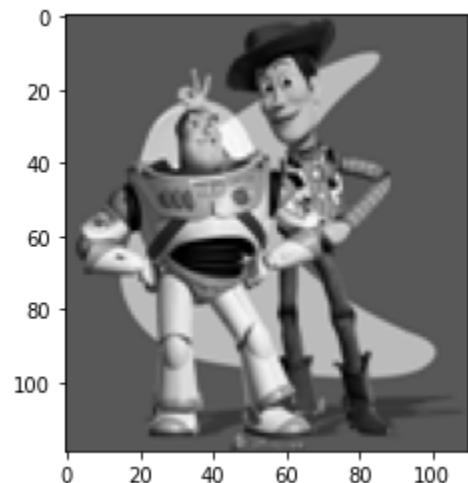


**Name (netid): Garen Hu, zihanh2**  
**CS 445 - Project 3: Gradient Domain Fusion**

## 1. Toy problem

Include

- The “Max error is: `Max error is: 5.731782953821707e-08`



## 2. Poisson blending

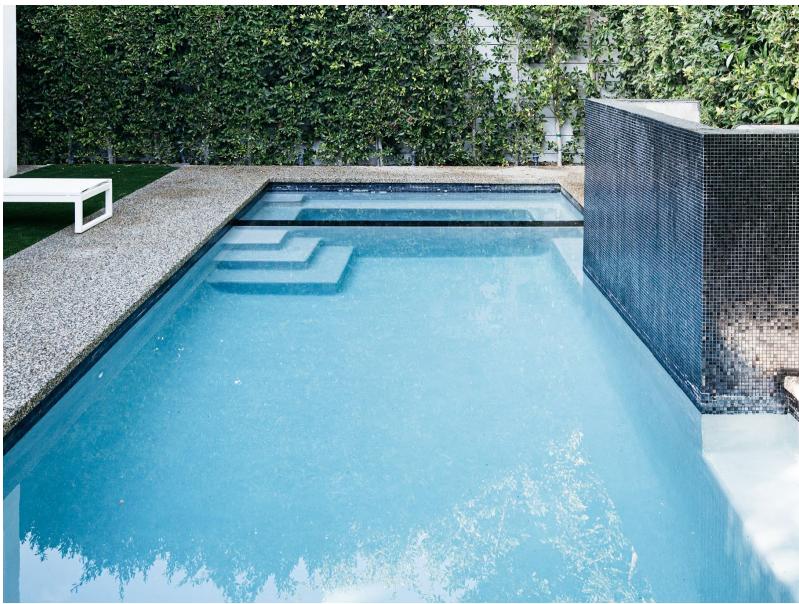


source:<https://dornsife.usc.edu/news/stories/3566/aliens-ghosts-secret-societies/>



Source: <https://stock.adobe.com/search?k=sky>





Source: <https://www.thespruce.com/the-main-types-of-inground-pools-2736828>



Source: <https://mashable.com/article/megalodon-shark-attack-whale-discovery>



## Failure Case:



Reason:

1. The background pool has a complex texture, which makes it difficult to blend the background of the source image into this kind of texture.
2. Since the wave next to the shark also has a complex texture, makes it harder to blend.

### 3. Mixed gradients



source:<https://depositphotos.com/305946018/stock-illustration-tiger-head-multicolored-sketch-indian.html>



<https://www.photowall.com/us/brick-wall-6-wallpaper>



#### 4. Quality of results/report

#### 5. Color2Gray (B&W)

Include

- Color and grayscale of colorBlind8.png and colorBlind4.png, where grayscale is created by your code
- Color and grayscale of one natural image, where grayscale is created by your code
- Explain your method/constraints

#### 6. Laplacian Pyramid Blending (B&W)

Include

- For at least one example, compare copy-paste, poisson, and laplacian pyramid blending. Include the object and background source images, and the blended results for each method. You can use different masks for different methods.

## **7. More gradient domain processing applications (B&W)**

Include

- Show at least one example for each method that you implement. Explain the constraints used for each method. Something relatively complex like colorization is worth full points. Simpler applications like non-photorealistic rendering can also be worth full points if multiple variations are shown or clever methods used.

### **Acknowledgments / Attribution**

List any sources for code or images from outside sources