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Spring 2019

## **SAAH Scaping**

Zachary Nelson

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SAAH SCAPING

by

Zachary Nelson

A thesis submitted in partial fulfillment of the requirements  
for graduation with Honors in the Art, Studio

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Vakhtangi Darjania  
Thesis Mentor

Spring 2019

All requirements for graduation with Honors in the  
Art, Studio have been completed.

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SAAH SCAPING  
Zachary Nelson  
Spring 2019  
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Time outside of class is an opportunity to reflect and refresh. My studies in 3D Design have taught me how a space should serve its function. In this honors project I chose to conceptualize an outdoor landscape that takes into account its role for students and connects the University of Iowa Art Building West and Visual Arts Building using plants native to Iowa to motivate and inspire students in Art and learning new techniques in computer aided design to clearly depict my concept.

I began by shooting reference pictures of the art buildings and compiling maps and textures to draw inspiration for how I would organize the space. To make the space feel open and inviting for students to engage with or simply enjoy passing through between classes, I designed my paths to reflect the feeling of exploration I get from the subordination of right angles in the Art Building West. The paths surround flower beds which I intended as a reflection of the concept of porosity that inspired Holl Architects' layout of the Visual Arts Building. I also include open lawn grass areas for recreational activities as well as for outdoor studying and relaxing. To reflect Iowa's history and create a sustainable space, I researched plants native to Iowa. My references for plant life in Iowa City were the Natural History Museum in Macbride Hall, the local flower shop Earl May, the Hickory Hills Forest, and the University's Facilities Management. I found plants that grow in the respective zone that thrive in areas that are often exposed to the sun and modelled and textured each plant asset using a computer aided design program known as Blender. I chose this program over Maya and 3ds Max due to its efficient and effective realtime renderer, Eevee, which enabled me to render my images with realistic lighting and textures more efficiently than with a ray tracing renderer. To reducing the complexity of the models while maintaining their likeness, I removed unseen faces and vertices that did not contribute to the overall silhouette in the model. Each leaf I acquired from either royalty free websites, I painted, or photographed and edited to have a transparent background in photoshop. The transparency allowed me to give leaves complex edges while using simple geometry. I used a translucency shader to make faces opposite light sources higher in saturation and shifted in hue just as real plant textures respond. Once all my assets for the environment were created, I placed each plant one at a time around the space. To reduce the amount of data in the environment, each repeated asset was duplicated as an instance. I took into account variations in density that would realistically support a plants ability to grow and be viewed. Lighting was important for presenting the scene realistically and complementing the level of detail in the environment. I used a high definition image for the sky background from hdrihaven.com and edited it in photoshop to create a sky realistic to the spring environment.

Through the research, design, and modelling process I developed a more thorough understanding of the needs, structure, and geometry of the plant life and relevant space. I also learned about the variety of plants native to Iowa and the criteria for making plants grow in specific environments. I hope that this work will inspire others to continue to improve the University of Iowa's landscapes. These tools and skill I learned and practiced in this project will be pertinent to my future in design 3d modelling and conceptualization.