11/7/2024

Final Project Discussions

Final Project Requirements

- Today's focus: What we expect for your final project!

Luna Yang and Xuelin Yang, Fall 2021

Final Project Requirements

- First, the straightforward requirements:
  - Main geometry (the focus of your scene) + half the overall geometry made by you
  - UV mapping and texturing (HW8) from scratch for at least one object you made
  - At least one advanced feature in Cycles used, e.g. depth of field

Kate Eselius and Jamie Ullman, Fall 2022

Final Project Requirements

- Now, the not-so-straightforward requirement for that A or A+...
- “Leverage the power of ray tracing”?
- Which of the following images looks better to you? And why?

Final Project Requirements

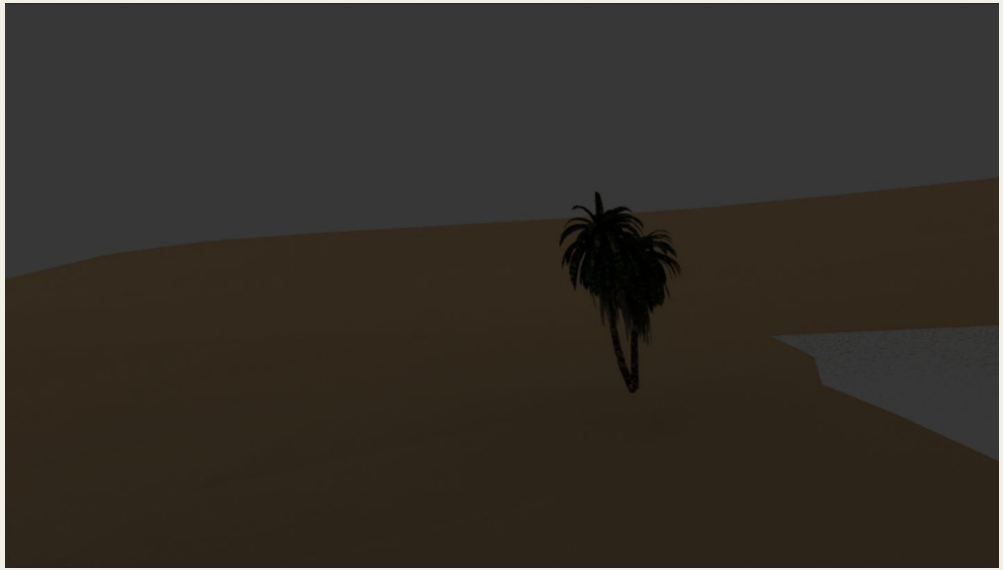
- “Leverage the power of ray tracing”?
- Does this mean we just need use Blender Cycles and be done?

Scanline Rendered (Blender Eevee)

Ray Traced (Blender Cycles)

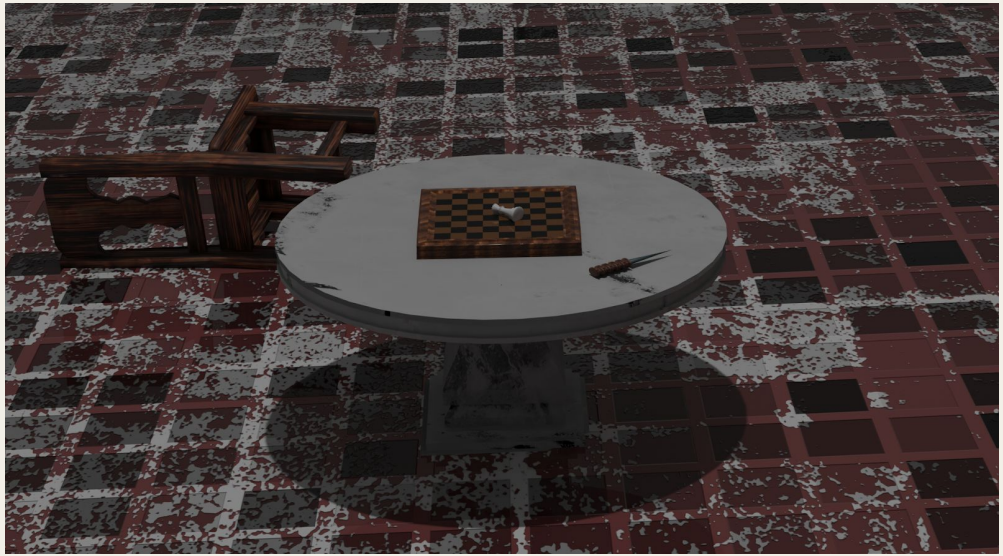
Final Project Requirements

- The following is a project from last year rendered in Blender **Cycles**
- All geometry was made + textured from scratch; depth of field is in
- Would you give this an A or A+? Or even an A-?



Final Project Requirements

- What about the following project?
- All the straightforward requirements are met + rendered in Cycles
- How would you rate this image?



Final Project Requirements

- Which of these images is more comparable to the previous image?

Scanline Rendered (Blender Eevee)

Ray Traced (Blender CYCLES)

Final Project Expectations

- **Simply using Blender Cycles IS NOT ENOUGH!**
- Too simple of a scene composition or lack of lighting can lead to a lack of **photorealism!**

Final Project Expectations

anline Rendered (Blender Eeve

Ray Traced (Blender CYCLES)

Final Project Expectations

- The “leverage the power of ray tracing” requirement…
- The focus of the class has been on ray tracing:
  - HW3: shadow rays, diffuse/specular/ambient shading, reflections, transmissions
  - HW4: types of lighting and shading, interacting with materials
  - HW5: area lights, sampling, color bleeding
  - HW6: depth of field, motion blur, volume rendering
- All of the above lead to **photorealism** in the rendered image

Final Project Expectations

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  - HW3: shadow rays, diffuse/specular/ambient shading, reflections, transmissions
  - HW4: types of lighting and shading, interacting with materials
  - HW5: area lights, sampling, color bleeding
  - HW6: depth of field, motion blur, volume rendering
- All of the above lead to **photorealism** in the rendered image

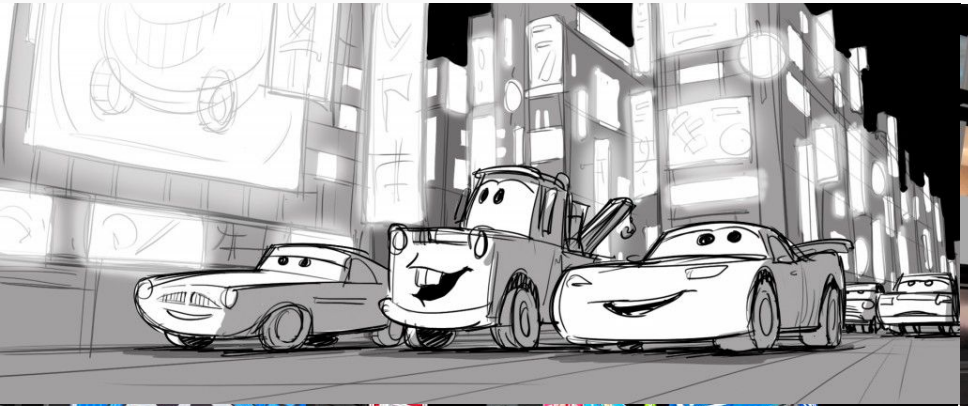
- Your job is to show us that you understand how ray tracing can make an image look “better” aka more photorealistic!

Final Project Expectations

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Note that stylized scenes also need photorealistic lighting to look good!

Yifan Wang
Fall 2020

Final Project Expectations



- Stylized scenes also need photorealistic lighting to look good!

Leverage the Power of Ray Tracing!

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Scene can be simple as long as the power of ray tracing is clear!

Tracy Cai and Xiaohai Lu, Fall 2021

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Ran Li,
Summer 2022

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Alex Oseguera and Jay Saleh, Fall 2021

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Bohan Wu, Fall 2021

Leverage the Power of Ray Tracing!

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Lighting can also be simple! It's the use of it that determines the quality!

Xin (Lucy) Lin and Yige Liu, Fall 2021

Leverage the Power of Ray Tracing!

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Even in dark scenes, the lighting is crucial for bringing it to life!

Helena Roberts-Mataric, Fall 2020

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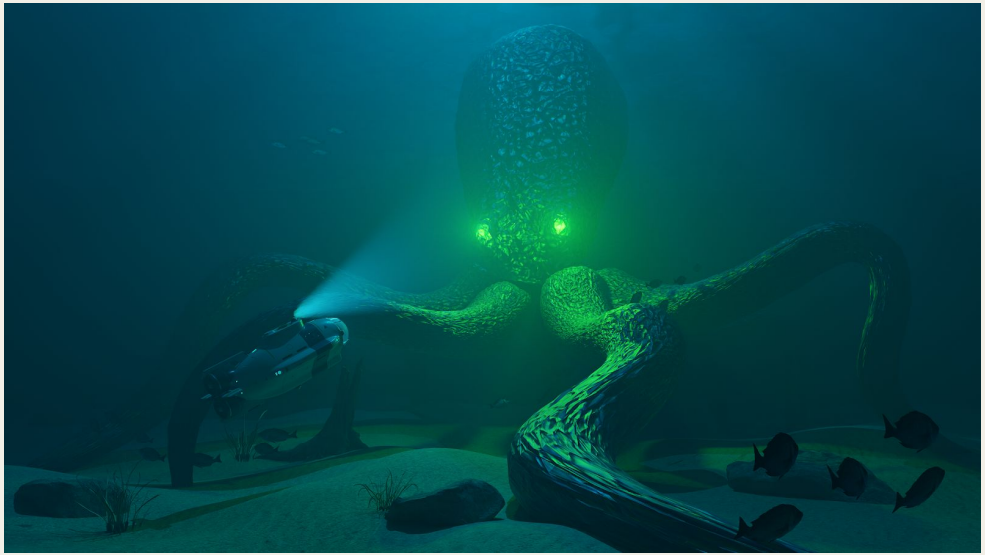
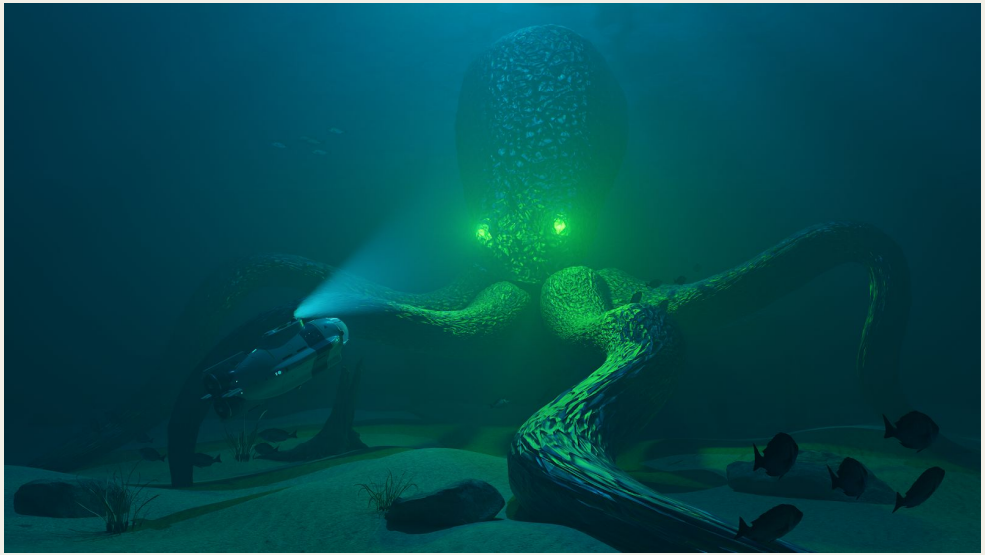


Bradford Lin and Wilson Liang, Fall 2021

Leverage the Power of Ray Tracing!

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Good use of volume rendering here to show the shape of the light!



Bradford Lin and Wilson Liang, Fall 2021

Leverage the Power of Ray Tracing!

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- HDRI and Nishita Sky models can add environmental lighting!

Grace Alwan and Carolyn Qu, Fall 2021

Leverage the Power of Ray Tracing!

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Reflections/Refractions/Transmissions: when in doubt, add glass!

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Danielle Tang, Fall 2021

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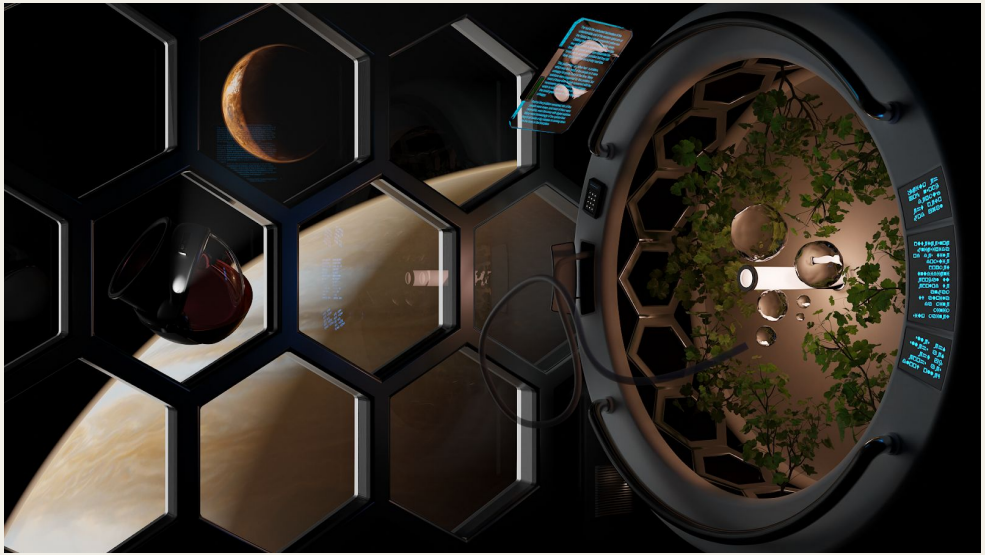


Ben Hoskins, Fall 2021

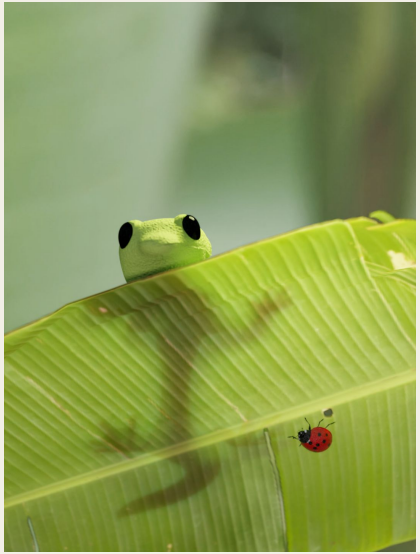
Leverage the Power of Ray Tracing!

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Reflections/Refractions/Transmissions: water materials work too!

Vlad Ankudinov, Fall 2021

Leverage the Power of Ray Tracing!

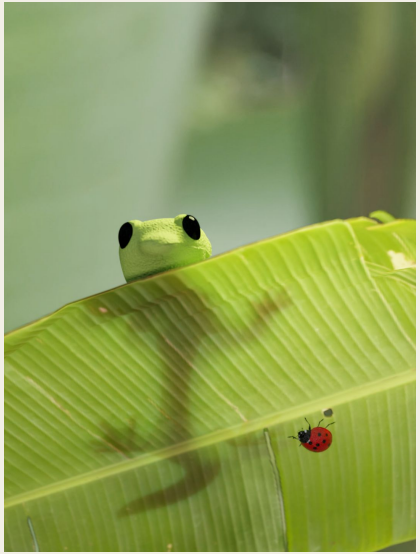
- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Reflections/Refractions/Transmissions: can also get creative!



Nova Halavins, Summer 2022

Leverage the Power of Ray Tracing!

- **Goal:** Create a scene that when rendered in Blender Cycles has most if not all the components of ray tracing for a **photorealistic image**
- Depth of field as well!



Nova Halavins, Summer 2022

Relying on Impressive Geometry & Texturing

- It is OK if your image relies more on the modeling aspect than lighting

Relying on Impressive Geometry & Texturing

- As an introductory class, we will also reward impressive geometric modeling and texturing!
- While the lighting could be better, everything here was created by the student!

Sifan Ye, Fall 2020

Relying on Impressive Geometry & Texturing

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- Everything here was created by the students!

Qi Zhou and Junrui Lyu, Summer 2022

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Michelle Lok and Zongdi Xu, Summer 2022

Relying on Impressive Geometry & Texturing

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- Everything here was created by the students!

Amanda Huynh and Anna Chang, Fall 2021

Cite Tutorials!

- Keep track of any tutorials or resources you use, and remember to **cite them in your report!**
- Youtube, blogs, webpages, forum posts, etc are all fair game!

Catherine Huang and Yara Sevilla, Fall 2021

The Exact Final Project Deliverables

- First, some logistics:
  - PROPOSAL (Optional) due via Google Form Monday Nov 11 by 11:59 PM PST
  - **PROJECT due over Google Form THURSDAY Dec 12 by 11:59 PM PST**
- Deliverables:
  - **Final Image (MOST IMPORTANT)**
  - Written Report (pdf; can be very informal!)
  - Variant A Image (for our reference; doesn't need to look good!)
  - Variant B Image (for our reference; doesn't need to look good!)
  - Link to Google Drive with Blend file (for our reference)

- **NOTE:** The final image **MUST BE THE RESULT OF A BLENDER CYCLES RENDER!**
- You **CANNOT** do post-processing in e.g. Photoshop, etc!

Project Showcase

- **Use the showcase on the website for ideas!**
- Click on each image to see the reports (to also gauge expectations)

Project Proposal

- **Due via Google Form next Monday by 11:59 PM PST**
- **OPTIONAL**
- But gives 5 “extra credit” points to make up for any missed HW points
- Motivational image(s) + 1-2 paragraphs is fine
- Feedback will be sent over the course of the week from a random CA
- **YOU ARE NOT COMMITTED TO WHAT YOU PROPOSE!**

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- **YOU ARE NOT COMMITTED TO WHAT YOU PROPOSE!**

- That said, if you do end up recreating your motivational image(s)...

Project Proposal

- **Due via Google Form next Monday by 11:59 PM PST**
- We'll be very impressed if you manage to recreate a complex motivational image!

Cameron Mohne and Nicholas Vo, Fall 2021

Project Proposal

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- We'll be very impressed if you manage to recreate a complex motivational image!

Xi Yan and Siyun Li, Fall 2021

Project Proposal

- **Due via Google Form next Monday by 11:59 PM PST**
- Sometimes though, the scene can be lacking if you can't recreate every element of it…

Walker Stewart and Will Coors, Fall 2022

Project Proposal

- **Due via Google Form next Monday by 11:59 PM PST**
- If you can't recreate the full scene, then get creative!

Romrawin (Jin) Chumpu, Summer 2023

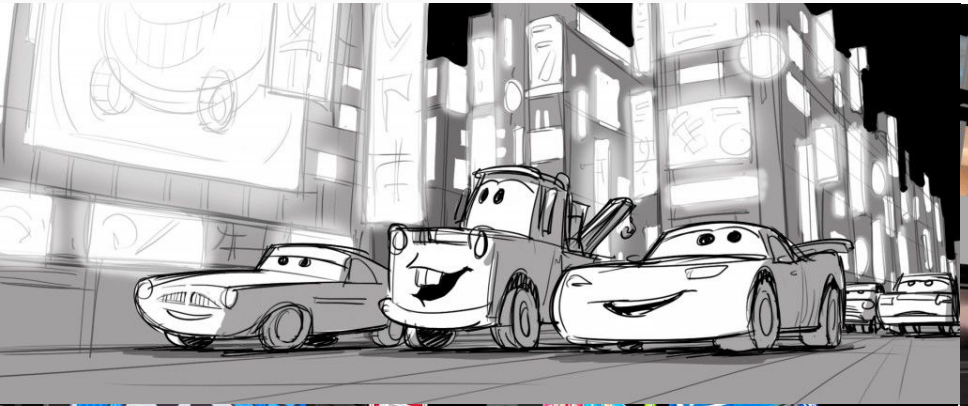
Start Early and Ask for Feedback!

- Iterate with the CAs! Ask friends, family, coworkers too for opinions!
- Every CA either got an A+ in the class or is a PhD student in Graphics

Justin Jasper, Fall 2023 - Initial Version

Justin Jasper, Fall 2023 - Final Version

Recommended Flow of Work



(1) Sketch Plan - (2) Geometry (HW7) - (3) Materials & Texture (HW8) - (4) Lighting

Incompletes / Grade Improvements

- Ron might have mentioned that the final project due date is a "soft deadline"
- We are happy to give anyone extra time either:
  - via an incomplete "I" grade to finish up the project
  - by letting them improve their project if they want a higher grade

Email Ron and me (email addresses on website) + keep in touch!

- Grade changes will appear on your unofficial transcript:

Course		Cmpt	Title	Attempted	Earned	Grade
CS	148	LEC	INTRODUCTION TO COMPUTER GRAPHICS AND IMAGING Previous Grade(s): A- Ron Fedkiw	4.00	4.00	A

- But they will disappear for the official transcript

Final Project Grading

- Yes, the projects are graded on a curve!
- Each image will be given a score out of 10; see final project handout!
- Last year's curve across 489 students: