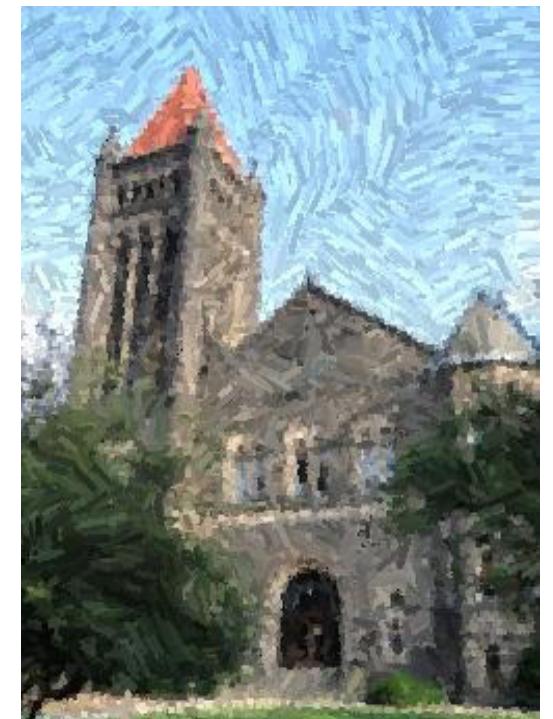


Non-Photorealistic Rendering: Impressionist Effects

Cong Shen(cshen19)

Problem

Convert existing 2D images into images that look like impressionist paintings.

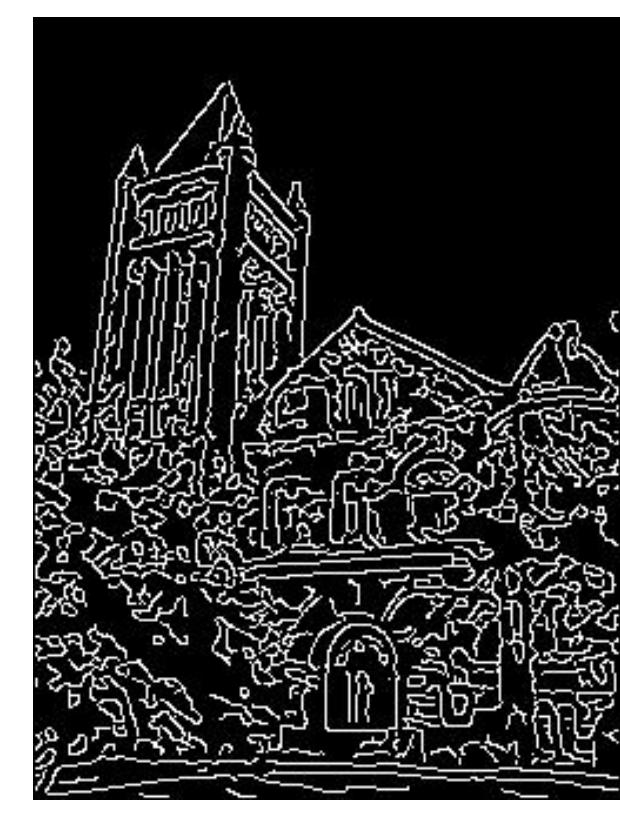


Random Generation

Use antialiased lines to simulate brush strokes. Generate strokes with color at its center pixel at the original image. Use gradient normals to determine orientation of strokes. Add random perturbation to their parameters(width, length, color and orientation) and generate them in random order to create a hand-touched look.

Edge Clipping

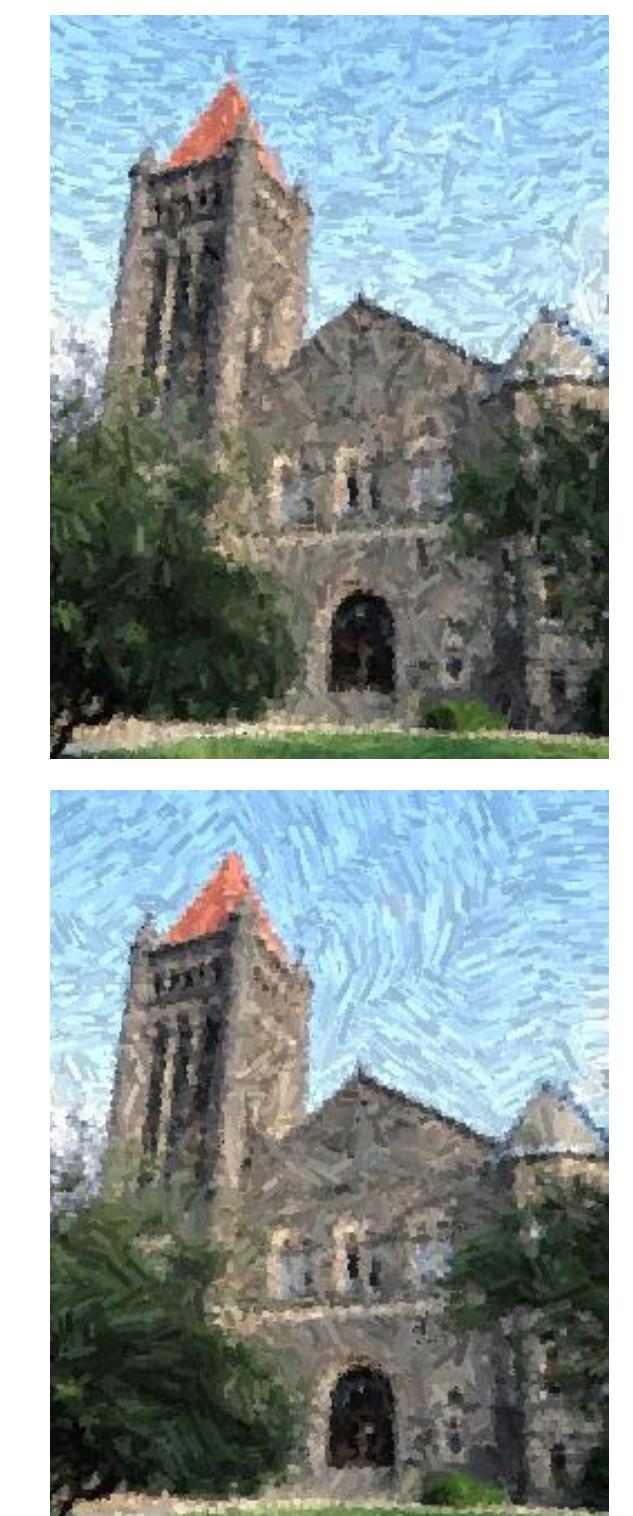
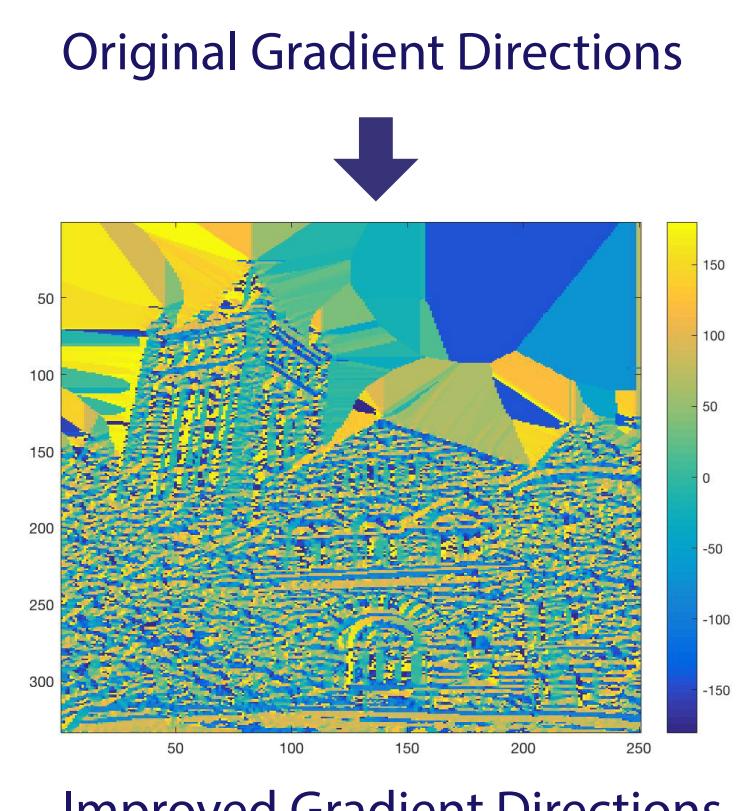
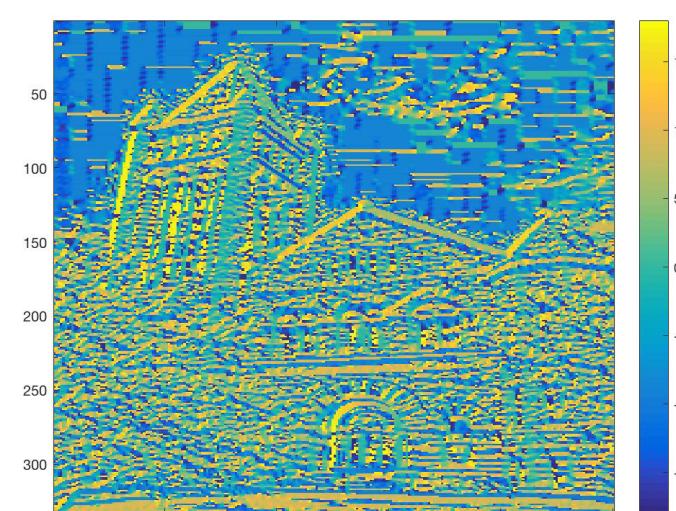
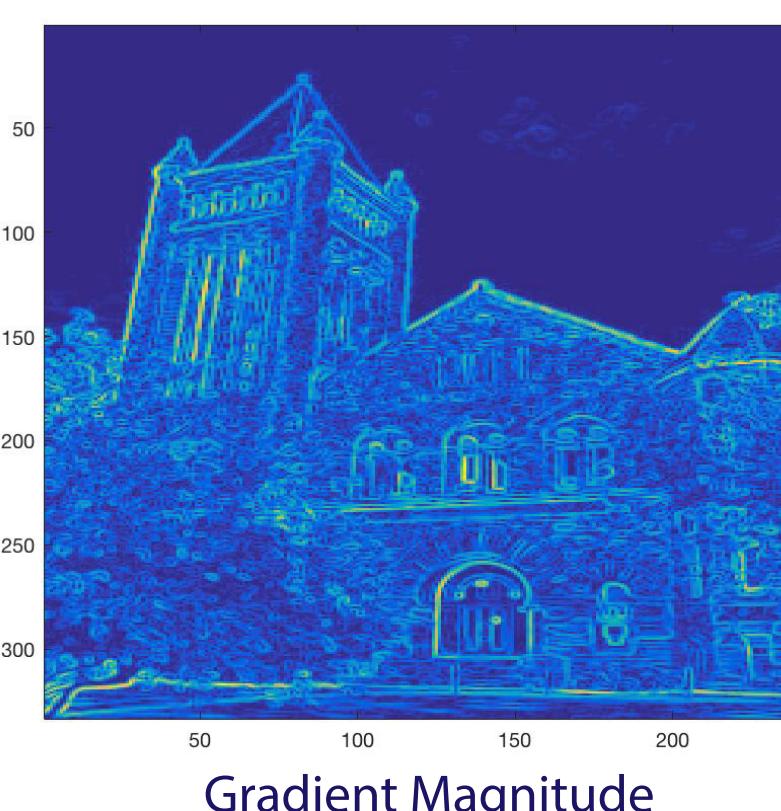
To preserve edges, clip strokes when they reach edges



Canny Edge Detector
on Low-Pass Image

Improved Gradient-Based Strokes

For pixels with zero or near zero gradient magnitude, replace it with the nearest valid gradient.



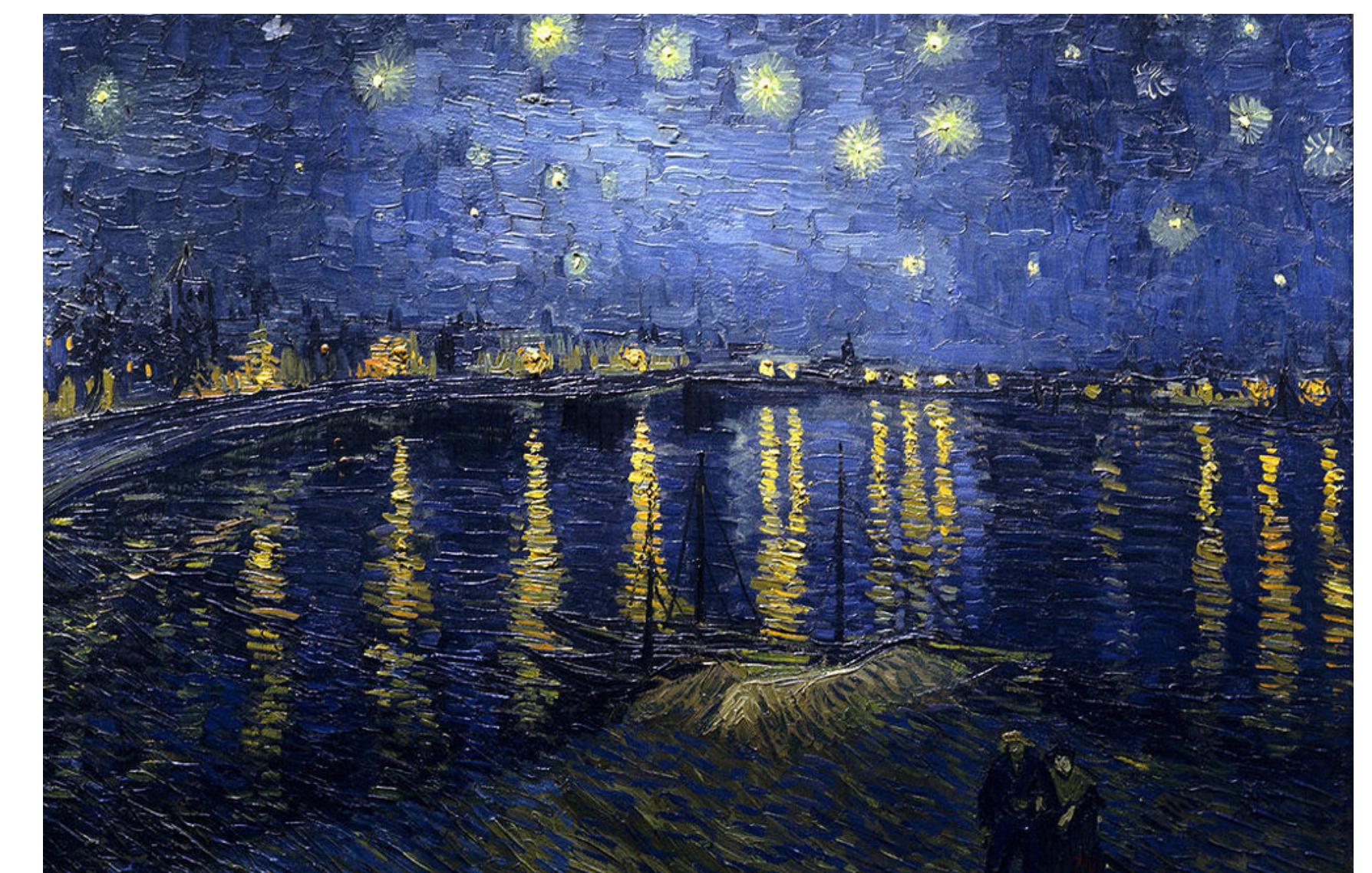
Result



A Photo of the Palace of Westminster



The Generated Image



Starry Night Over the Rhône by Vincent van Gogh