

Final Project Report

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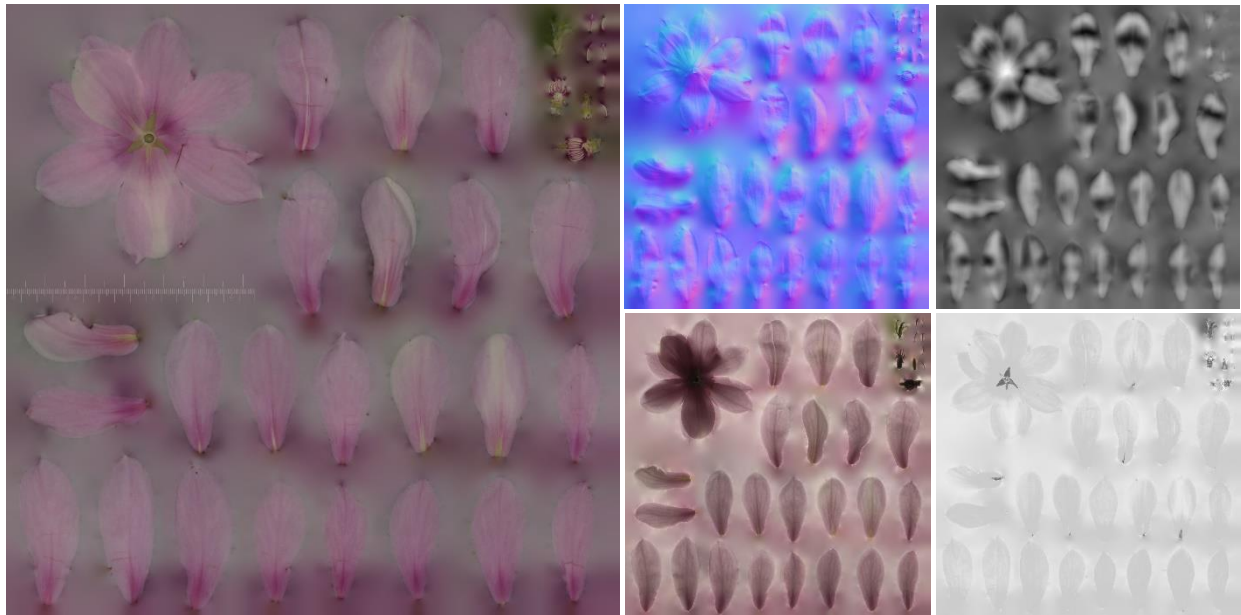
Main Geometry from scratch:

I ended up creating all the geometric models in my scene. (More specifically, they are steel rails, railroad foundation board, bolts and plates that connect the rails and foundation board, water, petals, emissive portal, portal filter, fog, and autumn shores(image plane).

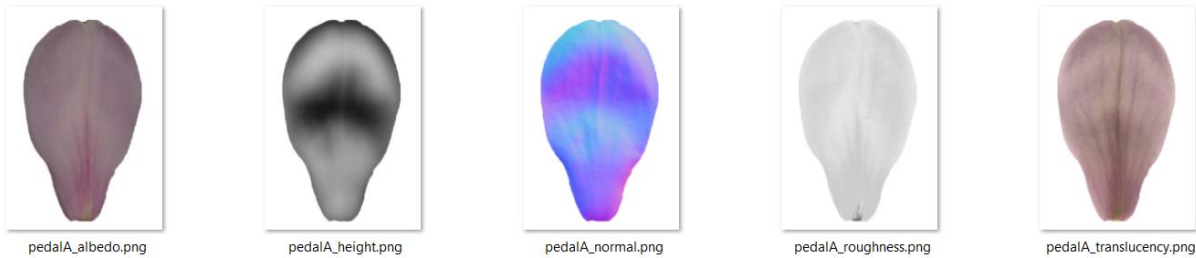
UV Mapping and Texturing from scratch:

- I have UV unwrapped by hand all the railroad components and petals.
- I have procedurally generated the gradient emission of the main portal, the texture of rails (I tried three different textures on one object: rust, partial rust, and complete rust), iron bolts, rusted plate, and wooden rail foundation.
- I spent a lot of time on petals' textures by photoshopping various maps that my instructors taught in class. Petals are tiny, but I want to experience the PBR textures under Blender's cycles engine. It was a pity that I didn't have time to arrange the petals in a much prettier way, but I think the working process is very beautiful, and hopefully my sharing notes here can encourage future students:

I found a very pleasing flower's texture on [textures.com](https://www.textures.com). This texture pack includes maps of



base-color, normal, translucency, height, roughness, and alpha. In photoshop, the black and white silhouette alpha map (not shown above) helped me quickly select a petal's shape I want. Then, I copied and pasted my selection to retrieve the corresponding petal's various maps, as shown below:



Finally, I procedurally attached all the maps to my unwrapped petal mesh and tweak the parameters a little bit according to my environment lighting.

Blender/ Cycles Features:

I have used the volumetrics to create the ground fog in my scene.

Sources & Reference

- Textures:
[Poly haven](#), [Wild Textures](#), <https://www.textures.com>
- Tutorials:
 Night Sky <https://www.youtube.com/watch?v=UKXs-6PUG5M>
 Cycles Bloom and Glow <https://www.youtube.com/watch?v=Tu3U6wD7lu4>
 Emission in Cycles <https://www.youtube.com/watch?v=9xB3uE8jEPA>
 Texturing with nodes <https://www.youtube.com/watch?v=fZSD7pVIUkY>
 PBR Texture (Ocean Terrain) <https://www.youtube.com/watch?v=mq4HMlfgDw>
 Ground Fog <https://www.youtube.com/watch?v=8gNKFpf9a4A&t=188s>
 Modeling Flowers <https://www.youtube.com/watch?v=8QBLXRJTcQg>

Downloaded vs. Handmade Assets:

Downloaded Textures:

Rusted, partially rusted, completely rusted metal textures for rails, pegs, and plates

Wooden textures for foundation panels,

Petals textures

Autumn forest shore image

For rest of the models and textures in the scene, I made it myself by following the tutorials and reference above and tweaking the nodes and parameters myself.