CSE306 Report 2

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1 Introduction

I have implemented the following features:

- Seam Carving (TD 5)
- Polygon clipping with Sutherland-Hodgman
- Voronoi Parallel Linear Enumeration
- Extending to Power Diagram

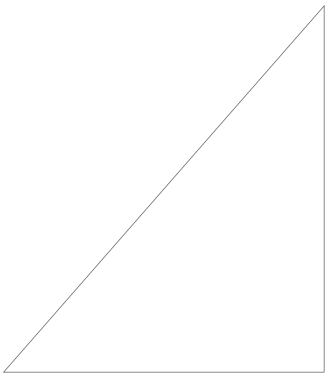
My code is organized into the following files:

- main.cpp: testing polygon clipping and voronoi diagram.
- objects.cpp/h: Defining Vector and Polygon classes, and associated methods (clipping, voronoi)
- seam_carving.cpp: code for image targeting
- utils.cpp: code to save svg and generate random point

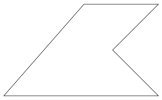
Github link to project: https://github.com/GuillaumeLaine/CSE306

2 Polygon clipping with Sutherland-Hodgman

(a) Subject Polygon



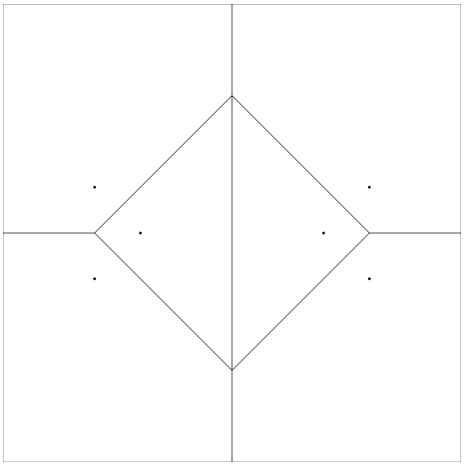
(b) Clipper Polygon



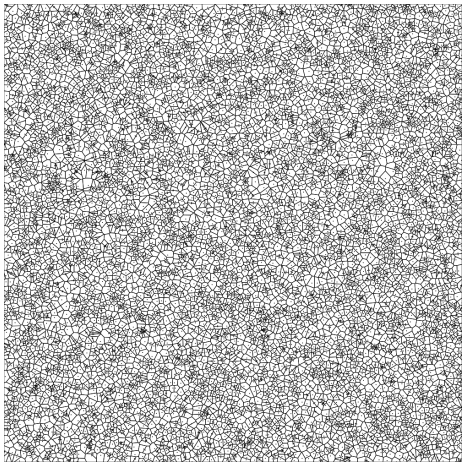
(c) Resulting clipped polygon

Figure 1: Polygon clipping with Sutherland-Hodgman

3 Voronoi diagram using parallel linear enumeration



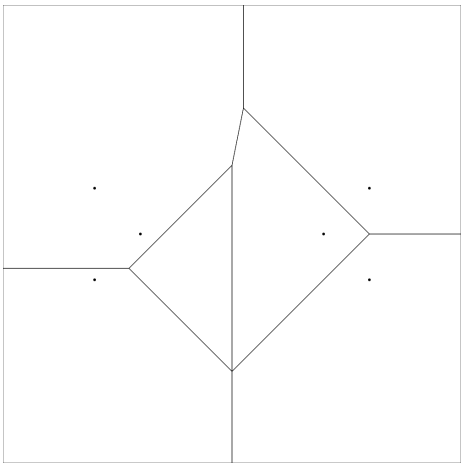
(a) voronoi diagram with 6 points



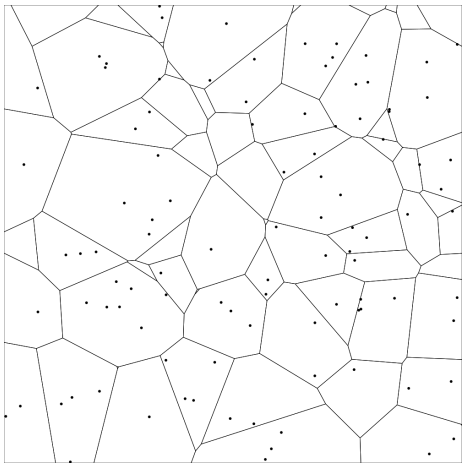
(b) voronoi diagram with 10k random points

Figure 2: Voronoi diagram using parallel linear enumeration

4 Power Diagram



(a) Power diagram. Upper-left point has more weight



(b) 100 random points and weights

Figure 3: Power diagrams