TAP Animator Creed: Virtual Learning Edition

1 we show respect
We are a team. We live up to the same expectations as we would in person.

2 we take care of our technology
We respect all equipment. We mute ourselves when we are not speaking. We do not talk over our teammates.

3 we focus
We have a lot to learn. ALL our attention is focused on the class. We do our best to limit distractions around us. We wear headphones if possible.

4 we participate
We speak up; we ask for help when we need it.

5 we own the content
This is our class. This is our opportunity to learn more about the animation field.

6 we attend class
Our voices and ideas are valued. We log into class on time and stay until the end whenever possible.
Welcome to The Made In New York Animation Project NeON Summer Edition!

Session 10 - Rendering
Opening

Share Verbally or in the Chat:

What is one aspect of yourself that you want to present to the world?
Technical Lesson: Rendering
Terminology
What is a “render”?  

**Easy Answer**
Whatever is on the computer screen!  

**Complicated Answer**
Whatever your 3D camera is told to look at will appear in your “render”. 
What are “render formats”?

The Eternal Conflict: JPEG vs PNG

**JPEG** - compressed image most commonly used in articles on the web

**PNG** - a compressed Portable Networks Graphic image with an “Alpha layer”

Alpha Layer

the “blank space” in a picture that appears “clear” or transparent
What is an “image sequence”?

Easy Answer

A bunch of pictures that make a movie or animation like a flipbook!

Complicated Answer

“Image sequences” are a series of renders in JPEG, PNG or other image formats that render faster and can be corrected easier than rendering a video format; ex. fixing 1 picture out of 800 is easier than re-rendering an MP4 that took 2 hours.
Let’s Make a Movie! MOV and MP4

**MOV**
compressed video; always produced from Quicktime (can have an Alpha channel)

**MP4**
compressed video that has no Alpha channel; produced from H.264 preset

*AVC = Advanced Video Encoding*
What size should I make my render?

**Easy Answer**

Use the “H.264 Preset”! It’s a common size for YouTube videos!

**Complicated Answer**

The most common size or “resolution” on YouTube is “720p” or “standard definition” which measures 1280 x 720 pixels and “1080p” or “high definition” at 1920 x 1080 pixels.
VIDEO RESOLUTION COMPARISON

BluePixelAnimations

144p UP TO 4K

Biggest difference in quality is visible in the shadows beneath the objects and the reflections!
TAP Film
Solar System
Solar System: Reflection

Set video to “144p” and play for 5 seconds or so and then switch up to “1080p”

Compare the two different resolutions: Low Resolution versus High Resolution.
Video Demonstration
Advanced Examples
What are “render layers” and “render passes”?

Easy Answer
You can choose to render only part of what you see on your screen!

Complicated Answer
“Render layers” allow you to separate the items you want included in your render to save on time and power, these incomplete renders are called “render passes”.
Simple Breakdown of Render Passes:

*Indie Project Breakdown*
Complex Breakdown of Render Passes for Compositing:

Jurassic World Breakdown
Career Opportunities

- **Technical Director** - aka “TD”, ensures quality control of their part of the pipeline; ex. Lighting TDs go through renders to ensure the lighting is consistent before moving the footage on to Post-Production.

- **Director of Photography** - aka “DoP” is in charge of the overall appearance of the film; ex. have control over the digital camera and work with the Director to finalize shots!
Career Example:
Director of Photography in an Anime Studio: *Ufotable*

*content warning: guns/sci-fi violence, swords/fantasy violence, explosions*
Resources

- **UnReal Engine** free download thru Epic Games Launcher for rendering & game design
- **Autodesk Maya** free download with student email for modeling, rigging, animating & rendering (requires verification)
- **Autodesk 3DS Max** free download with student email for modeling & rendering (requires verification)
- **Blender** free modeling, sculpting, animating & rendering
- **Arnold Renderer** comes standard with Maya/3DS Max, but must be turned on in settings
- **LuxCoreRender** can be installed as plugin with Blender if not already installed
Free Alternative Resources

**Hitfilm Express**
Free version of the Hitfilm video editing program; replacement for Premiere and Audition.

**Kdenlive**
Open source video editing and VFX program; replacement for Premiere.

**Shotcut**
Open source video editor; replacement for Premiere.
Questions & Answers
Frequently Asked Questions

● How long does rendering take?
  ○ Anywhere from a few seconds to days, depending on the render and the kind of graphics card and GPU you have in your computer.

● Can you leave the computer to render on its own?
  ○ You can leave it overnight, but someone needs to check up on the computer in case there’s an issue. Large renders for movies and vfx are usually split across up to a hundred and more computers and carefully monitored as they render seconds of animation at a time.

● Does more work happen after rendering?
  ○ There’s still plenty to be done after rendering! After the first renders for an animation, there are changes to the lighting and materials used in the render that’ll eventually be finalized in Post-Production. In VFX, renders are put through multiple passes to be composited into live action.
Creative Engagement
Creative Engagement

Let’s apply the concept of “rendering” to our own lives.

What sort of personal “settings” do you need in order to present your ideal “render” to the world?

Ex. 8 hours of sleep, exercise, journaling, talking with friends, etc.

Take 15 minutes to find and explore these settings.

You can use whatever medium works for you.
Consider the following when examining each setting:

- Why is this setting important?
- What is needed for you to reach this setting?
- If you can’t get to this setting, what’s your plan B/backup setting?
- What are your “presets”? Or in other words, what settings do you have set up for yourself to easily access (healthy snacks available, rainy day plans, any other prepared resources).

Please feel free to share your settings in the chat!
Closing

Share Verbally or in the Chat:

What is one setting you will make sure you will prioritize this week?
Materials needed for next group:
Drawing Materials (optional)
Information for Friday’s mega group:

Please remember to log into your zoom account and make sure that your name matches the name you registered with NeON prior to joining the webinar on Friday. Once you have done this, you are all set. You do not need to follow up with the Q&A monitors regarding your zoom name.

Attendance for the mega group webinar is taken automatically as soon as you join. You do not need to submit a question to our Q&A monitors regarding your attendance at the webinar.

If you lose connection during the webinar, please try to log back in as soon as you are able. Rest assured that your attendance was automatically taken when you first joined the webinar. You will still receive your incentive.
If you would like to share your **ARTWORK** and have the chance to have your work featured in our Mega Groups, send submissions to:

submissions@theanimationproject.org

If you have **QUESTIONS ABOUT THE SUMMER PROGRAM** that are not answered on the FAQ page of our website, reach out to:

neonsummer@theanimationproject.org

If you have **QUESTIONS ABOUT INCENTIVES** that are not answered on the FAQ page of our website, reach out to:

tapincentives@theanimationproject.org
Thank you for attending this group!

Visit https://www.theanimationproject.org/minyap-neon-summer-edition-faqs for FAQs, group materials, access to slide presentations, and Mental Health Resources.

Check out our social media for more information about the TAP Weekly Challenges!