

A 360-degree VR video frame showing the interior of a bookstore. The scene is captured with a fisheye lens, creating a circular horizon. In the center, a woman with long dark hair, wearing a black Nike t-shirt, looks upwards. To her right, a man in a white shirt and a grey beanie also looks up. To her left, another man in a white shirt and a dark jacket is visible. The bookstore has high wooden shelves filled with books. At the top of the frame, a large, curved digital display shows a grid of book covers. The floor is light-colored and reflective. The overall lighting is warm and indoor.

CONTEXTUAL EMPATHY

An ethnographer's guide to VR & 360 Video

UNPACK YOUR FIELD KIT

1 CHARGE THE LG R-105 360 CAMERA

Use the USB cable included in the box to connect the camera to your laptop.

2 ASSEMBLE TRIPOD

Attach the 1/4 inch head and tripod legs to the selfie stick.

3 OPEN UP THE HOMIDO VR GLASSES

We picked a lightweight pair of glasses that are perfect for the field - look at the instructions to see how to use them with your phone.



YOUTUBE *ON YOUR PHONE*

Oakland Art Scene Virtual Reality The Atlantic

Wifi:

Password:

<INTRODUCTIONS>

<name>

<area of research>

<! — a comment about about the video we watched —>

</INTRODUCTIONS>

WHAT ARE THE DIFFERENT
TYPES OF "VR"?

A 360-degree panoramic night view of a city street. In the foreground, a large, curved glass-enclosed structure, possibly a transit shelter or a public art installation, is illuminated from within. The interior is divided into sections with different colored lighting: green on the left, blue in the center, and white on the right. People are visible inside. The structure is set on a sidewalk next to a street with parked cars and buildings in the background. The sky is dark, and streetlights are visible. A semi-transparent white box with text is overlaid on the lower-left portion of the image.

360 MONOSCOPIC VIDEO

Flat image with no depth of field. Most cameras shoot monoscopic VR video. Higher resolution than stereoscopic,

360 STEREOSCOPIC VIDEO



Viewers see different images in each eye. Gives the video "depth of field" like watching a movie with 3D glasses on.





AUGMENTED REALITY

[Interactive] computer generated image overlaid over the actual environment in real time.

3D MODELLING

Playing a game in VR.

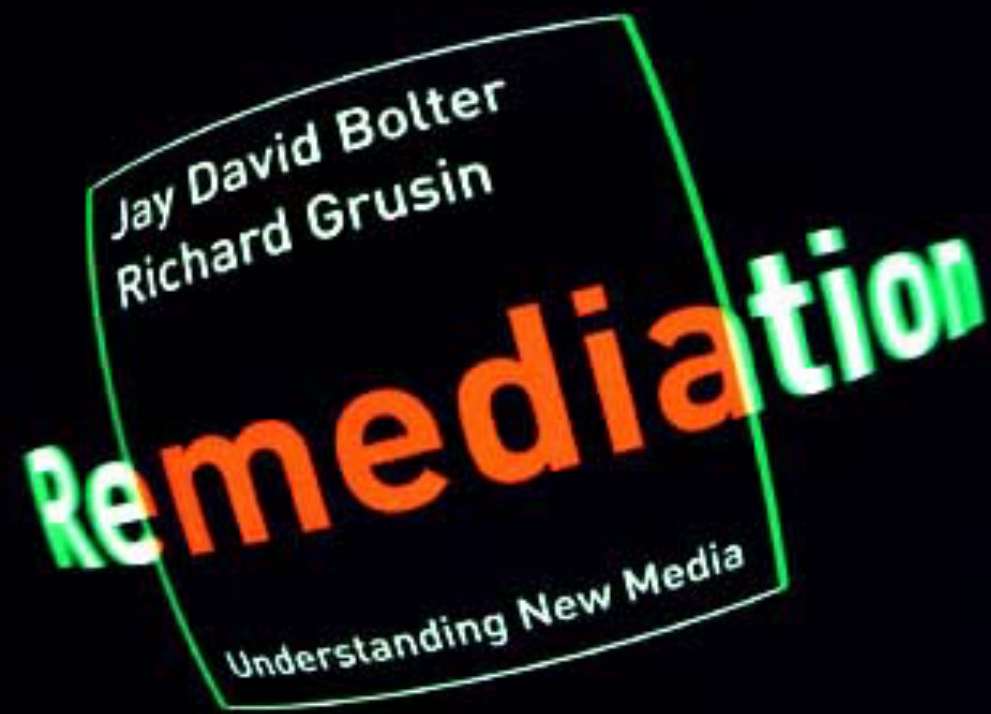


ESSAYS

REMEDICATION
Grusin & Bolter

OBSERVATION
Jonathan Crary

REPRESENTATION
Jill Godmilow



the double logic of remediation is a constant oscillation between "transparent immediacy" and "hypermediacy"...

TRANSPARENT IMMEDIACY

"...a style of visual representation whose goal is to make the viewer forget the presence of the medium...and believe that he is in the presence of the objects of representation"

HYPERMEDIATION

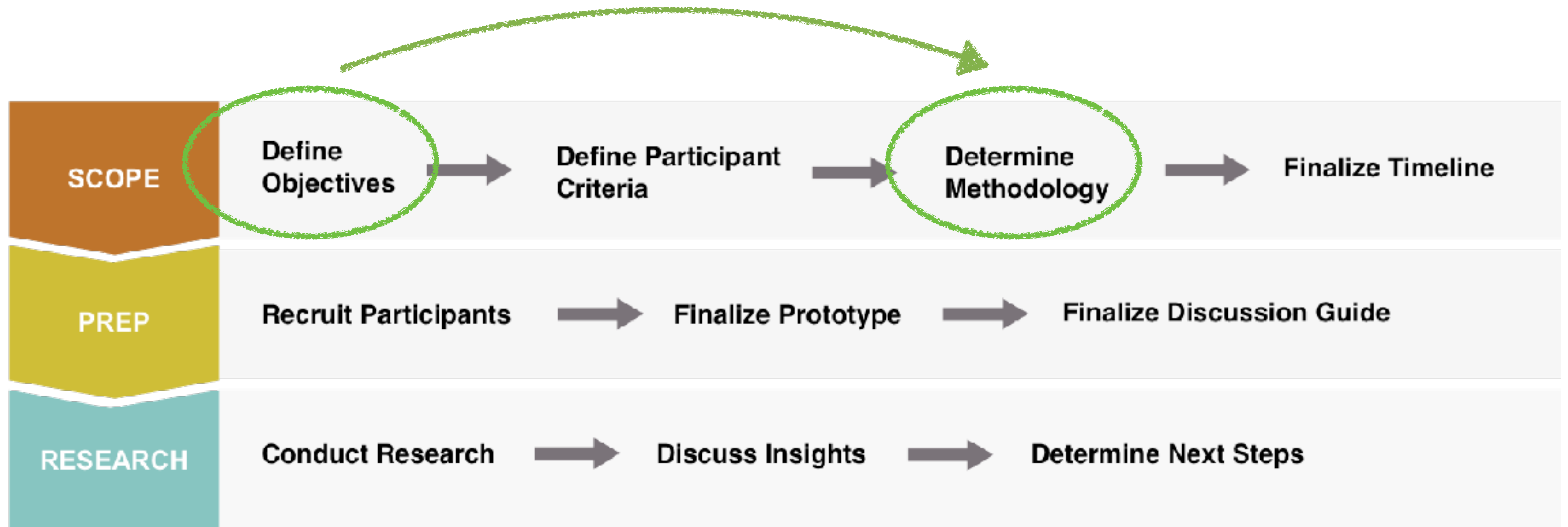
"...a style of visual representation whose goal is to remind the viewer of the medium."

REMEDICATION

"...digital media is constantly remediating its predecessors (television, radio, print journalism and other forms of old media)."

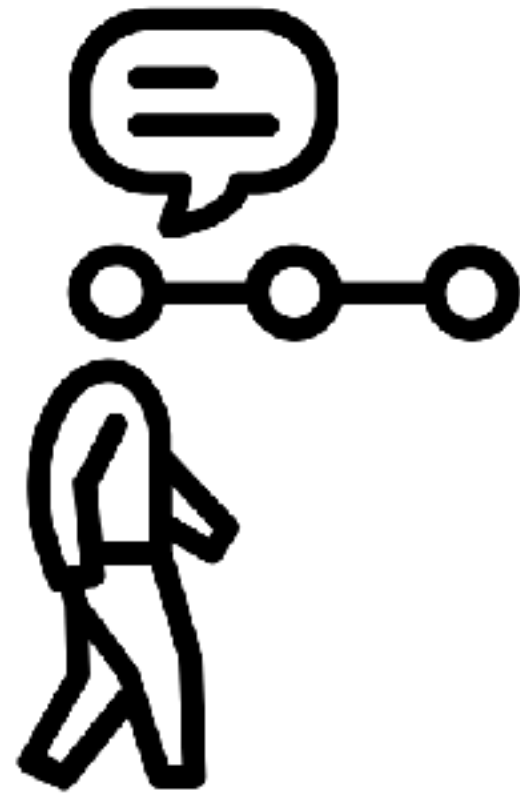
AS A RESEARCHER, WHEN
SHOULD I USE 360 VIDEO?

CONTEXT & PERSPECTIVE



Are contextual and environmental factors important for the task at hand? Will 360 video illustrate an insight or a pain point related to context? Will it deepen empathy with the participant(s)?

HOW I'VE USED 360 VIDEO



CD STORE WALKTHROUGH
(Japan)



TOUR OF BOOKSHELVES
(India)



MUSIC ON THE GO
(In-Car Research)

HOW I'VE USED 360 VIDEO

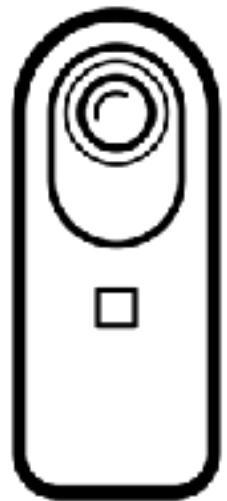


LAB SET UP WITH A LIVE TRANSLATOR

360 WORKFLOW

WORKFLOW

SHOOT



Single Lens

Dual Camera

Multi-cam [Rigs]

PROCESS



Stitch

Autopano Kolor

Muvey

Convert

EDIT



Premiere Pro

After Effects

Program

Unity

Unreal Engine

SHARE



Desktop

Phone

Headsets

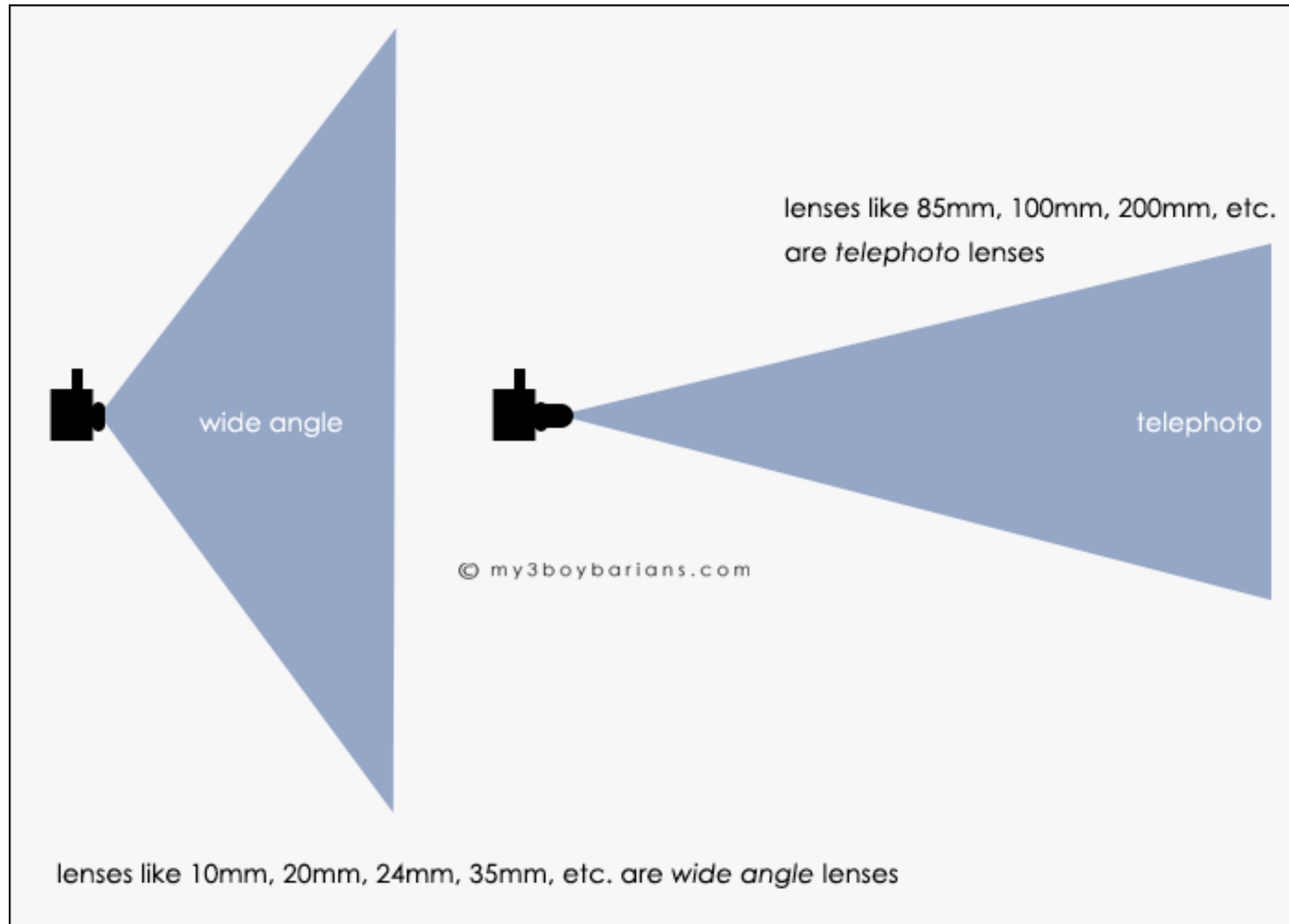
YouTube

Vimeo

Facebook

SHOOTING 360 VIDEO

FIELD OF VIEW



BASIC SHOTS



EXTREME WIDE SHOT (EWS)

Often used as an establishing shot.



VERY WIDE SHOT (VWS)

Not as wide as an EWS but the emphasis of the shot is on the location.



WIDE SHOT (WS)

The subject takes up the full frame. In the case of a person this is a full body shot.



MID SHOT (MS)

Generally considered to show a character from the waist up.



MEDIUM CLOSE UP (MCU)

Generally considered to show a character from the chest up. Halfway between a MS and a CU.



CLOSE UP (CU)

A certain feature or part of the subject fills the frame. Generally considered to show a character from the neck up.

BASIC SHOTS



High Angle

Low Angle



POINT OF VIEW



CAMERA -> EYELINE



"DIRECTING" THE AUDIENCE VR VS. 2D

VR VS. 2D CAMERA

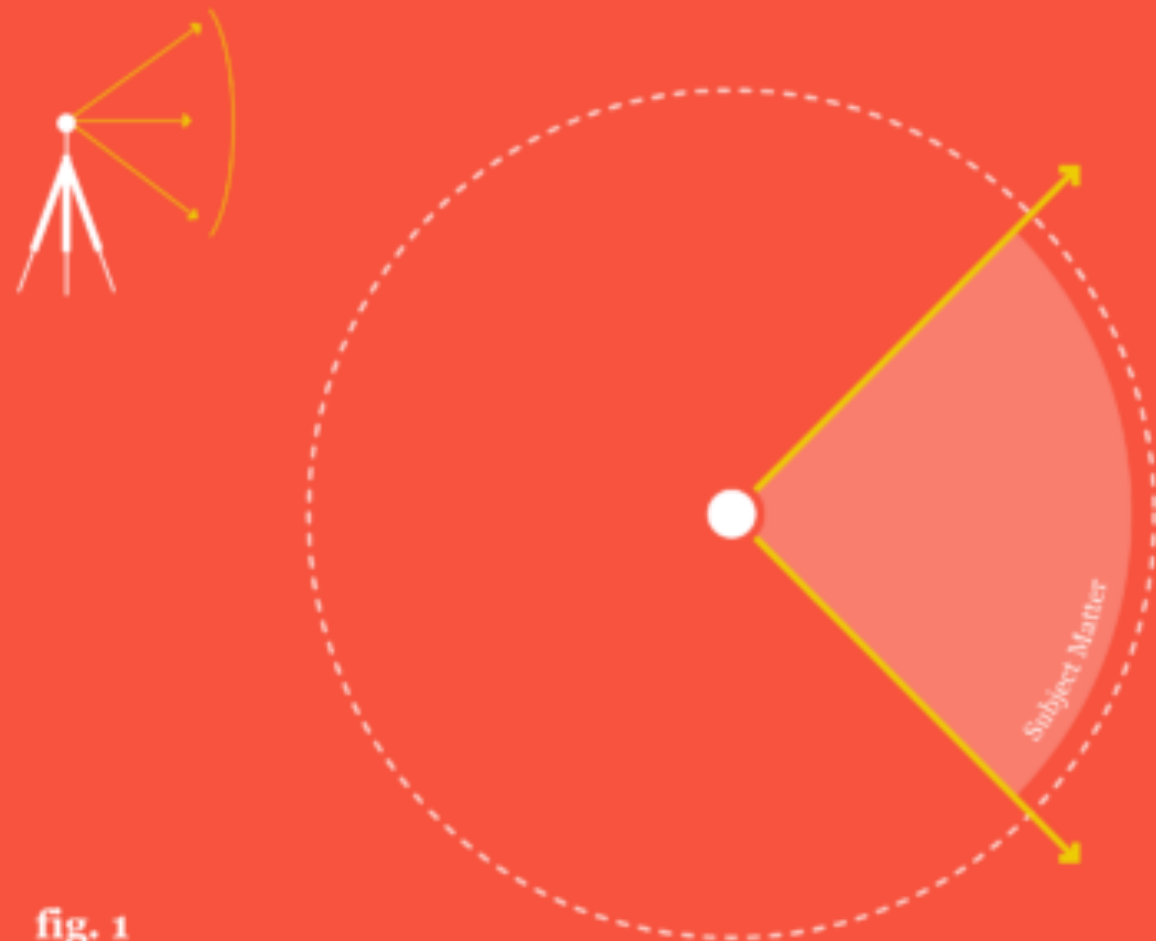


fig. 1
Traditional Camera

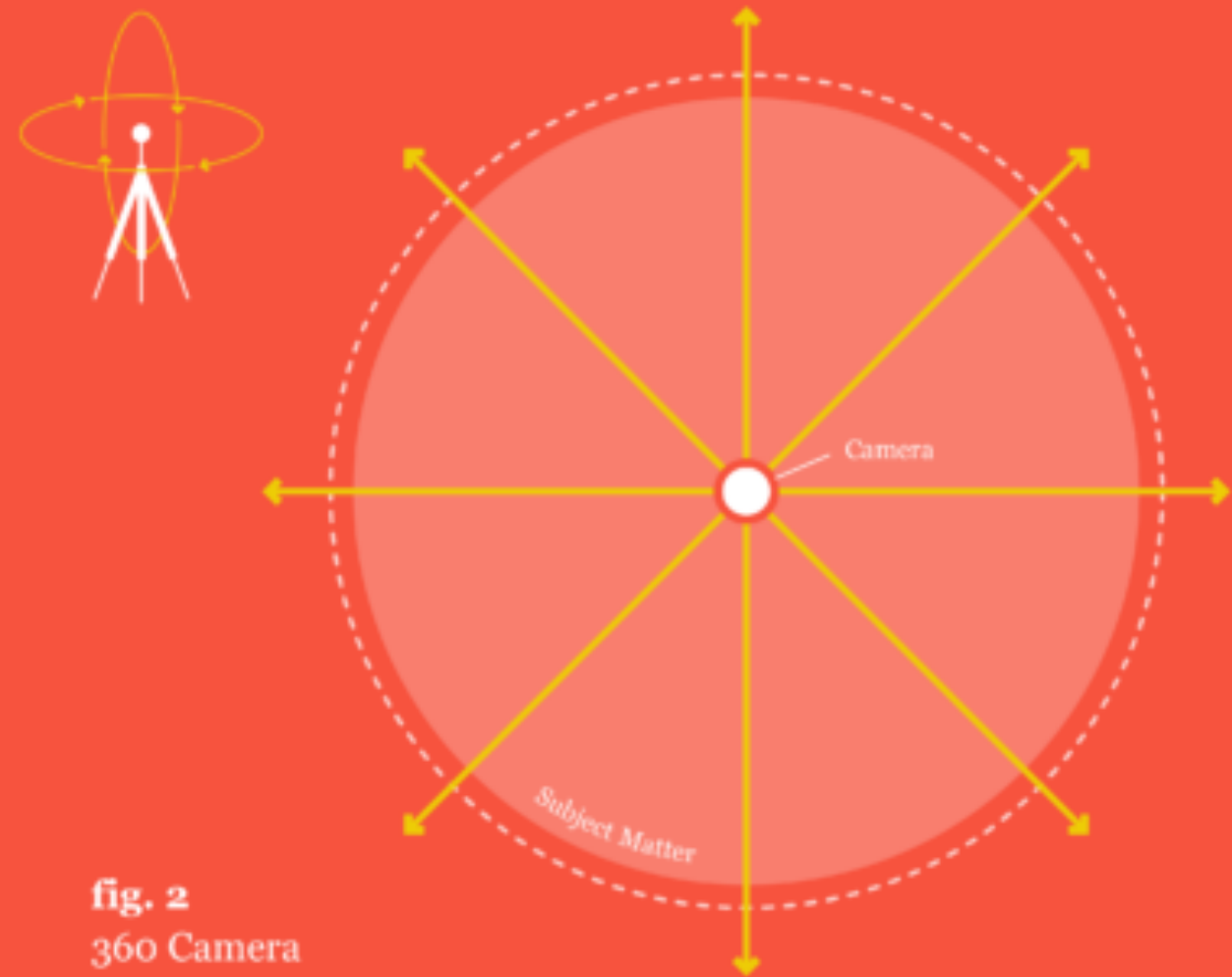
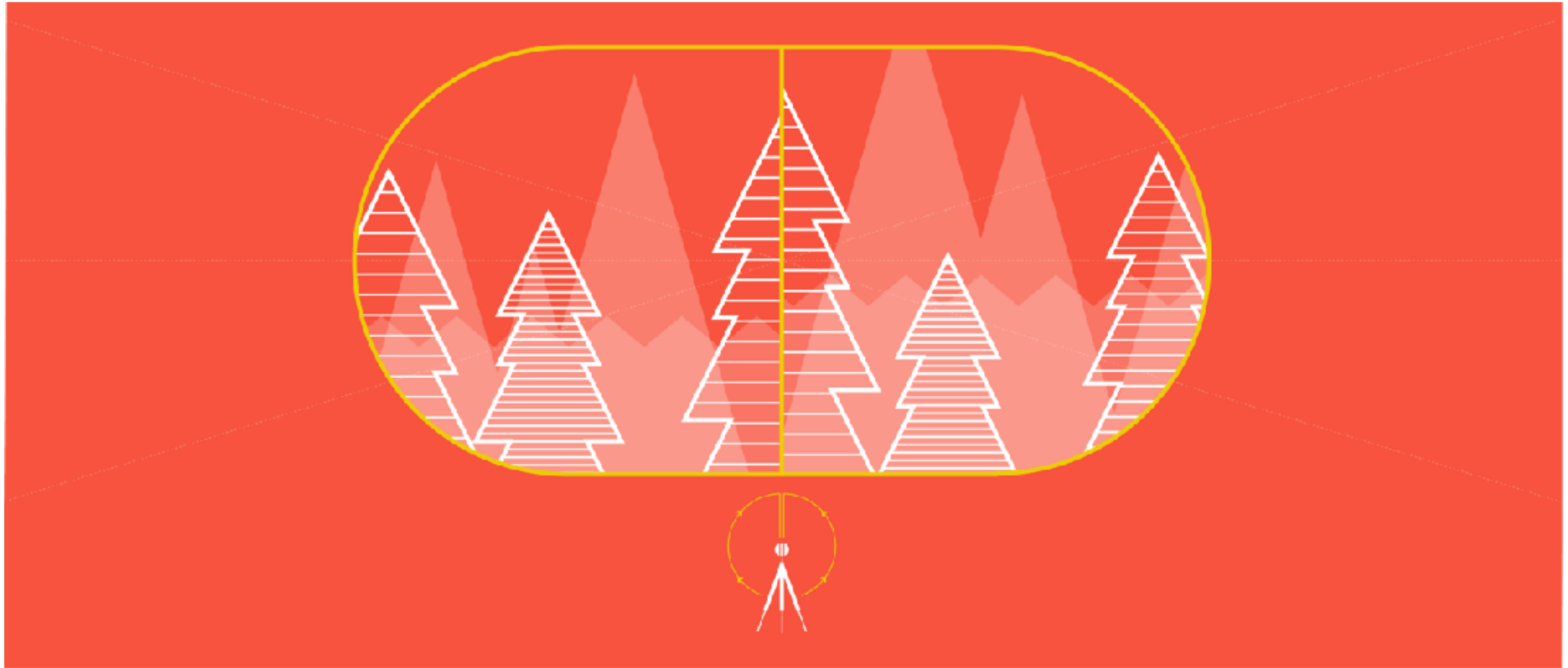


fig. 2
360 Camera

UNDERSTANDING "STITCH" LINES



PLANNING YOUR VR SHOOT

- “Rehearse” or walk-through the space with participants before you set up the camera.
- “Block” your shot(s) - mark the actions and placement of the participant in the space.
- Pick camera placement(s) based on your blocking. Number of shots = number of placements.
- Be mindful of eyelines & POV.
- Watch the stitch lines - make sure that the main action is not where the footage will be stitched!
- Don’t place the camera too close or the image might distort or cross the stitch line.

WHEN PICKING A CAMERA...

1 RESOLUTION - THE HIGHER THE BETTER

Online platforms like YouTube and some smartphones already support 4K footage with 8K screens expected in 2018.

2 AUTOMATIC STITCHING - SAVE YOURSELF THE EFFORT

Software to "stitch" footage from multiple cameras together is expensive and labor intensive. Newer cameras come with built in stitching.

3 IMAGE STABILIZATION (HANDHELD CAMERAS)

360 videos need to have a level horizon to avoid viewer discomfort. Cameras like Insta360 uses the data from a smartphone's built-in gyroscope to stabilize the 360 video.

CAMERA TYPES

SINGLE LENS



360Fly

Singe wide angle lens
240 degree coverage

DUAL CAMERA



Kodak Pix Pro Orbit

2 x wide angle cameras
360 degree coverage

MULTI-CAMERA



GoPro Rig

6 camera rig
360 degree coverage

PERSPECTIVES IN 360

PHONE



Insta 360 Air
Diary Studies

HEAD



FITT 360
Shop-Alongs

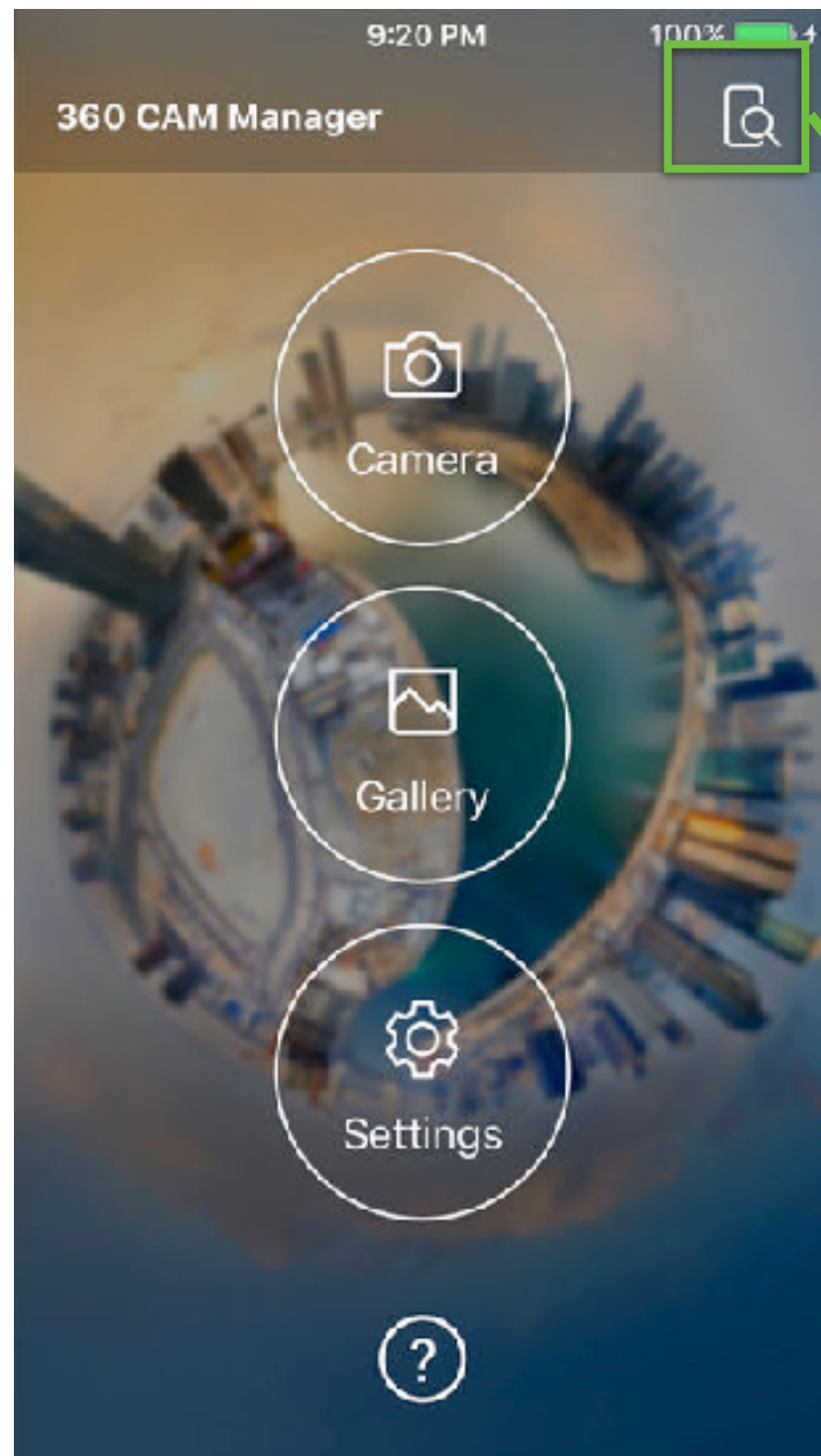
TRIPOD



Vuze
Time & Motion Study

YOUR 360 CAMERA

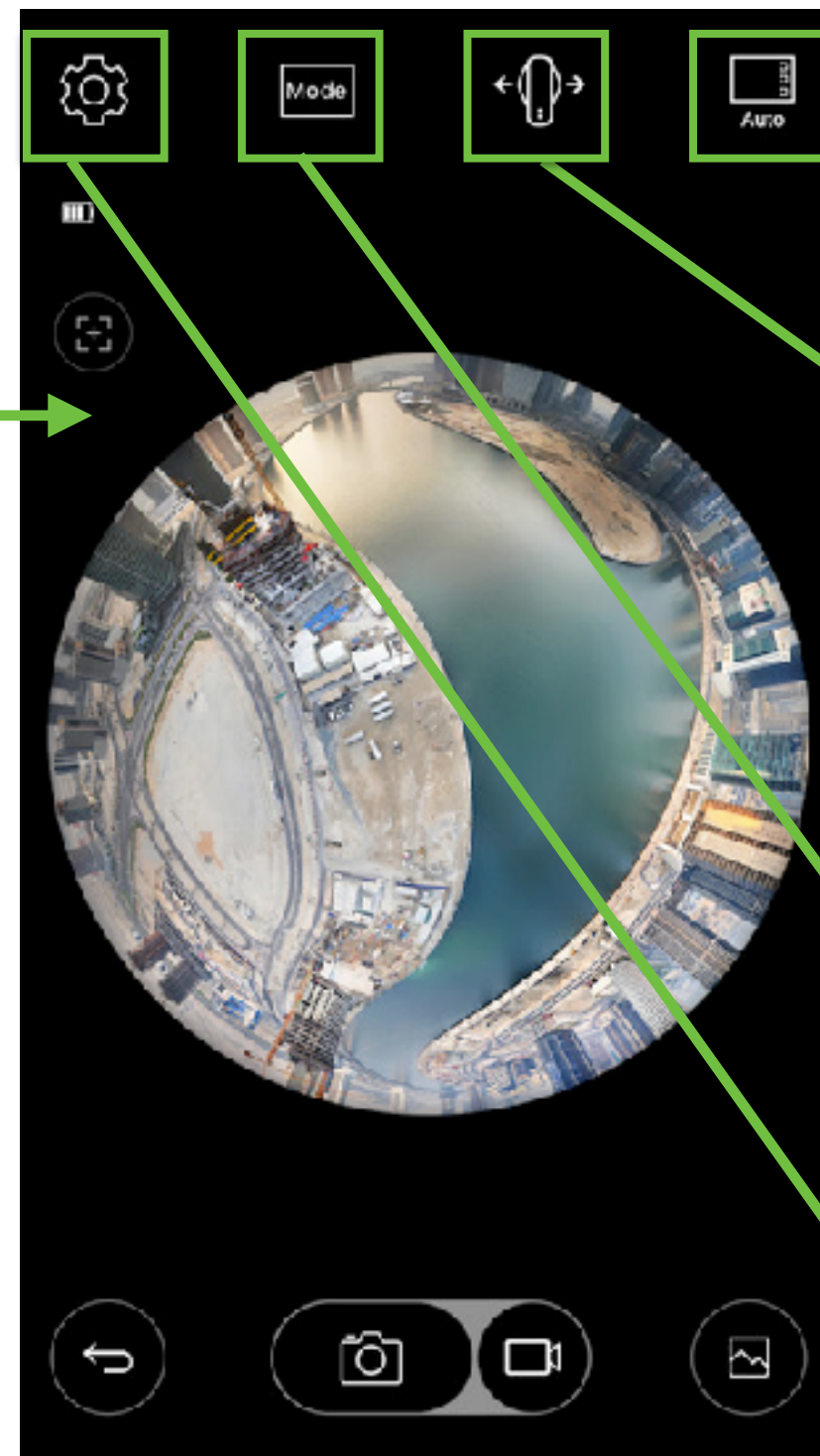
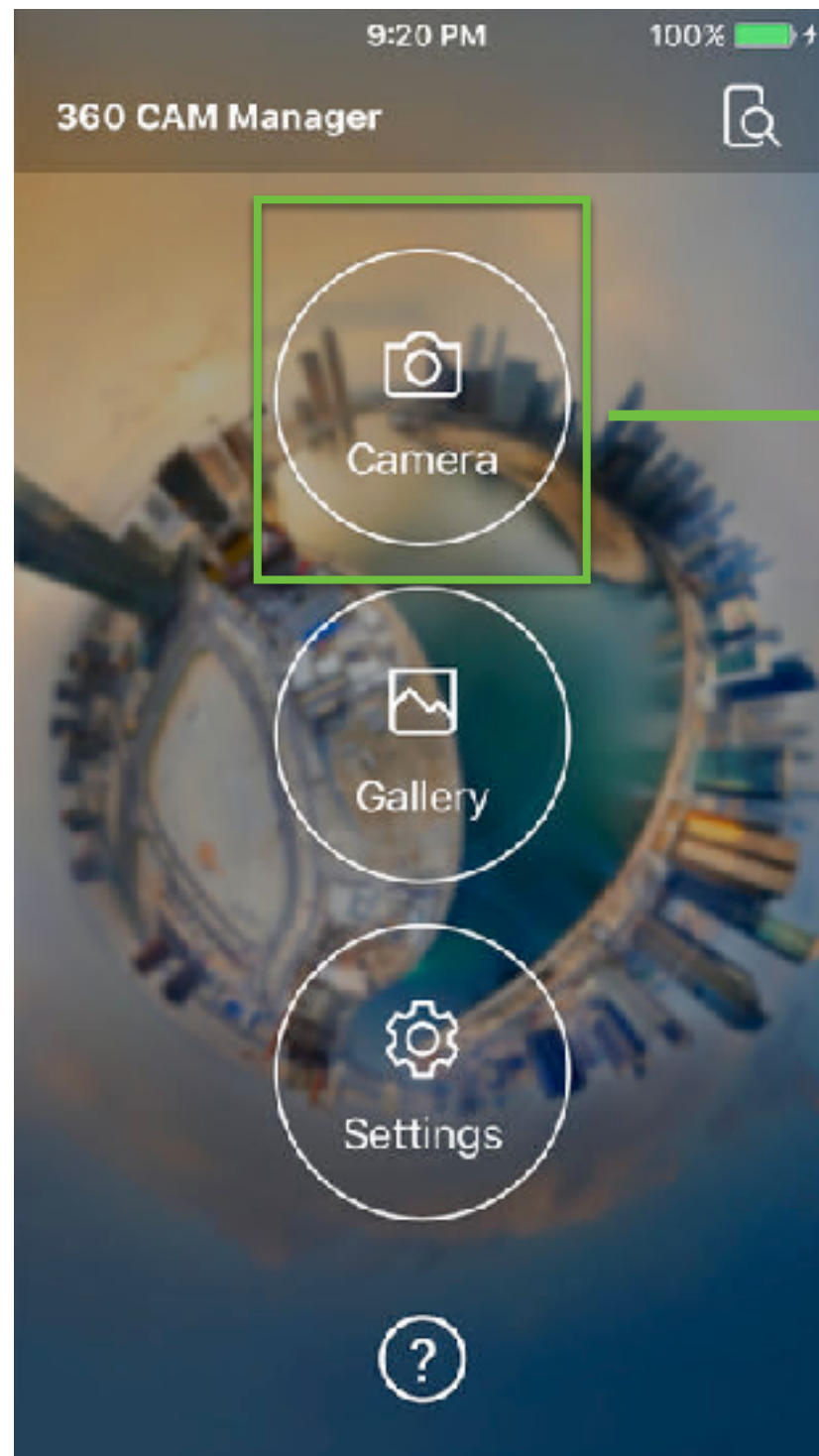
LG R-105 CAMERA: GET STARTED



CONNECTING TO THE CAMERA

- Insert SD card
- Turn on camera
- Open up 360 CAM manager app
- Click "Select Device" in top right corner
- Select Camera Wifi
- Go to Settings to Pair with Wifi
- Enter password - 00+six digits of product number
- Re-open 360 CAM manager app
- Click "Select Device" in top right corner
- Connect to camera

BASIC CAMERA FUNCTIONALITY



Advanced (manual) camera functions

Pick between the front lens, back lens (180 degrees) or both lenses simultaneously (360 degrees). Note that only recording both lenses will give you 360 video.

Select from a range of preset shooting environments.

Access to settings like image/video quality, timer, etc.

ADVANCED FUNCTIONALITY

White Balance

The "color temperature" of a light source, which refers to the relative warmth or coolness of white light.

Exposure

The amount of light that reaches the photographic film or electronic image sensor.



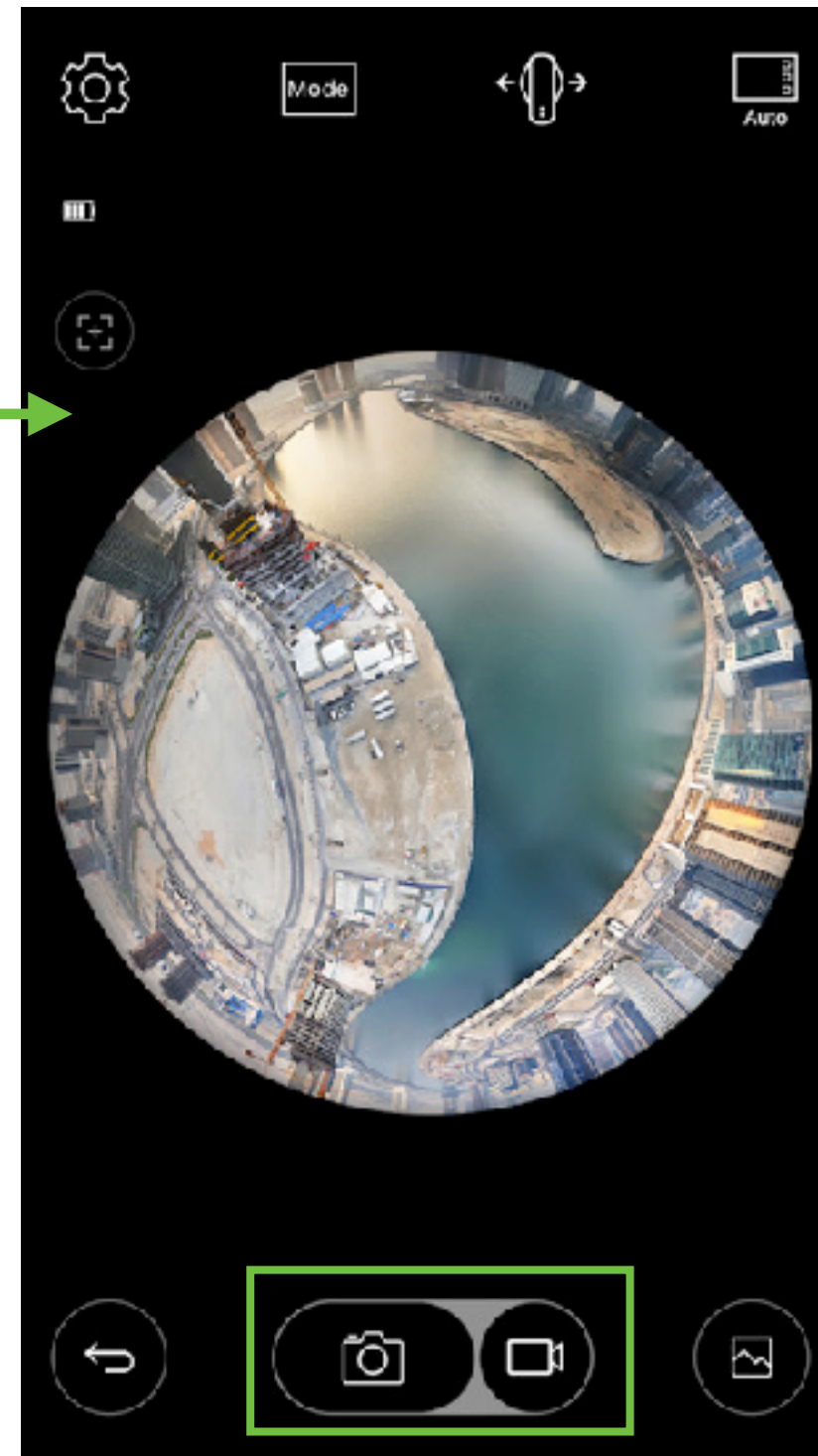
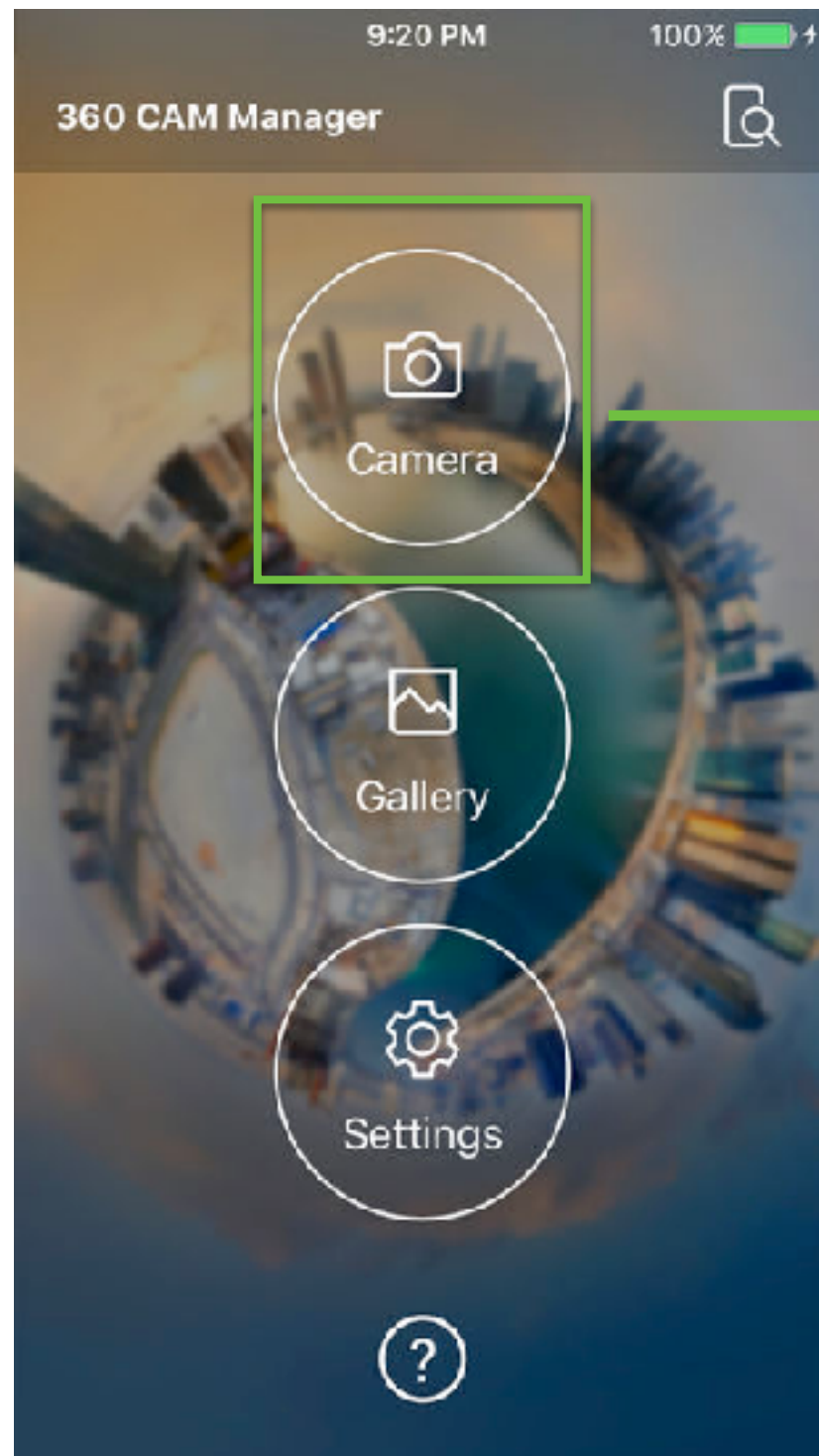
Shutter Speed

The length of time that the camera shutter is open is called the shutter speed and also sometimes referred to as 'exposure time'.

ISO

The "sensitivity" of the film stock to light - the higher the ISO, the higher the sensitivity.

RECORDING 360 VIDEO



There are two ways to record video:

1. Long press the recording button on the camera itself.
2. Go to the "Camera" section of the app and click either the photo or video icons at the bottom of the screen.

We recommend using the app because it will give you a preview and help you frame the action within the stitch lines.

YOUR WORKFLOW

[BREAK - 10 MINS]

GO SHOOT SOME FOOTAGE!

PROCESSING YOUR FOOTAGE

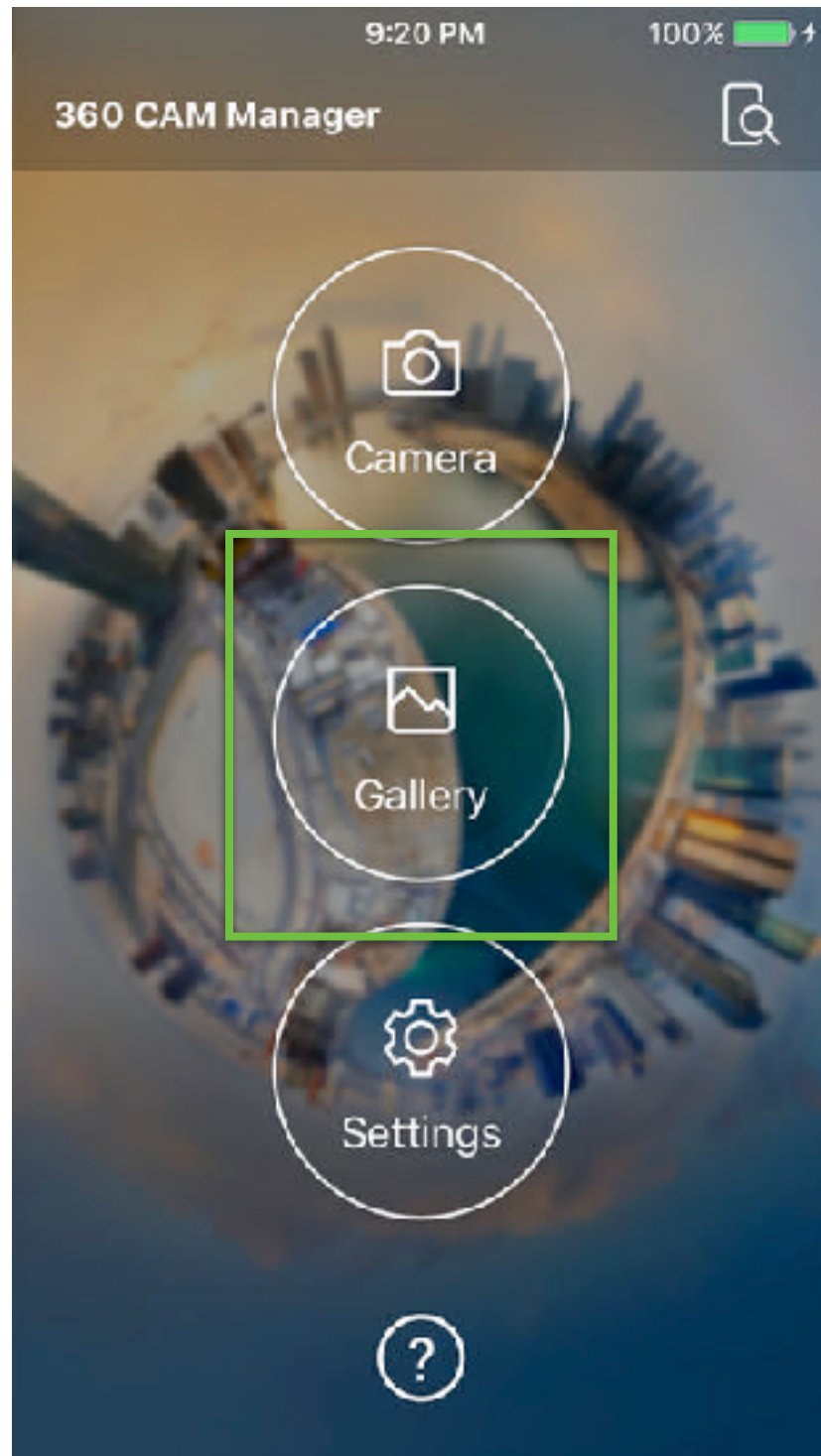
CONVERTING FOOTAGE



DUAL SPHERE —————> EQUIRECTANGULAR

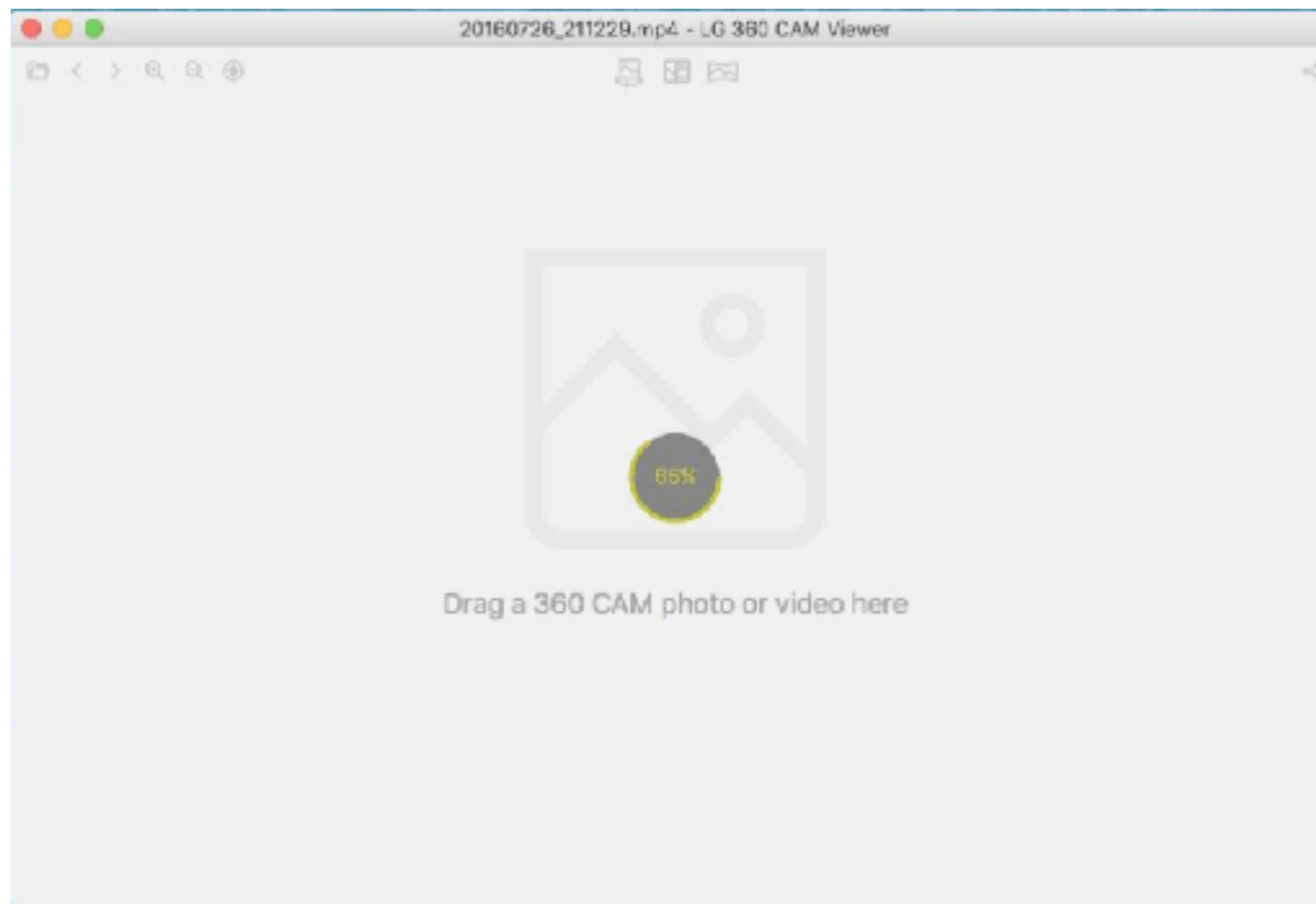
The “raw” footage shot by the camera in 360 mode consists of two spherical clips that need to be stitched together into an equirectangular format before it can be uploaded or edited. The LG R105 stitches and converts the footage automatically via the app or desktop computer.

MOBILE APP WORKFLOW



1. Navigate to the gallery section of the LG 360 CAM phone app, while it is connected to the camera.
2. Tap on one of the clips you want to convert - you will be prompted to download the footage to your phone.
3. Start the download and wait until it is completed (will take longer for clips > 1 min).
4. Go to the gallery app on your phone to view the converted equirectangular footage.
5. You can transfer the converted image by plugging your phone into your laptop and copying the file or by using a cloud based service like Dropbox, Drive, iCloud, etc.

DESKTOP APP WORKFLOW



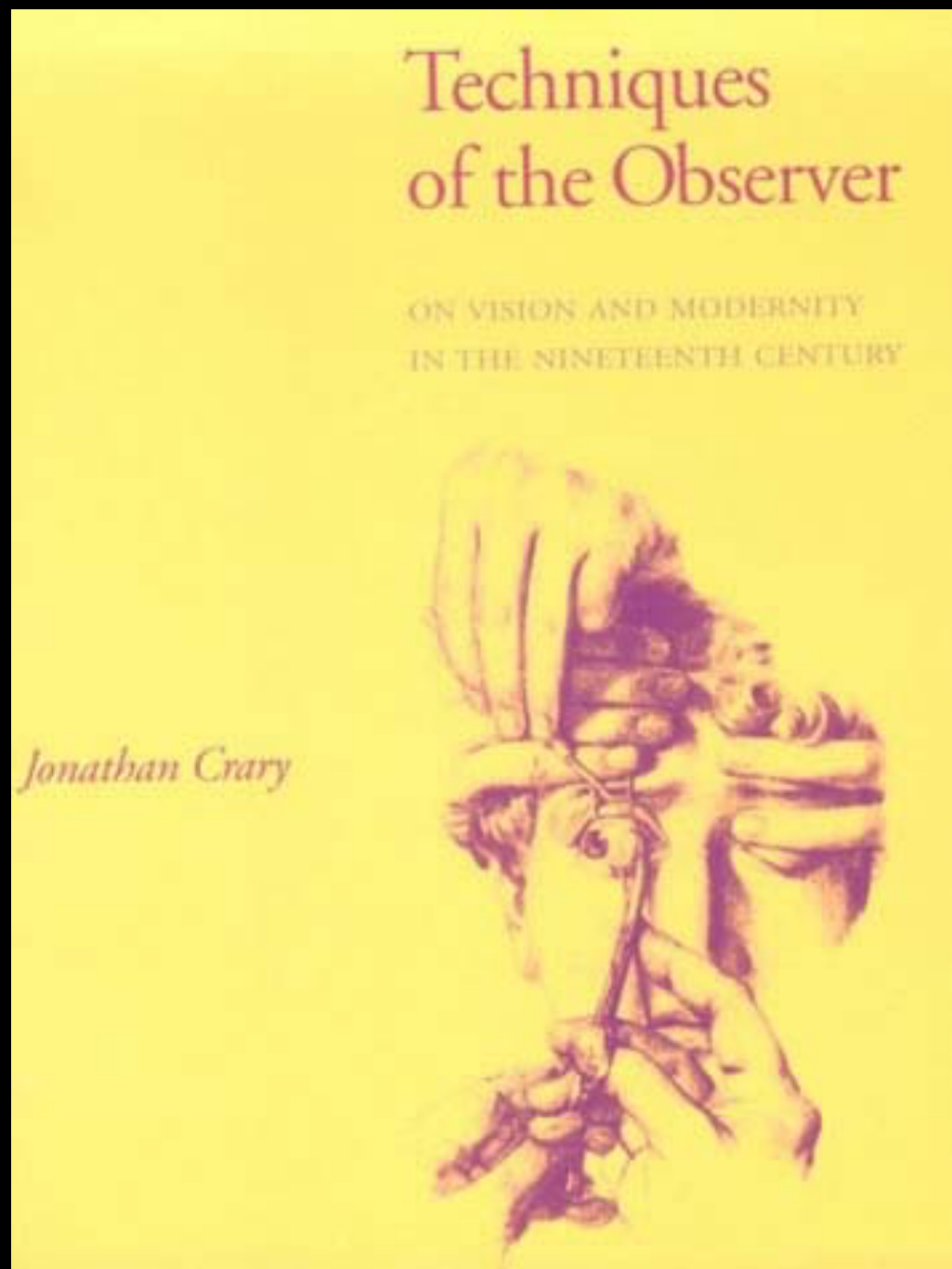
1. Remove the micro-SD card from the LG R105 camera and use a card reader or an adapter to connect to your laptop.
2. Copy the .mp4 files from the card into a folder your laptop.
3. Launch the LG 360 CAM Viewer app on your desktop.
4. Drag and drop the dual-sphere footage into the app.
5. The LG 360 CAM Viewer will stitch and convert the footage automatically.
6. When the process is complete, you will see a new file with the extension LG360 in the same folder as the raw (spherical) footage.

ESSAYS

REMEDICATION
Grusin & Bolter

OBSERVATION
Jonathan Crary

REPRESENTATION
Jill Godmilow



"(T)he observer is the field on which vision in history can be said to materialize, to become itself visible."

CAMERA OBSCURA

The Camera Obscura is a philosophical demonstration of "the observation of empirical phenomena and for reflective introspection and self-observation" — a turn away from the senses, so that their insights may be corrected through rational thought.

GOETHE'S COLOR THEORY

Vision is "redefined as a capacity for being affected by sensations that have no necessary link to a referent, thus imperiling any coherent system of meaning."

THE AFTER IMAGE

The stereoscope enables the observer to produce depth from flatness, suggesting that realness is a mechanical production.

EDITING YOUR FOOTAGE

EDITING - MAKING CLIPS

Use the following software if you need to make simple edits to your video like cutting and trimming your original shots (no titles or transitions). You will need to inject metadata to videos that have been trimmed using this method before they can be uploaded to YouTube (see Page 51 - Inject Metadata).

QUICK TIME PRO (MAC)

<https://www.youtube.com/watch?v=9dR9igSYpro>

EDITING IN PREMIERE PRO*

OVERVIEW (WATCH FIRST VIDEO)

<https://helpx.adobe.com/premiere-pro/how-to/edit-videos.html>

EDITING 360 VIDEOS (DEEP DIVE)

<https://www.youtube.com/watch?v=-xNeooQ8tAE&t=434s>

360 EFFECTS (TITLES/ROTATION)

<https://youtu.be/dpa83rGpQEg?t=1m20s>

*Adobe just released Premiere Pro 2018 BETA with additional VR editing capabilities.

ESSAYS

REMEDIATION
Grusin & Bolter

OBSERVATION
Jonathan Crary

REPRESENTATION
Jill Godmilow



"I want them (Documentary Films) to do two things: first, acknowledge their interpretive intentions (their instrumentality), that is, cease insisting on their innocence as pure description; and second, put their materials and techniques in the service of ideas - not in the service of sentiment or compassion-producing identification."

UPLOADING FOOTAGE

INJECT META-DATA

SKIP THIS STEP IF YOU HAVE USED ADOBE PREMIER PRO TO EXPORT THE CLIP WITH THE VR SETTING!

- Download and install the 360° Video Metadata app for [Mac](#) or [Windows](#).
- Open the 360 Video Metadata app. If you're on a Mac, you may need to right-click the app and then click **Open**.
- Select the video file.
- Select the checkbox for **Spherical** and click **Save as**. Do not select the "3D Top-bottom" checkbox. For more information, refer to upload instructions for [virtual reality videos](#).
- Enter a name for the file that will be created.
- Save the file. A new file will be created automatically in the same location as the original file.
- Upload the new file to YouTube.

UPLOADING TO FACEBOOK

1. Follow similar [steps](#) as you would when uploading ordinary videos on Facebook.
2. Hit the Advanced tab prior to publishing the 360 video.
3. To make the 360 Controls tab show up, check the box beside "This video was recorded in 360° format."
4. Set the field of view and initial camera orientation for the video by hitting the 360 Controls tab.
5. Tap Publish button.

Facebook has set a limit on the maximum length and size of a 360-degree video, which is 10 minutes and 1.7 GB, respectively.

UPLOADING TO YOUTUBE

1. Sign in to your YouTube account (you will need to set one up if you don't have one already).
2. Go to: <https://www.youtube.com/upload>
3. Before hitting the published button, keep these things in mind:
 - You have to check out if the file to upload has 360-degree playback enabled. You need to watch the video on the computer to verify.
 - Do not make edits to the 360 video with the use of the YouTube Video Editor or any other Enhancement tools or apps.



THANK YOU!

adeleray@gmail.com

karlmendonca@gmail.com