs with different amount of edges







Flow-based Bilateral Filtering and Color Quantization

Input Images



FBL after Iteration 1



FBL after Iteration 3



FBL after Iteration 1



FBL after Iteration 3



Luminosity Bins - 8



Luminosity Bins - 16



Luminosity Bins - 8



Luminosity Bins - 16



Output Images





