

WORKFLOW GUIDE TO “1969” VR
An official Jaunt Cinematic VR Lab Experimental Production

prepared by Kathy J. Liu

Spring 2017

WORKFLOW OVERVIEW

QUICK DESCRIPTION OF WORKFLOW

- Live-action VR footage acquired by Jaunt ONE VR camera, stitched in Jaunt cloud, and delivered as a high-quality ProRes file.
- Clips are edited on Premiere, rendered as a high-quality image sequence 60fps (drop frame); converted to 24fps (drop frame) image sequence for use in project.
- Left-eye image gets mapped to a sphere in Maya project, with a 360 virtual camera (created via the DomeMaster3D plugin) to match the Jaunt camera specs and location in the virtually-recreated space.
- The CGI world is built within this template Maya project, using 2D planes with our own CGI images/designs/animations (in PNG transparent or PNG transparent image sequence formats) mapped to the texture. 2D planes may also be animated for transitions.
- CGI world is rendered from Maya to a left-eye 360 latlong and a right-eye 360 latlong image sequence, using the DomeMaster3D plugin.
- The left-eye and right-eye image sequences are imported to After Effects and composited under the chroma-keyed ProRes live-action footage, then rendered from the Render Queue as an HQ MOV and compressed to a HQ H.265 MP4 via Handbrake.

BASIC PROJECT SPECS

Project Frame Rate: 24fps (drop frame), aka 23.97

This applies to all projects on all software used (listed below).

Final HQ render resolution: 3840x3840 stereo (top-bottom) H.265 video

Software: Maya + DomeMaster3D plugin (integration & CGI authoring, render), Adobe Premiere (edit), After Effects + Mocha Pro 5.0 + Evil Twin (compositing, animation, final render), Photoshop (asset creation, animation), HandBrake (HQ video compression)

WEEKLY ARTIST MEETINGS

Our first in-person meeting will be **Sunday, February 12, 2017** at the Jaunt VR lab in SCI 307.

Kathy will meet with each artist on a weekly basis for the next 11 week of the project production term, whose final week is expected to be April 23-29, 2017 (unless extenuating circumstances arise).

We will meet **every week** according to the schedule below—exceptions being for Spring break: **no individual meetings on March 17-18; all-group meeting on Sunday, March 19.**

Fridays 2pm: Dave Zhu

Fridays 3pm: Kaley Cho

Saturdays 11am: Deena Baum, Megan Maniago

Saturdays 12:30pm: Yimin Zhang

The purpose of these individual meetings is for you to:

- (1) Get software tutorials (specific to your tasks/assignments for the upcoming week) as well as VR tutorials/basics (non-specific to your work for 1969 VR—my treat!).
- (2) Get specific guidelines for your next week's assignments.
- (3) Go over the work completed during the prior week and receive detailed feedback for previous passes on assets or notes for next passes.
- (4) Review previous challenges using new techniques/software or adapting to VR integration from the previous week's work (e.g. if you struggled with After Effects or Photoshop during Week 1, we can go over some tips and tricks at your weekly meeting).

All in all, these meetings are meant to help you accomplish the goals you listed in your onboarding survey, in addition to keeping the project schedule on track.

FEEDBACK LOOPS

In addition to weekly meetings, you will be doing most of your animation and design work remotely. In order to mitigate the amount of guesswork and burnout, you are encouraged to send early drafts to Kathy on a regular basis, before the deadline for art, so that she can give you live feedback before you jump into heavier coloring work.

You will still be expected to turn in your high-quality work according to very specific naming conventions, deadlines, delivery locations, and (see the below section on **IMAGE & ANIMATION DELIVERY GUIDELINES**).

EFFICIENCY IS THE NAME OF THE GAME

We have a lot of ground to cover in just 10 weeks, so that means we have to work quickly and work smart! Wherever there's a shortcut, take it.

For animations, that means pretty much every character animation or “window scene” is going to be comprised of *cycles*—walks, sways, and other repetitive actions that we can loop through.

As mentioned above, one way to minimize excess work and energy being spent is to send Kathy your drafts early on, which means procrastination is not going to be on your side!! I will ask for revisions until we get what we need; don't let yourself get stuck on one assignment/task.

ORGANIZATIONAL TOOLS: THE TRACKING SHEET & CALENDAR

The **tracking sheet** for VR animation progress is available to view at [REDACTED]. I would recommend bookmarking this page for your convenience, as you will be referencing it often during the 10-week production period.

You can see a master list of your tasks and your fellow artists' tasks for the total 10-week production period. If you forget what you were assigned for a particular week, you can find that information here, as well as some links to tutorials, suggested software to use, and notes about the feedback given to any previous versions of the asset you've been working on.

We will be evaluating your work, timeliness, and extra involvement when disbursing bonus stipends at the end of the project term. One way we keep track of your progress is through this sheet.

Please also check **1969 VR Post Production Google Calendar** (shared to your emails) on a regular basis for a guide to each week number and scheduled due dates. For example, Week 1 starts Sunday, February 12, 2017; Week 1 assignments are due **before** your Friday/Saturday individual meetings (February 17 or 18).

IMAGE & ANIMATION DELIVERY GUIDELINES

All assets must be delivered as a **square PNG with transparency**,
or **square PNG sequence with alpha channel**.

Minimum resolution: 2048x2048

Maximum resolution: 4096x4096

These specs apply to both still images and animations.

PNG with Transparency

Example: This is basically what your Photoshop document (PSD) or PNG will look like from Photoshop if it has the proper transparency layer (the transparent parts of the background will appear to be a checkerboard). Simple enough!



USING THE IMAGE-SQUARE TEMPLATE

In order to maintain the consistency of the 2D assets delivered (and to seamlessly integrate the 2D assets into the Maya project), you may be asked to use the **image-square template**, which is a Photoshop Document (available on the Google Drive folder, as well as the Jaunt workstation in SCI 307). It basically looks like a little green rectangle at the bottom of a square canvas, 4096x4096.

Match the bottom edge of your composition or the lowest point of your puppet to the top edge of the green area. **DO NOT** crop the square template.

Toggle this template on/off while working in Photoshop, After Effects, or whatever other animation/design software you're using, and use it to keep everything within bounds. Everything that dips into the green area will be cut off from view by the floor-plane when your image/animation is integrated into the Maya project... and you don't want that!

USING THE TIMING REFERENCE VIDEOS FOR PUPPET ANIMATION

For the puppet character animations specifically, you most likely will need to match the cycle state (walking, swaying, stopped) to the 2D plane's location or positional animation, in order for the puppet to be successfully integrated into Maya/VR. This is because the 2D plane you're your animation will be mapped to will likely be animated to simply change location—so, if you have a walk cycle animation mapped to a moving 2D plane, it'll look just like your puppet is walking through 3D space in VR! Kathy will explain this at the artists' meetings, send you to appropriate reference video as needed, and demonstrate how to use it for your animations. Do not fret on this until reference videos are assigned.

FILE, FOLDER, & SEQUENCE NAMING CONVENTIONS

Sc#_ArtistName_AssetName_vers##_Dimensions.#####.png

- A) **Still images:** Use the **_Dimensions** part of the name **ONLY** for still images. This refers to one side of the square; for a 2048 x 2048 square, just write **_2048**
- B) **Animation Folders:** Omit the **.#####**
- C) **Animation PNG Sequences:** The **.#####** is five-digit image sequence number, starting with **00000**, for your **PNG sequences (animation)**. If you're delivering a still image (not animation), then omit the **.#####**

Example for still image:

Sc1_KLiu_ChurchStill_vers03_4096.png

This is version 3 of the still image of the Church in Scene 1, created by Kathy Liu. The dimensions are 4096x4096.

Example for animation (folder of PNG sequence):

Sc1_KLiu_Dadscream_vers03_2048

This folder contains PNG's for the third version of an animated sequence of "Dad Scream" for Scene 1, created by Kathy Liu. Each PNG in this folder measures 2048x2048.

Example for animation (frames of PNG sequence):

Sc1_KLiu_Dadscream_vers03.00000.png

This is the first frame of the "Dad Scream" animation PNG sequence (third version), created by Kathy Liu for Scene 1.

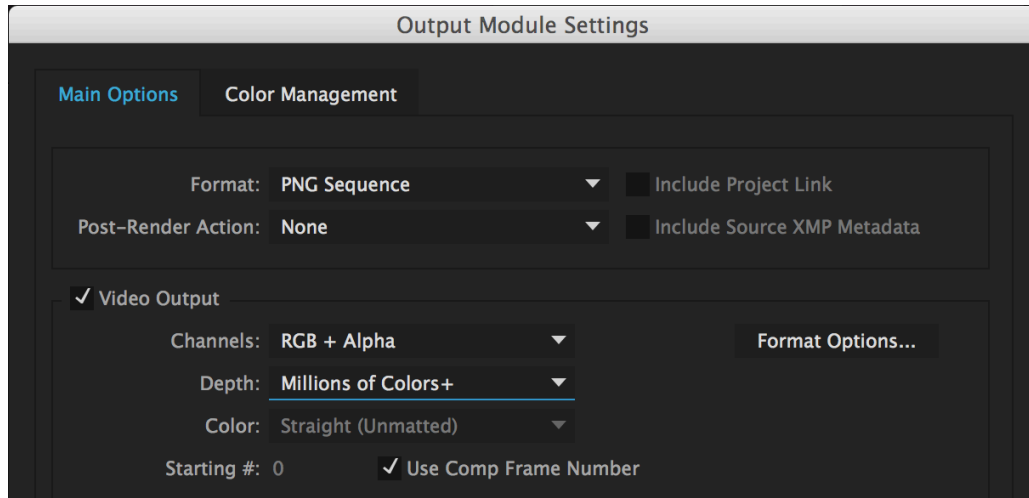
Sc1_KLiu_Dadscream_vers03.00005.png

This is the sixth frame of the same animation PNG sequence.

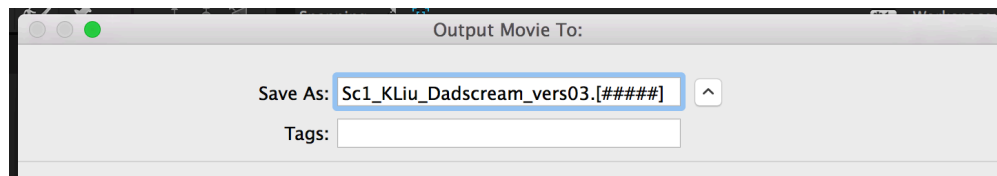
AFTER EFFECTS RENDERING CONVENTION

Make sure your project frame rate is set to 24fps or 23.97. Remember to turn off all background layers, isolating your puppet layer(s) or animated element layers. Add project to Render Queue.

On your Render Queue, select *Output Module* to open the “Output Module Settings” menu (shown below). Click *Format*, select “PNG Sequence.” Channels: “RGB + Alpha” to retain your project’s transparency in your render.



Next, click *Output To* on your Render Queue to bring up the **Output Movie To** browser window. To batch name each PNG according to the naming convention (as described in the Naming Convention section above), type the name convention in the Save As text area.

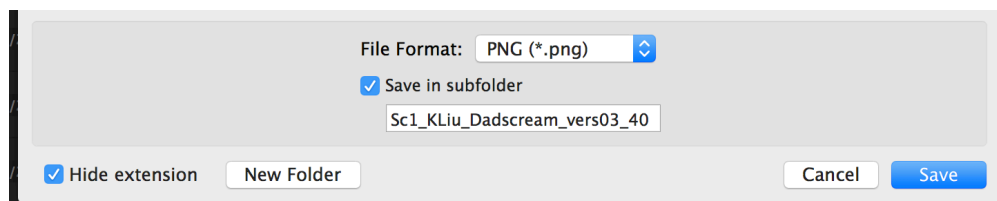


DO NOT leave this as the default image sequence convention. Be sure to change the underscore to a period before the [#####]. Make sure you leave 5 digits for the sequence number space [#####] (the default is usually 4 digits).

Default: Sc1_KLiu_Dadscreamvers03_[#####].png (INCORRECT)

Correct: Sc1_KLiu_Dadscreamvers03.[#####].png

Select "Save in subfolder" to create a folder for your PNG sequence (following the naming convention, which you can enter into the text area at the bottom of the output browser screen).



(Full folder name in example above is Sc1_KLiu_Dadscream_vers03_4096)

DELIVERING YOUR WORK

Weekly assignments will be due no later than **11AM Friday** (for artists with Friday afternoon meetings) **OR 6PM Friday** (for artists with Saturday morning meetings). This means your animations must be rendered to PNG sequences *before* these deadlines (you have all night Thursday or all day Friday to render, depending on your scheduled meeting time).

You may either deliver your work by one of the following methods. Please remember to adhere to the naming conventions, so that we can keep track of your work completion.

A) Upload to Google Drive Folder: 1969 VR > POST > DELIVERY > WEEK #

The file must be present on the drive (fully uploaded) by these deadlines for review by Post-Production Supervisor **Spencer Patzman** and director **Kathy Liu**.

If your assignment file(s) is/are not present in the Google folder by 7pm, Patzman will contact you; please email him in advance if the upload ETA exceeds the 7pm deadline, and be sure to include the expected upload time. Otherwise, there is no need to confirm delivery to the Google Drive folder.

B) Upload to the Jaunt workstation in SCI 307: D:/ Kathy / 0_Delivery / Week #

This delivery method will likely be more convenient and time-efficient for delivering **animations**.

The file must be uploaded to the Jaunt workstation by **the same deadline**.

If you choose to deliver your assignment to the workstation, please email before 7pm Saturday to confirm your upload. Be sure to include the name(s) of the file(s) you are uploading to the workstation in your email body. Subject line: "Week # - Delivery to Jaunt workstation."

MAYA MASTER PROJECT FILE:

The master project file (where everything is composited into Maya) lives on the Jaunt workstation (adjacent to the wall with the whiteboard).

File Location: D:/ Kathy / 1969VR_Maya / scenes / 1969VR_v##_aligned_MASTER

Frame Rate: 24fps

Final export resolution: 3840 x 3840, Left and Right

GUIDE TO THE MAYA PROJECT CAMERAS:

A quick note on how each of the cameras work and how to use them to work on integration of 2D assets into Maya. DO NOT change any locked camera settings; these are crucial to rendering and render-accurate previews for compositing.

A) Work views:

INTERACTIVE PREVIEW: The xyz position is locked (no zooming or dollying) but you can freely rotate. Click and drag this view to preview the scene, basically as if you're viewing from the headset in the digital equivalent of center!

persp, persp 1, top, bottom, et. al: Use these to freely preview the set from any/all angles when building a scene. Position, rotation, and all functions are locked; the focal length is set to an arbitrarily low length to allow for greater peripheral view.

B) Render views:

LOCKEDPREVIEW_monorender: Locked xyz position and rotation. No free movement whatsoever, but may be helpful in previewing the center view. Usable for mono renders and mono previews.

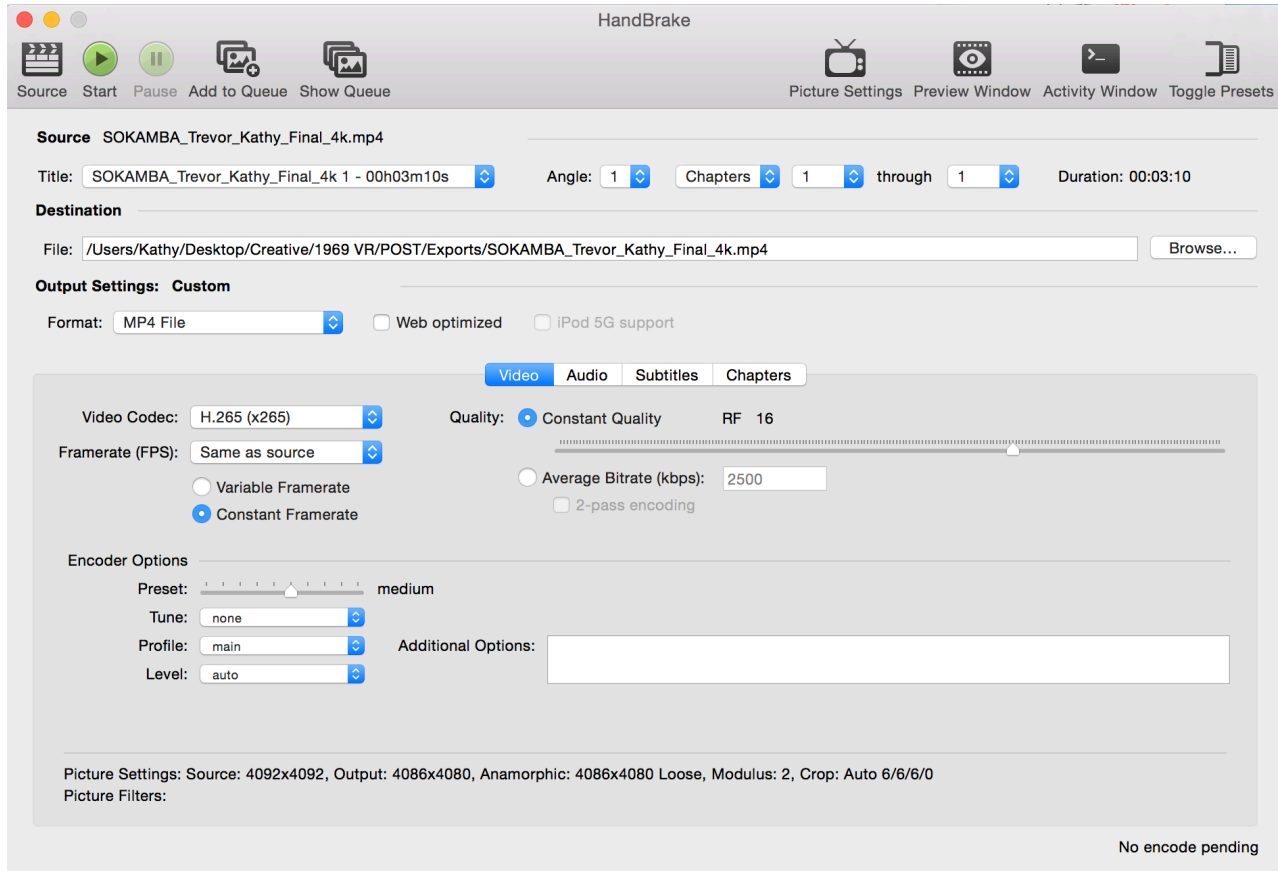
LatlongStereoCamera_Lock_stereorender: Locked xyz position and rotation. This is the camera view from which we render the final stereo images and all stereo preview renders.

FINAL RENDERING

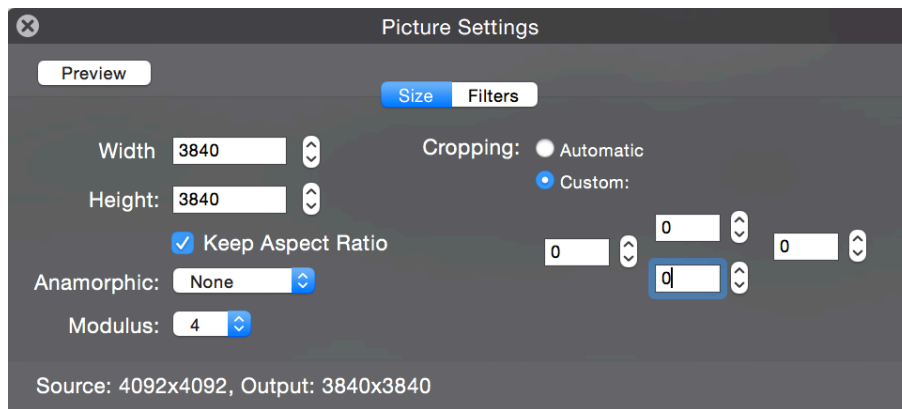
Render settings from Maya: From render window, select *Render View: LatlongStereoCamera_Lock_stereorender*. TIFF sequence, 3840x3840.

Render settings from AE / Handbrake (compression): Default HQ MOV (“Best Settings,” “Lossless,” etc.)—no adjustments necessary.

Run the MOV through Handbrake to create a high quality H.265 MP4. Click *Source* to bring the MOV into the program. Select Video Codec: H.265. And match the settings below:



Click on the Picture Settings icon at the top right to open the dialogue box below. Change *Cropping* from “Automatic” to “Custom” and change the default cropping values to “0.” Match the other settings to the below:



Close the Picture settings box. Click *Start* to run the conversion/compression.

TUTORIALS & GUIDES

ANIMATING

VIDEO TUTORIAL FOR USING THE PUPPET TOOL IN AE:

<https://www.youtube.com/watch?v=9FKaPBAUBNY>

ROTSOPE

1969 VR will be using both Mocha Pro 5.0 and the Evil Twin plugins combined to rotoscope for our 360-stereo VR video in After Effects:

VIDEO TUTORIAL FOR USING MOCHA PRO 5.0 (VR PLUGIN FOR AE):

<https://vimeo.com/159964894>

EVIL TWIN PLUGIN VIDEO GUIDE (STEREO-3D PLUGIN FOR AE):

<http://aescrpts.com/evil-twin-stereo-3d/>

Software Developer's Page

<https://youtu.be/GSJipOMv1nk?t=7m1s>

*Video guide to using the plugin. Skips to 7:01 to introduce basic stereo-3D rotoscoping functions. *You DO NOT need to "re-converge" the stereo footage or change anything with the left/right images' parallax.*

ORGANIZING

GUIDE FOR QUICK BATCH RE-SIZE AND BATCH CROP IN PHOTOSHOP:

<http://thenorthernfoundry.com/how-to-batch-crop-resize-images/>

BATCH RENAMING PHOTOGRAPHS / IMAGE SEQUENCES IN ADOBE BRIDGE CC:

http://blogs.adobe.com/educationleaders/2007/09/batch_renaming_photographs_usi.html

If your original image sequence was misnamed, this is the quickest, easiest way to batch rename thousands of images all at once, retaining the sequence number in the name.

RENDERING

GUIDE FOR EXPORTING PNG SEQ FROM TOONBOOM:

[http://docs.toonboom.com/help/animate-](http://docs.toonboom.com/help/animate-pro/Content/HAR/Stage/020_Export/008_H3_Image_Sequences_.html)

[pro/Content/HAR/Stage/020_Export/008_H3_Image_Sequences_.html](http://docs.toonboom.com/help/animate-pro/Content/HAR/Stage/020_Export/008_H3_Image_Sequences_.html)

Please email Kathy Liu at [REDACTED] with any questions on the workflow.