

# Final Project Write Up

## Proposal

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### Inspiration

Our project is inspired by the pools formed after rain falls in the city. This creates a beautiful and artistic reflected image on the surface, which has become the focal point of many popular photos far and wide. When composed properly, the shot creates symmetry and balance which is as visually stunning as it is creative.

### Artistic Goals

The artistic goals for our project is to create mood and tone through composition and color. We will achieve these goals by exploring different angles for our final photo, evocative color palettes, and the ways in which light can be distorted to create a new medley of color.

### Technical Goals

We will be following the Blender Cycles-specific requirements, and so our technical goals focus on achieving realism and further experience with Blender through modeling objects from scratch, creating textures, and appropriately lighting objects to achieve the desired effects for our narrative.

Below this proposal, we have attached our motivating images that demonstrate what we'd like to achieve in our final project.

## Motivational Images

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# Final Images





## Requirements

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### Individual Contributions

Kally and Tyler collaborated on arranging the objects and camera in the final image for a pleasing composition. Tyler modeled the lanterns, rope, buildings, concrete dividers, light fixtures on and buildings. Kally modeled the neon signs and fine-tuned the appearance to make them look realistic. Kally and Tyler both found objects from online resources and positioned them in the scene. Tyler added depth of field, and Kally applied motion blur to the car. Kally and Tyler both procedurally generated the asphalt ground, which required custom mappings to create the effect of puddles in the image. Kally and Tyler added lighting and fine-tuned the light sources to create the final artistic, moody lighting scene. Kally added the manhole and generated the smoke.

### Asset Requirements

We have at least one image made from scratch and at least 1 image from a web source:

#### **Geometries made from scratch:**

- Buildings
- Concrete Dividers
- Lanterns
- Lighting fixtures on buildings
- Neon signs
- Rope
- Smoke

### **Objects sourced from TurboSquid:**

- People
  - Ivan - Man
  - Marina - Woman in background
  - Rust - Man in background
- Car
- Manhole
- Electrical Switchboard

### **Blender Cycles-specific Requirements**

- **Main Geometry from scratch:** at least half of the main objects in our scene are modeled/simulated/sculpted from scratch, as stated above.
  - Buildings, concrete dividers, lanterns, lighting fixtures on buildings, neon signs, and rope are all modeled completely from scratch.
- **UV mapping and Texturing from scratch:** for at least one of the objects made from scratch in your scene, you must 1. UV unwrap the object yourself and 2. create a texture from scratch either via hand-painting or procedural generation.
  - **The buildings are made from scratch and UV unwrapped:**
    - The texture is created by a hand-drawn photoshop composite of multiple images, artwork, and textures using free to use images from

<https://www.textures.com/>.

- **The lanterns are made from scratch and UV unwrapped:**
  - The texture was created with procedural generation. Specifically, we combined a paper texture with an artwork texture and combined it using the Multiply Node. Next, we combined two BSDFs to create a semi-transparent material. The paper texture was pulled from <https://www.textures.com/>.
- **Create a custom/procedural material:** make at least one material with OSL script nodes, or non-shader nodes (i.e. texture, color, vector, converter nodes. See the list of nodes [here](#)).
  - **The asphalt ground is completely procedurally generated:**
    - The material was created using a noise layer which is multiplied with the original asphalt texture to create dark spots. Then, we use the same noise layer as maps for rough and reflective patches for light, creating the appearance of water puddles. We then fine-tuned the noise layer to reflect the quantity and size of puddles.
  - **The lanterns use a custom material:**
    - Specifically, we combined two BSDFs to create a semi-transparent material.
- **Blender/Cycles feature:** Use at least one advanced feature in Cycles or Blender (e.g. depth of field, motion blur, denoising, post-processing).
  - Depth of Field
    - There is a slight blurring effect on further objects due to depth of field used with camera.
  - Motion Blur
    - The car exhibits motion blurring.

## Technical Contributions

As described in our project proposal, we chose to follow the Blender Cycles-specific requirements. Thus, our technical goals focus on achieving realism and further experience with Blender through modeling objects from scratch, creating

textures, and appropriately lighting objects to achieve the desired effects for our narrative.

We believe we've accomplished those goals. Our technical contributions include many geometries from scratch, custom textures for UV unwrapped objects, and procedurally generated materials that realistically reflect light.

The smoke was generated utilizing the quick smoke effect. The base object/smoke generator was a simple cylinder mesh object. The material color was set to white and the density was set to 1.5 because the default settings yielded smoke that was too dark and thick. After experimenting with different timestamps to render of the smoke, We finally found an optimal height and thickness.

## Document and Video References

- UV Unwrapping Tutorial  
[https://www.youtube.com/watch?v=scPSP\\_U858k&t=1190s](https://www.youtube.com/watch?v=scPSP_U858k&t=1190s)
- Motion Blur Tutorial  
[https://www.youtube.com/watch?v=ZiSsykf\\_JBY&t=1s](https://www.youtube.com/watch?v=ZiSsykf_JBY&t=1s)
- Neon Light Tutorial  
<https://www.youtube.com/watch?v=l46YDEUVSvk&t=235s>
- Puddles Tutorial  
<https://www.youtube.com/watch?v=oojIF0m8KSE&t=110s>
- Smoke Tutorial  
<https://tutorials.cgrecord.net/2017/10/smoke-simulation-with-blender-cycles.html>