

Research Fellow: Rebecca “Bec” Mitchell (2020)

Concentration: Undeclared

Faculty Mentor: Elodie Fourquet

Department: Computer Science

Title of Project: Perspective Tiled Floors in Paintings for a 3D Blueprint in Processing

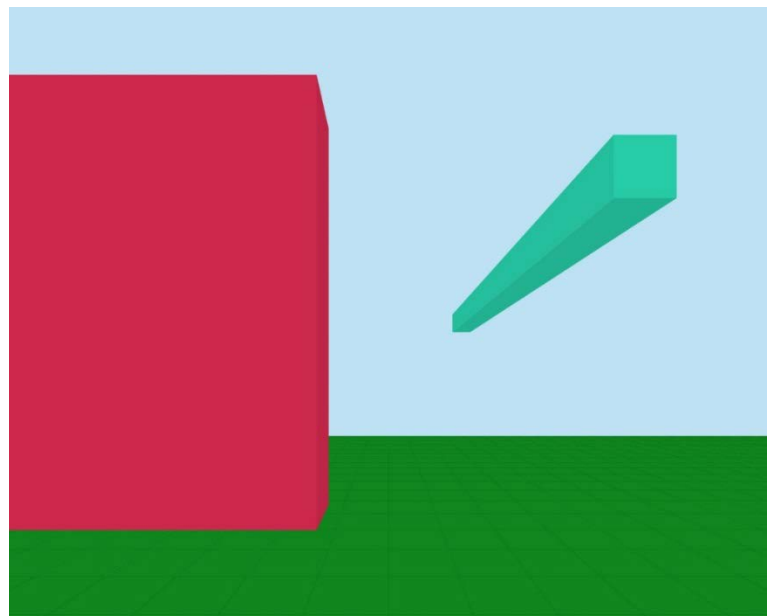
Project Summary:

My research project focused on finding ways to accurately represent perspective when using Processing, a programming language, to recreate abstractions of images such as paintings. After discovering the best ways to create the illusion of perspective, my colleague and I wrote tutorials which we put in an online blog intended for use by students in the course “From Paintings to Pixels”, an FSEM which uses Processing to make connections between art and technology. Initially, my goal was to recreate a tile floor pattern using a vanishing point, since this pattern appears in many paintings. I then used my solution to this problem to create “three-dimensional” prisms which appear accurate in the context of the other objects in the painting.



I found the algorithm for the tile floor by studying the painting “Sun Table” by Salvador Dalí, which can be seen to the left alongside my recreation. I read several books about perspective and combined the information I gathered from them with my own knowledge of art in order to come up with a way to accurately make the tiles seem like they were getting farther away. I implemented the pattern in two different ways: using a for-loop and using an array. Students can choose which method they prefer; however, the for-loop method is more basic and would likely be more useful to students in “From Paintings to Pixels”.

Using my findings from the tile floor problem, I developed a way to create rectangular prisms which are drawn accurately based on the painting’s vanishing point. The tile floor in perspective can be seen as a grid which prisms with faces parallel to the viewer should fall along. The prisms in the image below were created using for loops, with no three-dimensional rendering. Rather than writing a tutorial explaining the prisms, I created an interactive Processing sketch and uploaded it to my blog along with the code, and encouraged students to connect this problem with the information they learned from the tile floor tutorial.



Source of Support: AHUM Div. NASC Div. SOSC Div. UNST Div.
 Other (specify): Science and Math Initiative-SMI (NASC Division)