CS 564 Project Proposal
-Implementing Weighted Voronoi Stippling-

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I. PROPOSAL

The aim of this project is to implement and extend the study on using centroidal Voronoi diagrams for generating stippling effects on grayscale images, as described in the work by Secord (2002)[1]. One of the main contributions planned for this project is expanding the experiment scope to RGB images. The two techniques suggested in the paper will be implemented and then tested by both human evaluation and performance metrics.

Weighted Voronoi stippling is a technique that translates greyscale images into stippled art, small dots with different densities to represent different shades of light and dark. The method uses weighted centroidal Voronoi diagrams, a technique that partitions the image space into regions around seed points (dots). These seeds are placed and adjusted based on the grey scale intensity of the source image, with darker areas having a higher density of dots and lighter areas having fewer, to mimic the tonal composition of the original image.

The implementation will be conducted in JavaScript. We plan to utilize p5.js\(^1\) library for sketching purposes of the algorithm. The final output of this project will be a user-friendly tool to do stippling on browser, alongside evaluation of different techniques proposed in the original paper[1].

REFERENCES


\(^1\)https://p5js.org