

# Revit to Google Cardboard

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PEDDLE THORP ARCHITECTS

Senior Executive - Design Systems & Technology

@MarkACronin

# Class summary

Are you interested in Virtual Reality but think the cost of entry is too high? Think again! With a \$20 Google Cardboard headset you can use Virtual Reality to immerse your clients in your design. From photospheres to web hosted experiences, find out all you need to know to get started in Virtual Reality.

# Key learning objectives

At the end of this class, you will be able to:

- Learn how to transfer Revit models into a virtual environment
- Identify the different VR options available in Google Cardboard
- Experience the your Revit models in VR
- Learn different ways to prepare files for Google Cardboard

# Before we get started...

# Before we get started...

Take out your phone and:

- Connect to conference WiFi (?)
- Download a QR code scanner
- Download the Iris Scope Mobile App (QR code in your handout)
- Have your Autodesk Sign In details to hand

# Introduction

# Introduction

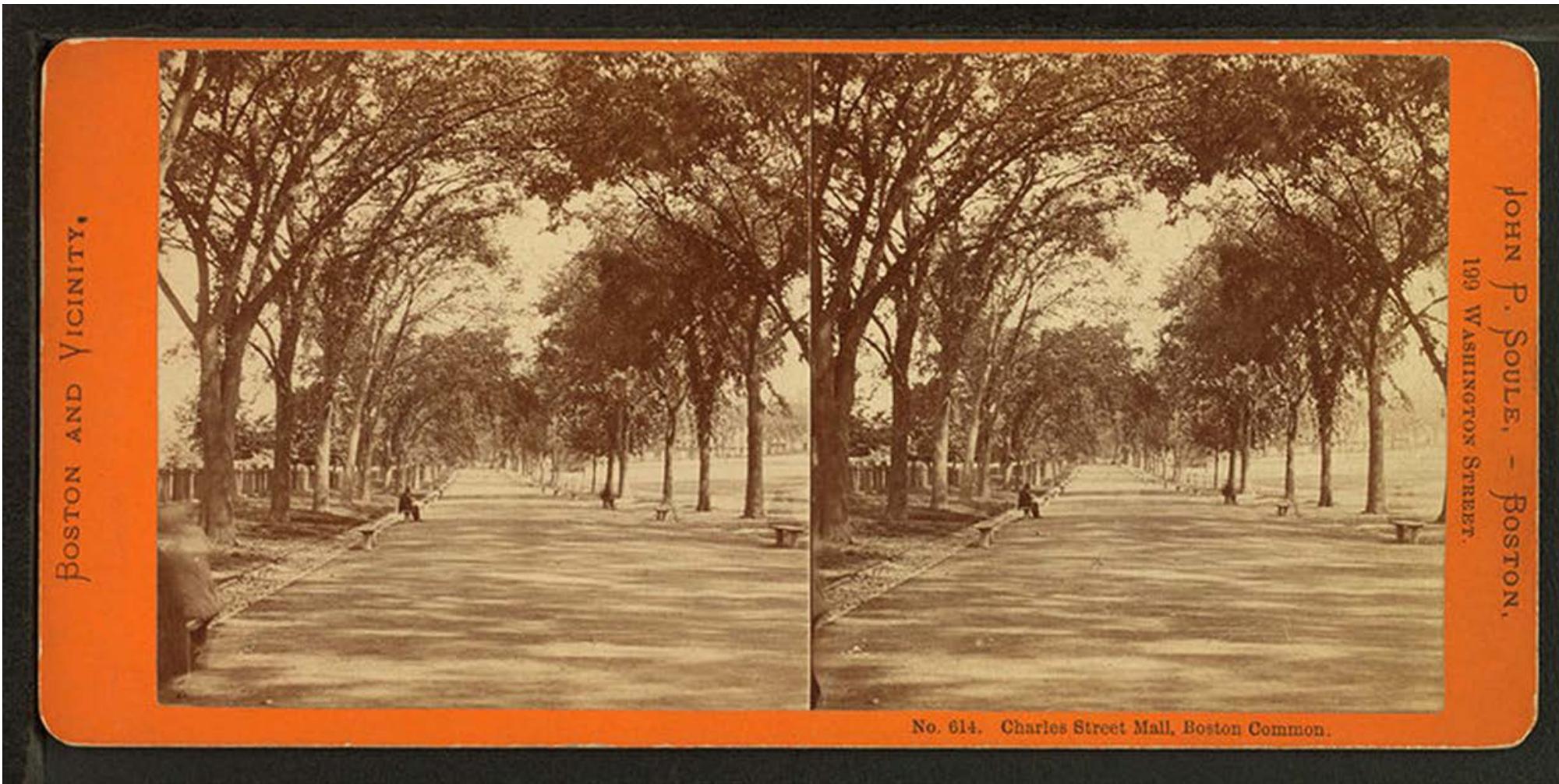
- Review of current technology (What)
- Benefits of use (Why)
- Options to consider (How)
- Lab activities/demos
- Future direction (Summary)

# Introduction

What  
How

# Review of current technology (What)

# Review of current technology (What)



No. 614. Charles Street Mall, Boston Common.

# Review of current technology (What)



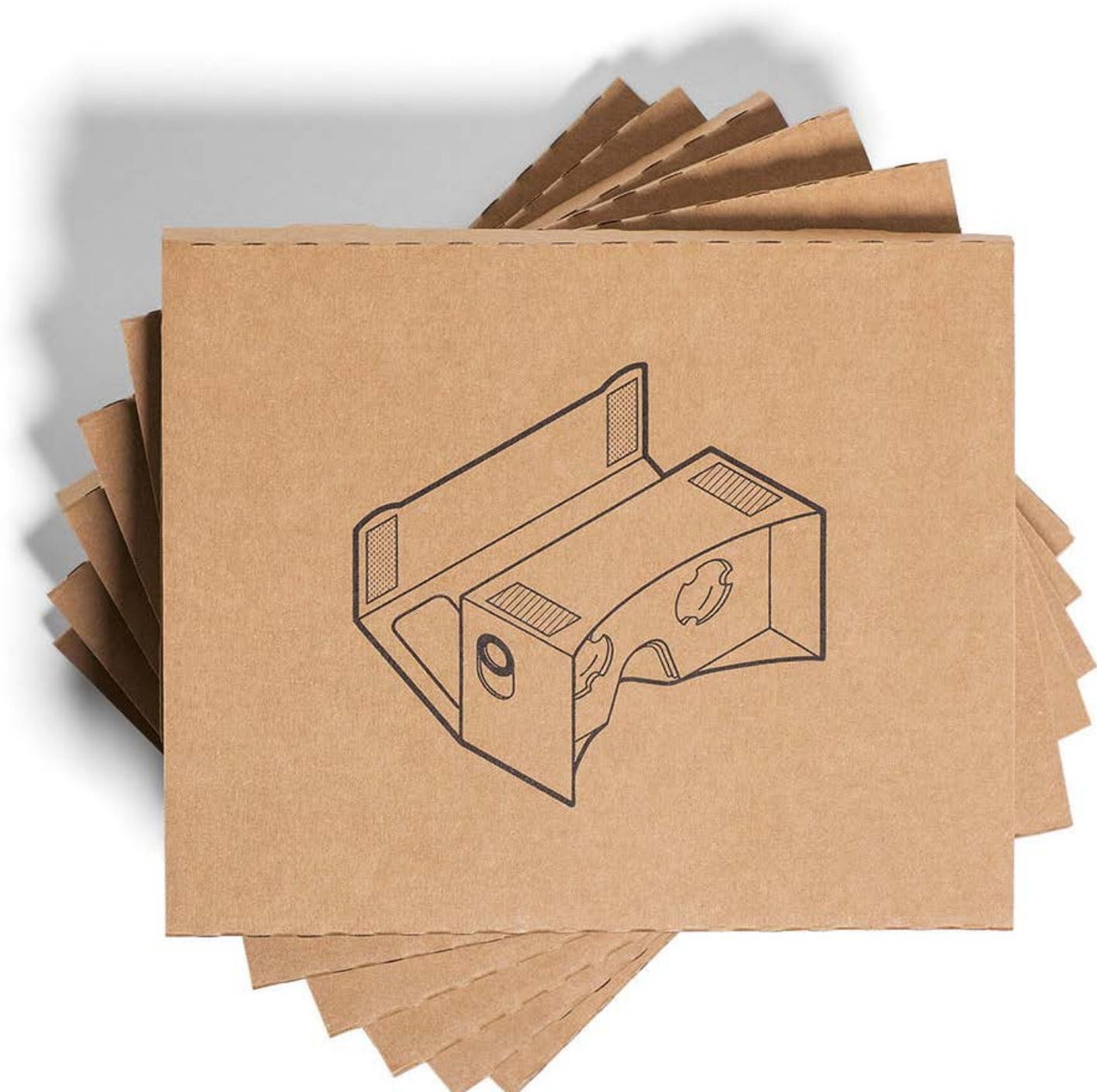
# Review of current technology (What)



Daydream View



# Review of current technology (What)



# Review of current technology (What)



# Review of current technology (What)

- Oculus Rift (CV1)
- HTC Vive
- Microsoft Hololens
- Samsung Gear VR
- Google Cardboard
- StarVR
- AirVR
- Aveyant Glyph
- Cmoar
- Daqri Smart Helmet
- Durovis Dive 5
- Dior Eyes VR
- Emax X1
- Epson Moverio
- Fove
- Homido
- ImmersiON-VRelia BlueSky Pro
- Impression Pi
- Magic Leap
- Meta
- ODG
- Pinch VR
- Razer OSVR
- Sony Project Morpheus
- Viewbox
- Visus
- Vrvana Totem
- Xingear XG
- Zeiss One VR

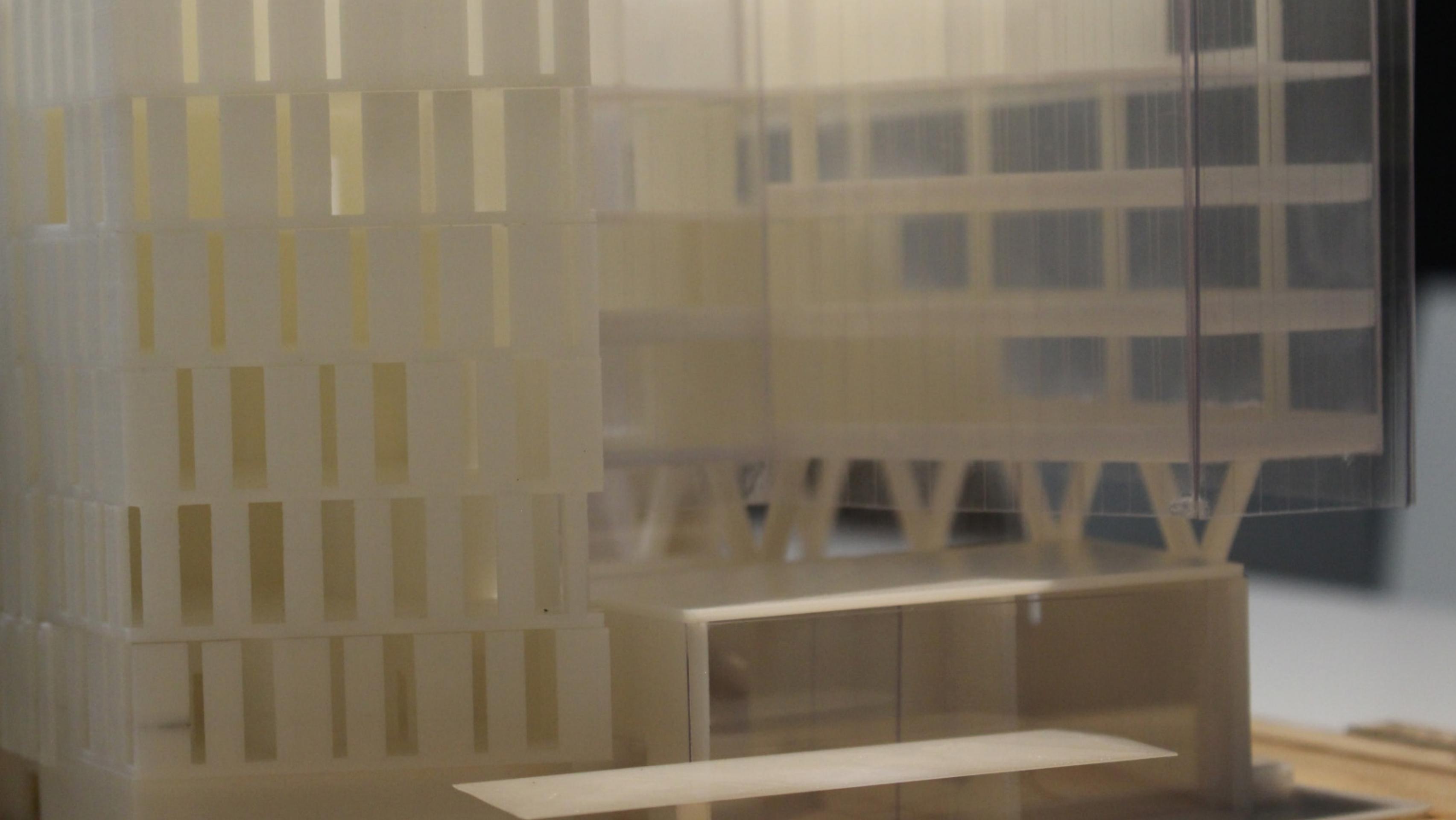
# Benefits of use (Why)

# Benefits of use (Why)



# Benefits of use (Why)







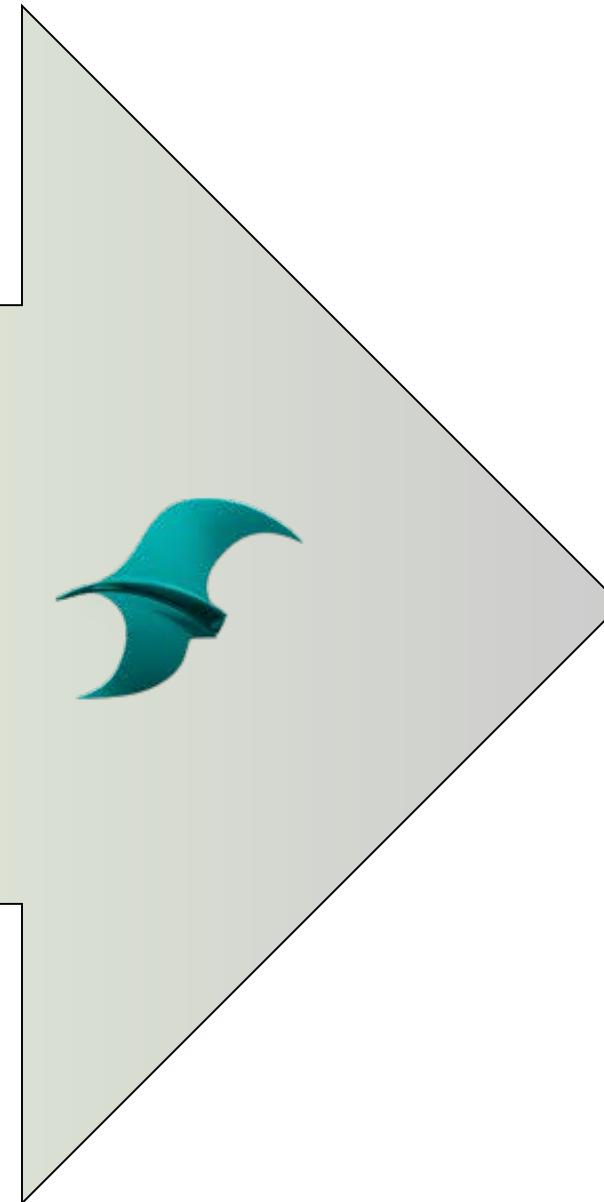
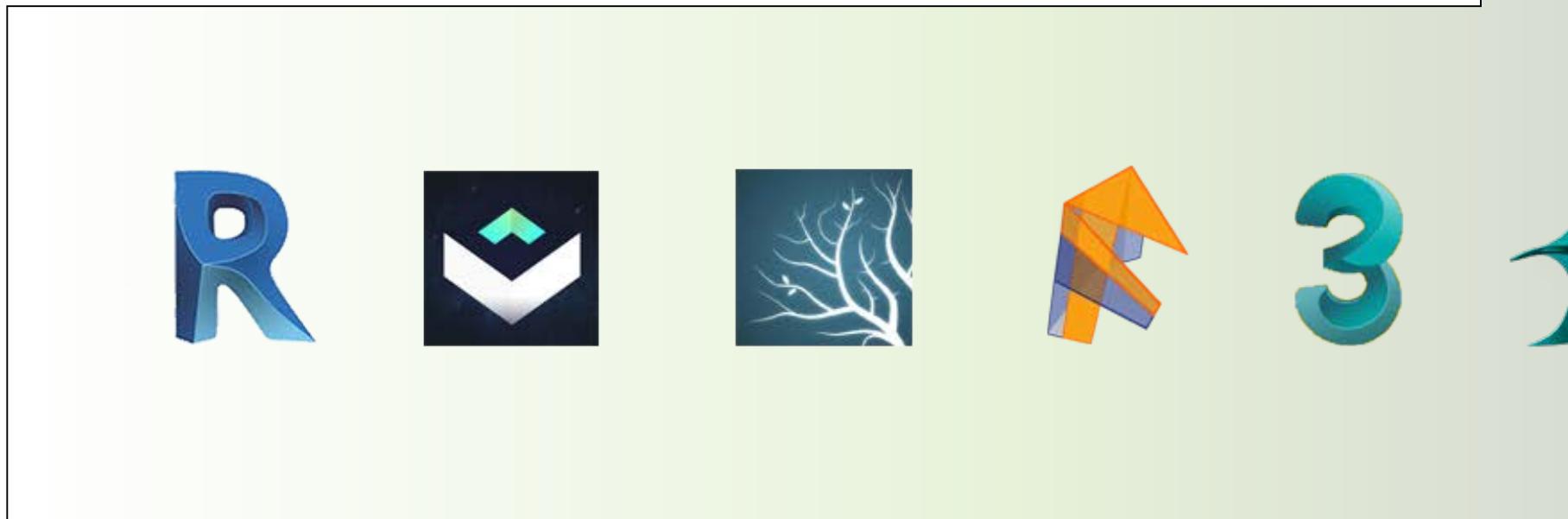
# Options to consider (How)

# Options to consider (How)

- Time/budget
- Resource Skill
- Stage of project
- Style

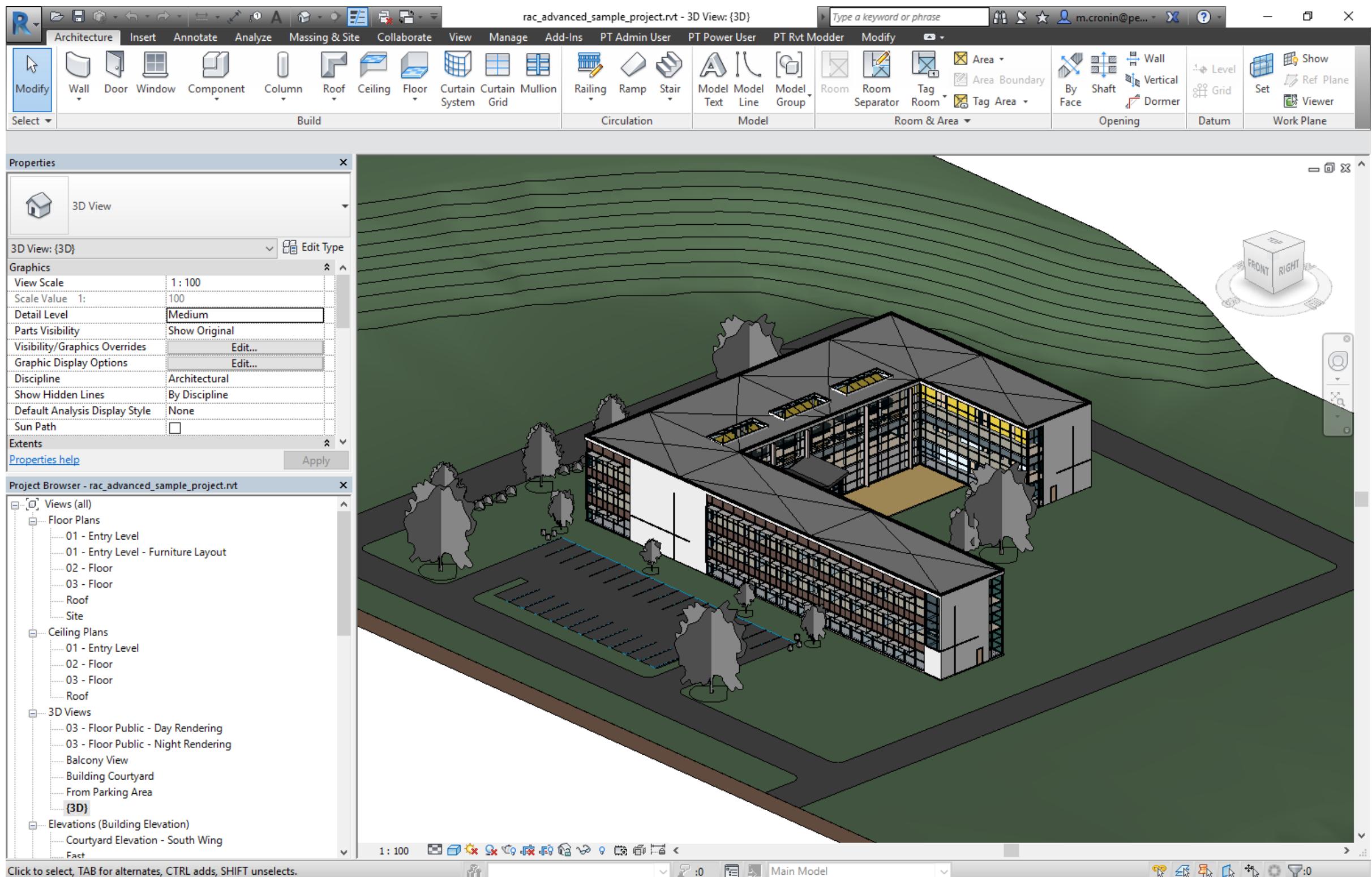
# Options to consider (How)

easy  
way

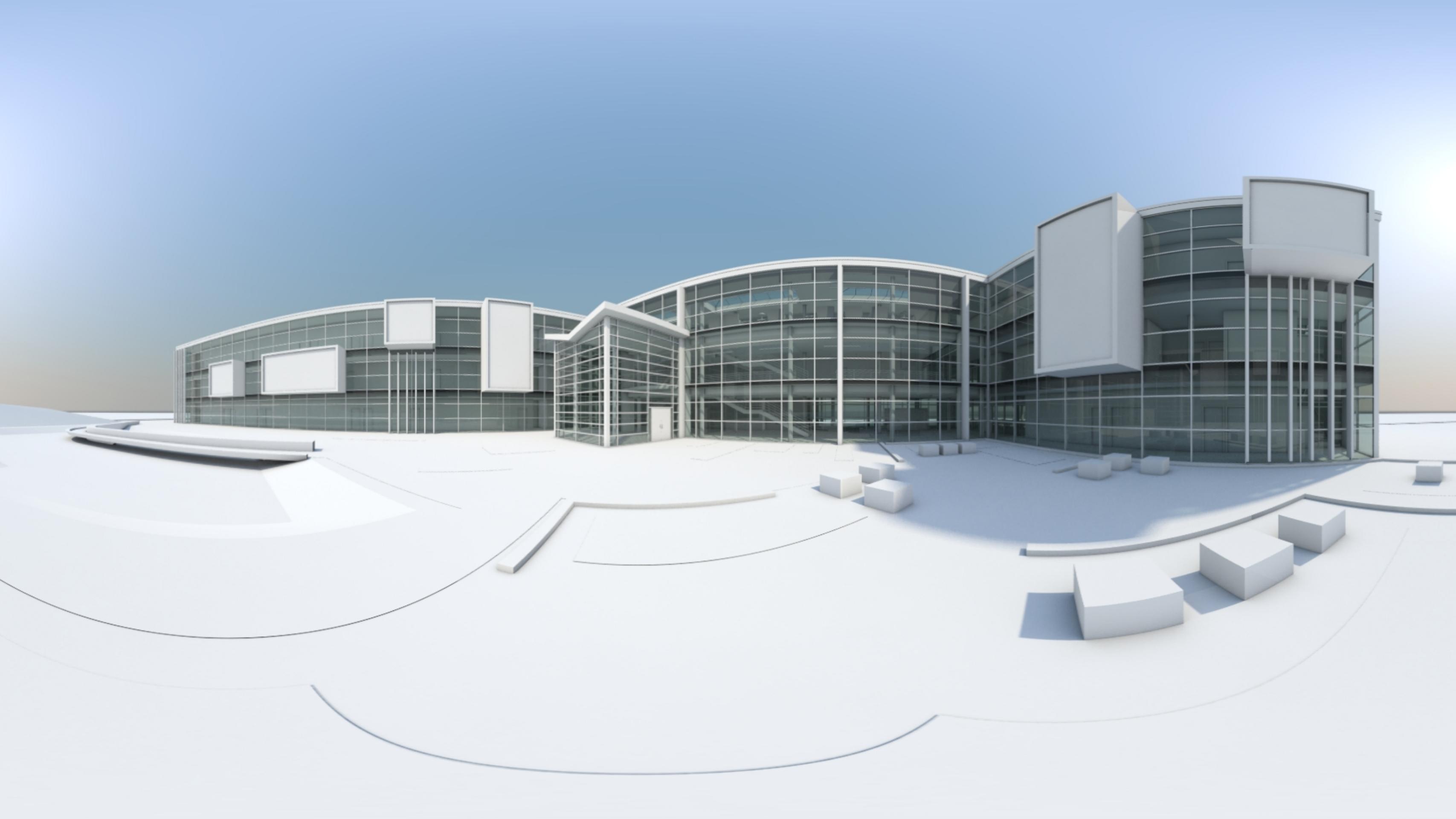


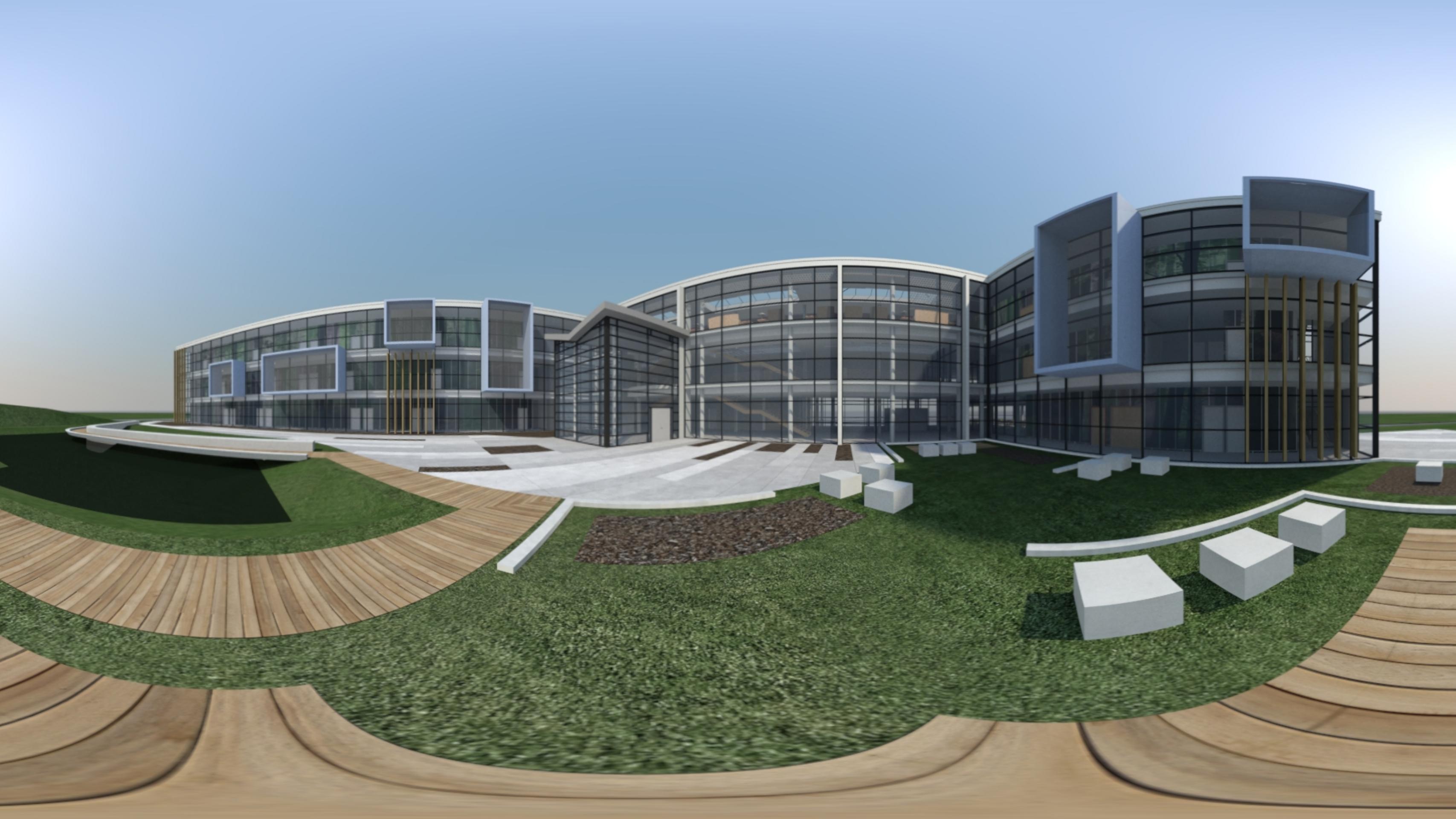
para  
I

# Options to consider (How)





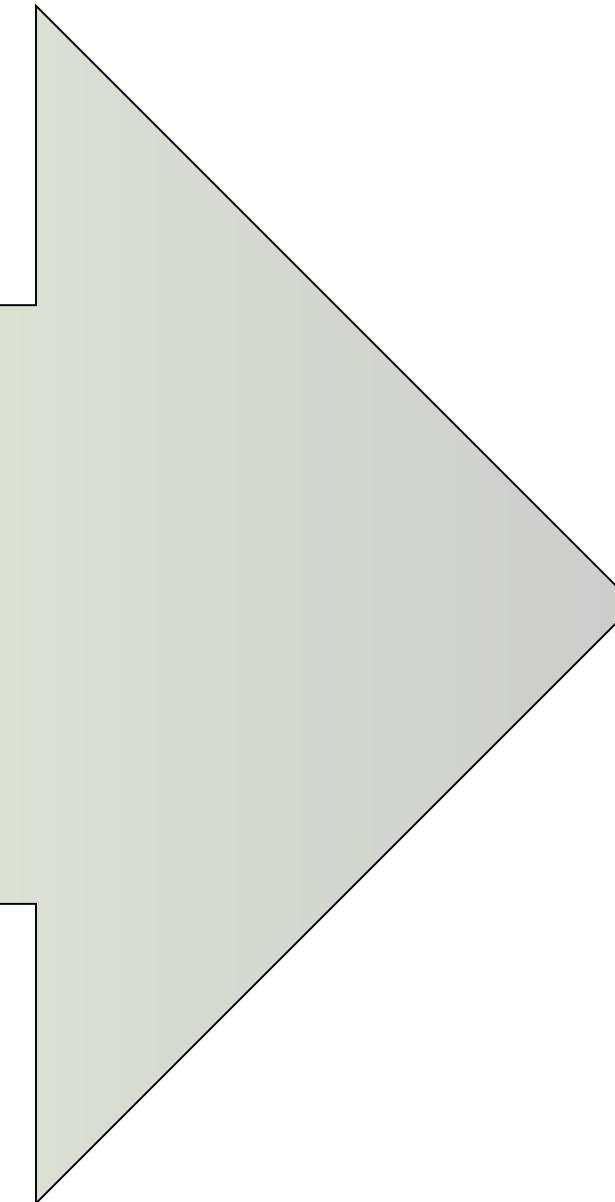
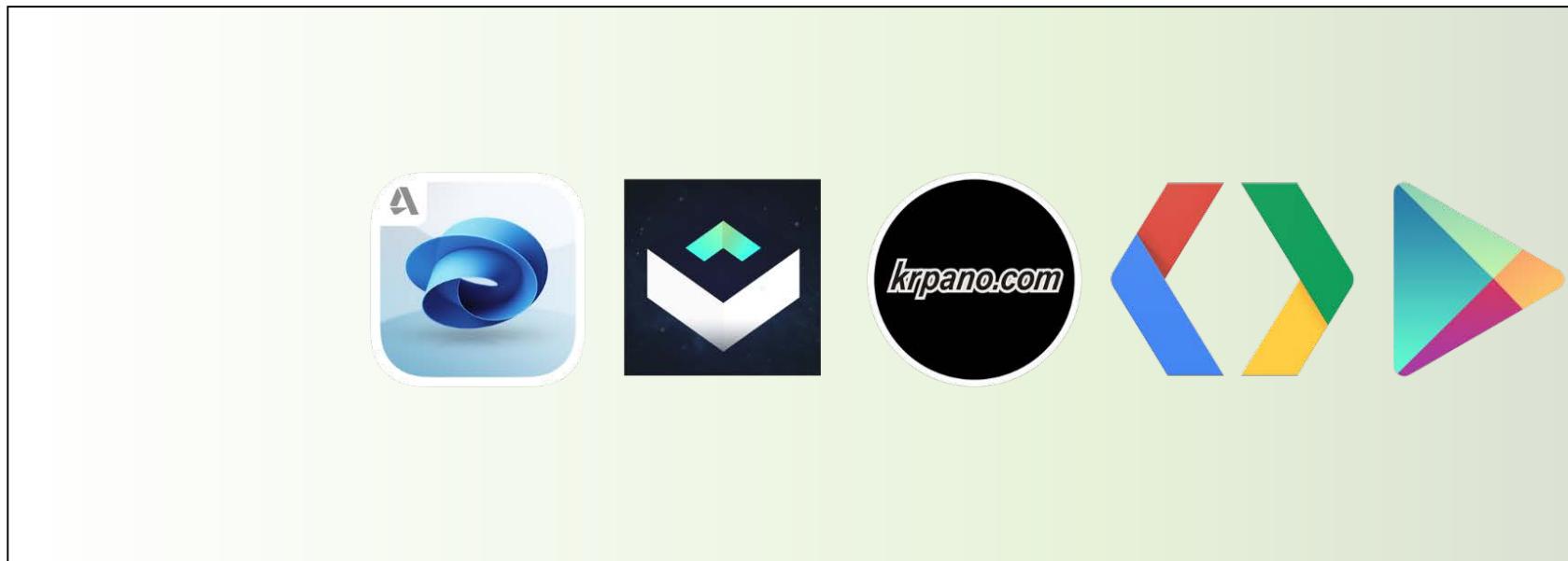






# Options to consider (How)

easy  
pano  
lu



pano  
lu

# Options to consider (How)

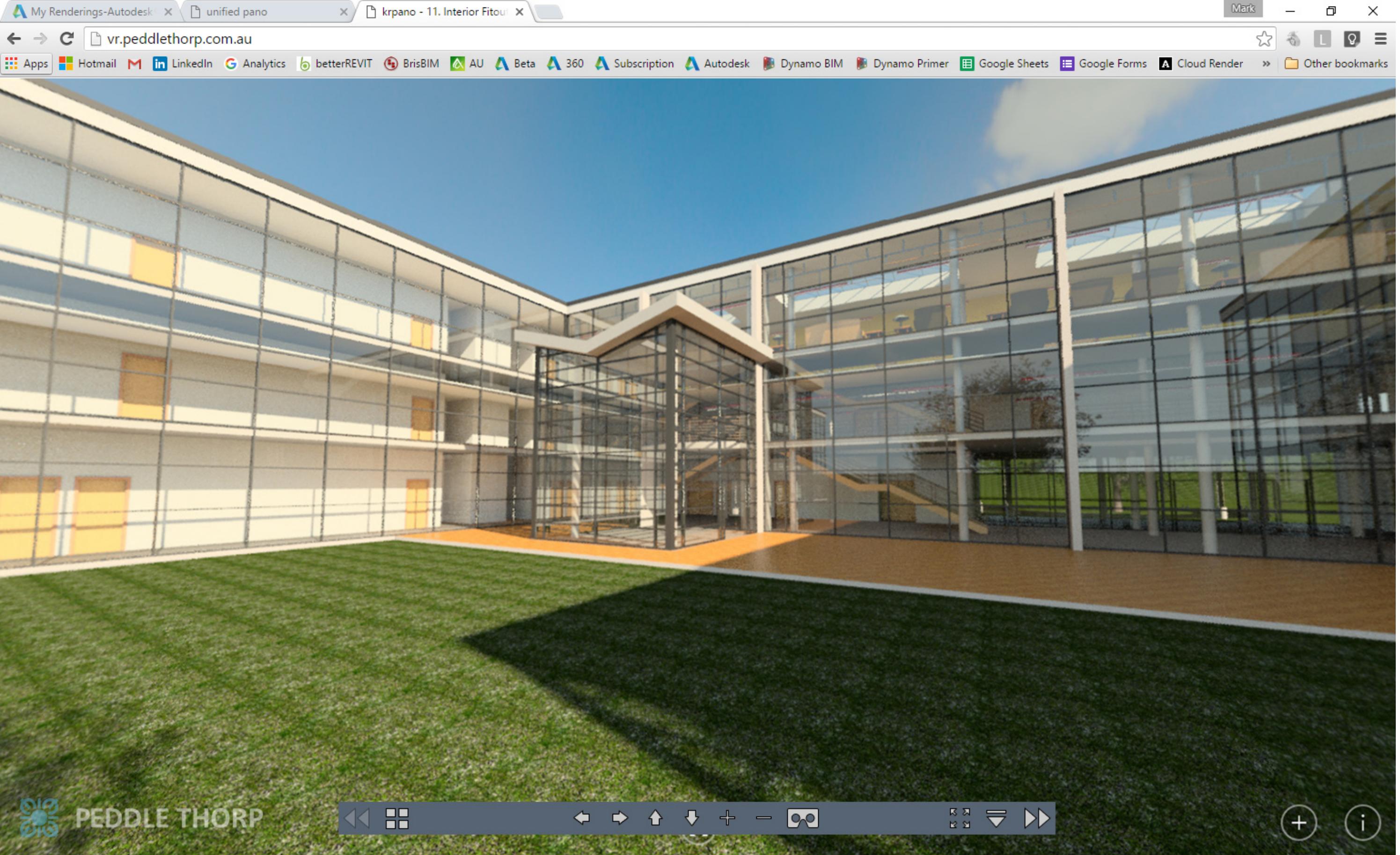


# Options to consider (How)

<http://pano.autodesk.com/pano.html?url=jpgs/c4b5671a-0293-4f0d-9004-39857cd6ea92>

# Options to consider (How)





# Options to consider (How)



# Lab activities

# Lab activities

- 1 – Revit to Render in Cloud
- 2 – Material Overrides in Revit and re-render
- 3 – Build Google Cardboard headset and view A360 renders
- 4 – Upload renders to Iris Scope and view with Cardboard
- 5 – Demo - Workflow using InsiteVR, Modelo & Kubity
- 6 – Revit to 3ds Max default render
- 7 – 3ds Max white render
- 8 – Demo - Prepare and host VR files on your website

# Lab activity 1

# Lab activity 1

easy  
way



AutoCAD

# Lab activity 1

## Summary of steps

- In Revit place a camera in the model
- Send the scene to the cloud for rendering

# Lab activity 1

Start Revit 2017

Open:

Start1\_rac\_advanced\_sample\_project.rvt

Located:

C:\Datasets\Lab01 San Polo 3401A\Revit to Cardboard\Lab Activity 1

If there is no dataset on your PC:

C:\Program Files\Autodesk\Revit 2017\Samples

# Lab activity 2

# Lab activity 2

easy  
way



AutoCAD

# Lab activity 2

## Summary of steps

- Create a new phase
- Edit the Phase filters
- Send the model to Render in Cloud

# Lab activity 2

Continuing in Revit 2017, or alternatively open:

Open:

Start2\_rac\_advanced\_sample\_project.rvt

Located:

C:\Datasets\Lab01 San Polo 3401A\Revit to Cardboard\Lab Activity 2

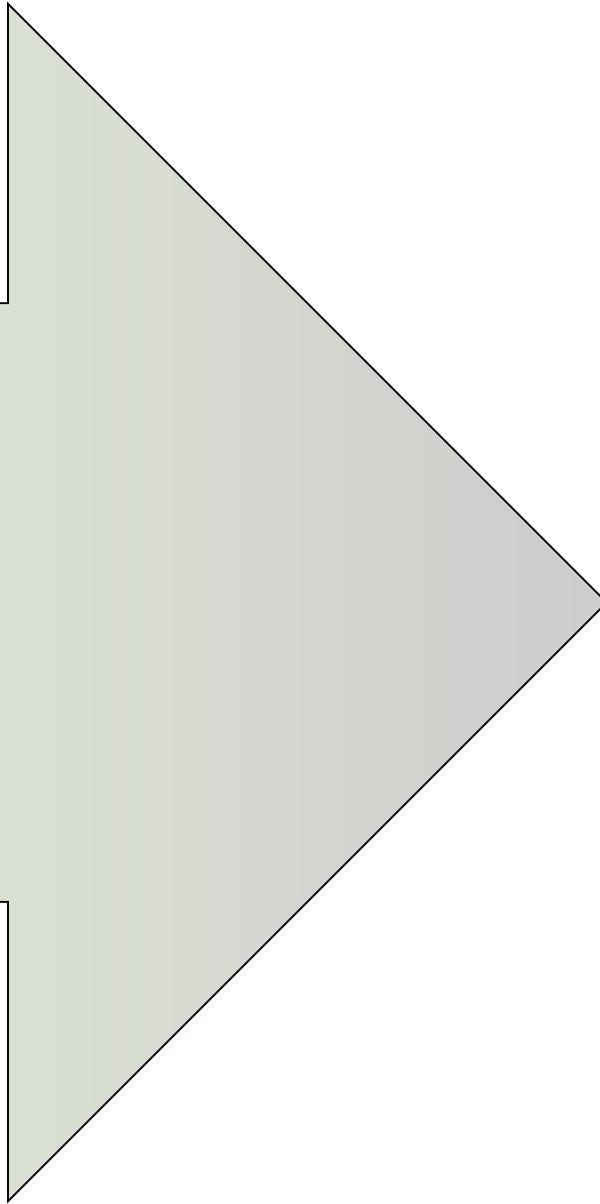
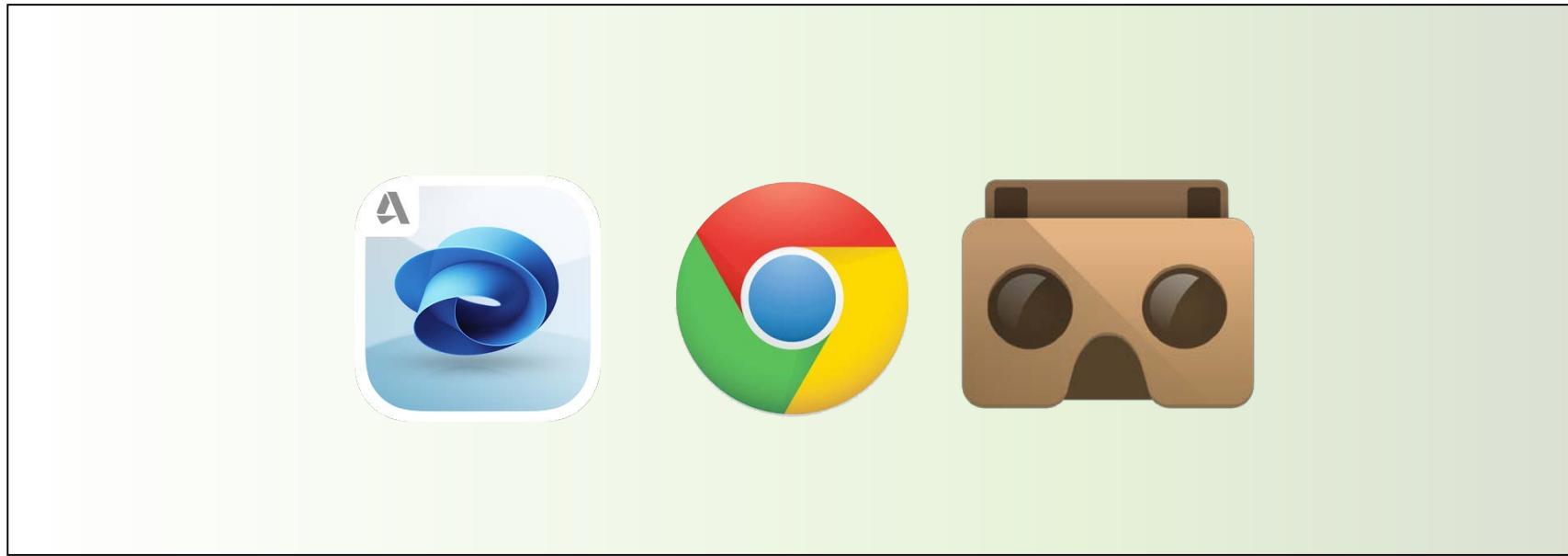
If there is no dataset on your PC:

C:\Program Files\Autodesk\Revit 2017\Samples

# Lab activity 3

# Lab activity 3

easy  
UI

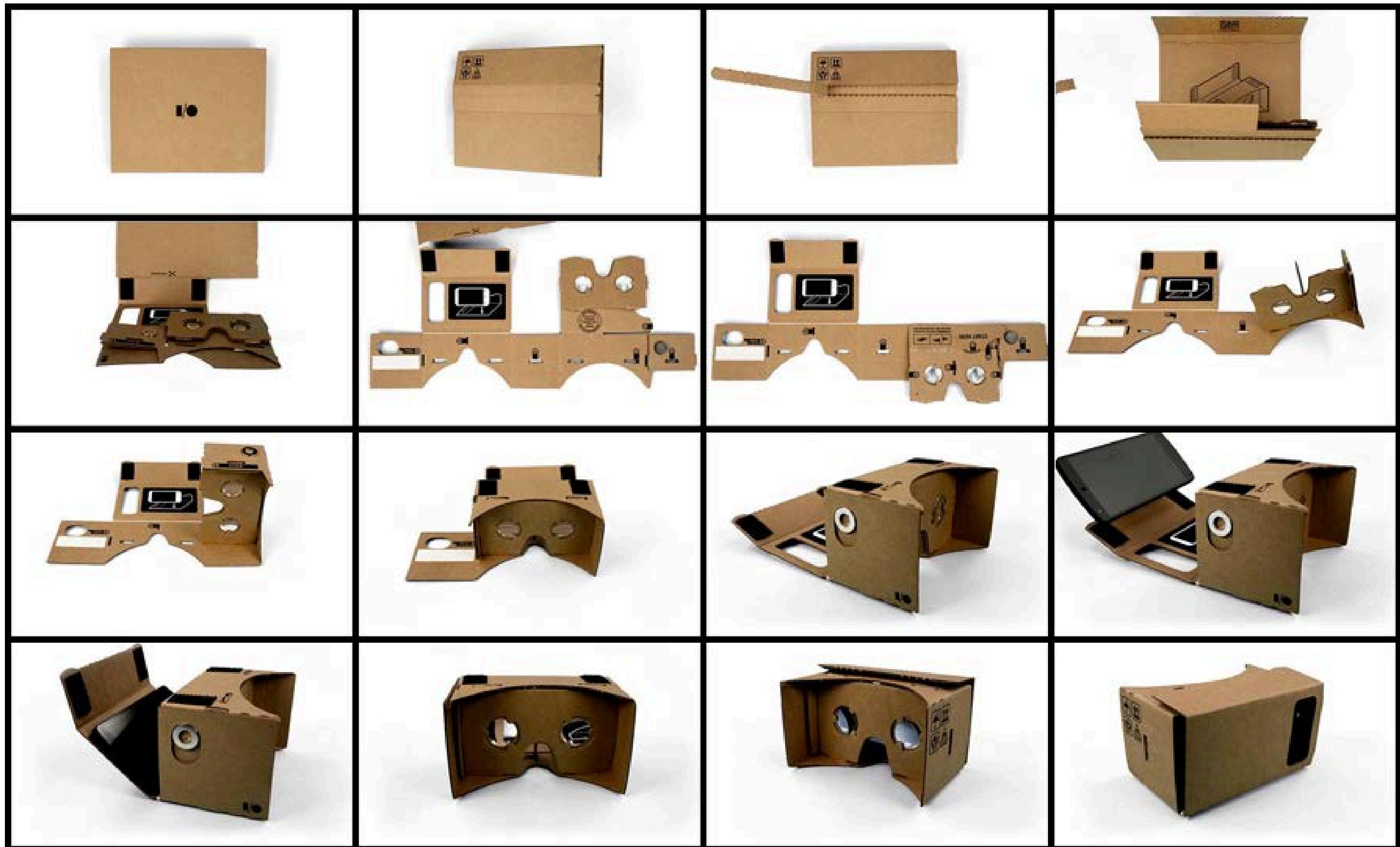


UI  
UI

# Lab activity 3

## Summary of steps

- Open and assemble your free Autodesk Google Cardboard headset
- Access Cloud Gallery
- View renders in browser
- Share renders
- View renders in Google Cardboard



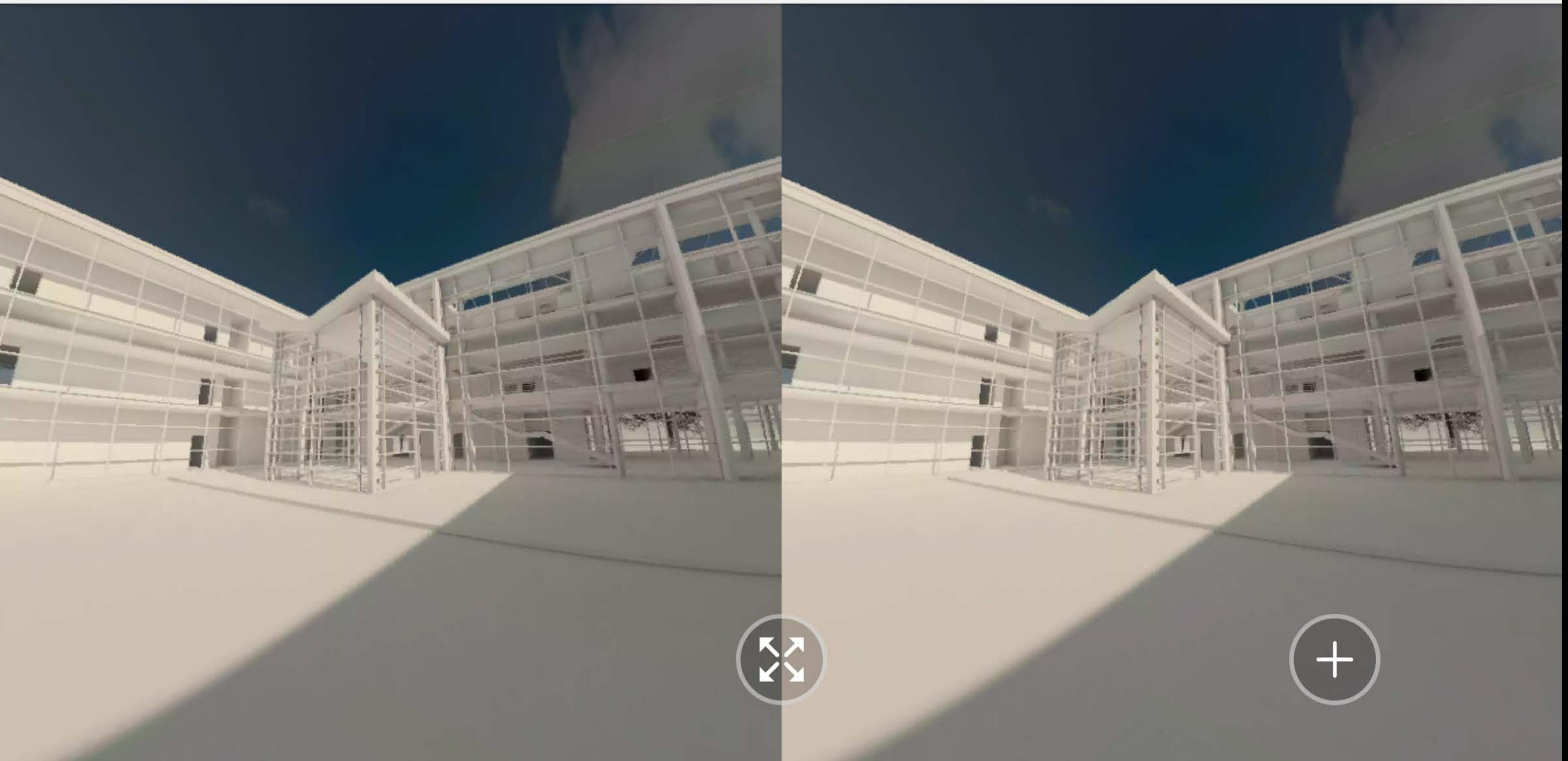
# Lab activity 3

- Continuing on from Lab Activity 2, browse to  
<https://rendering.360.autodesk.com/mygallery.aspx>

pano.autodesk.com/pano.html?url=jpgs/1c0b7cb7-5dc5-4042-9690-a41191646

16

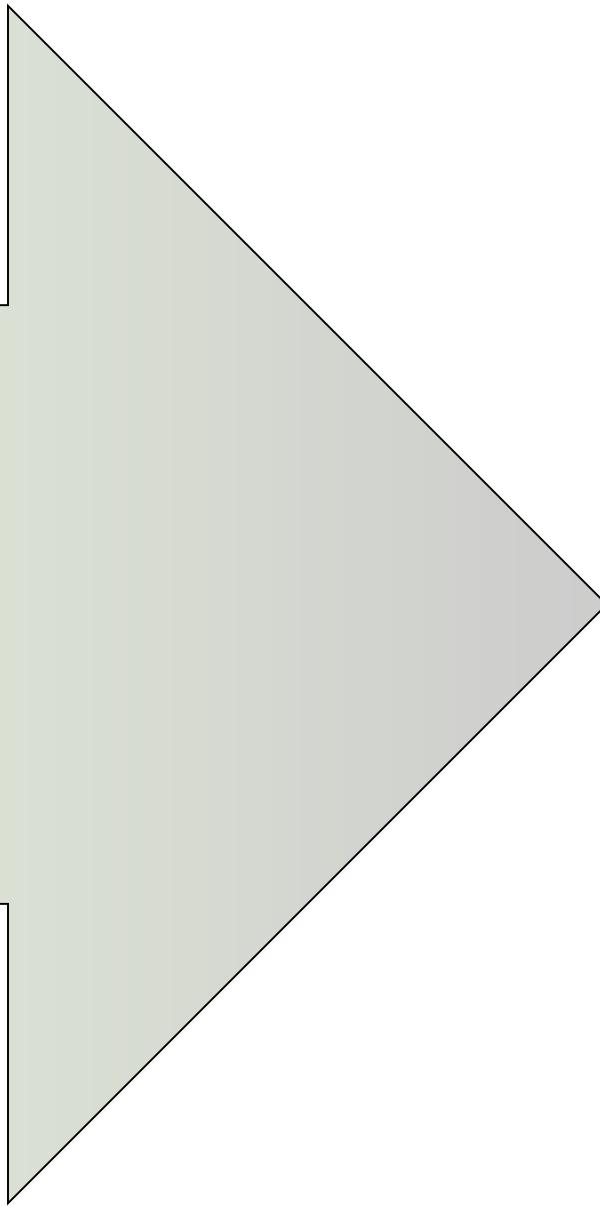
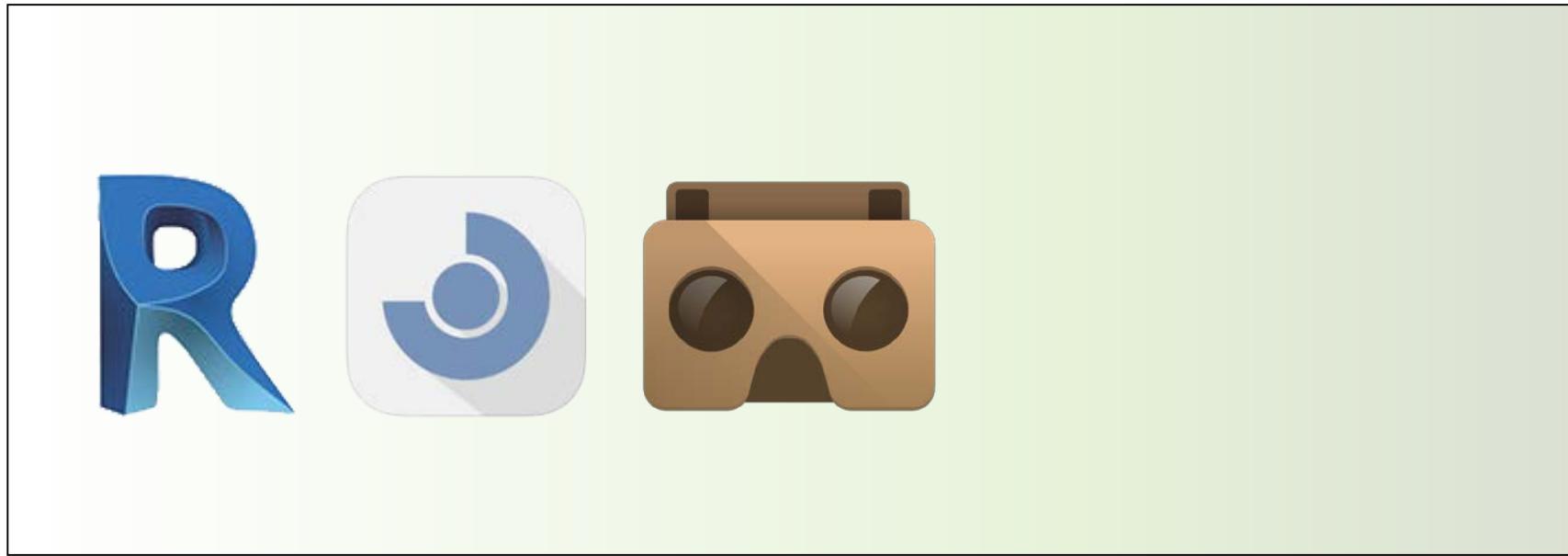
⋮



# Lab activity 4

# Lab activity 4

easy  
UI



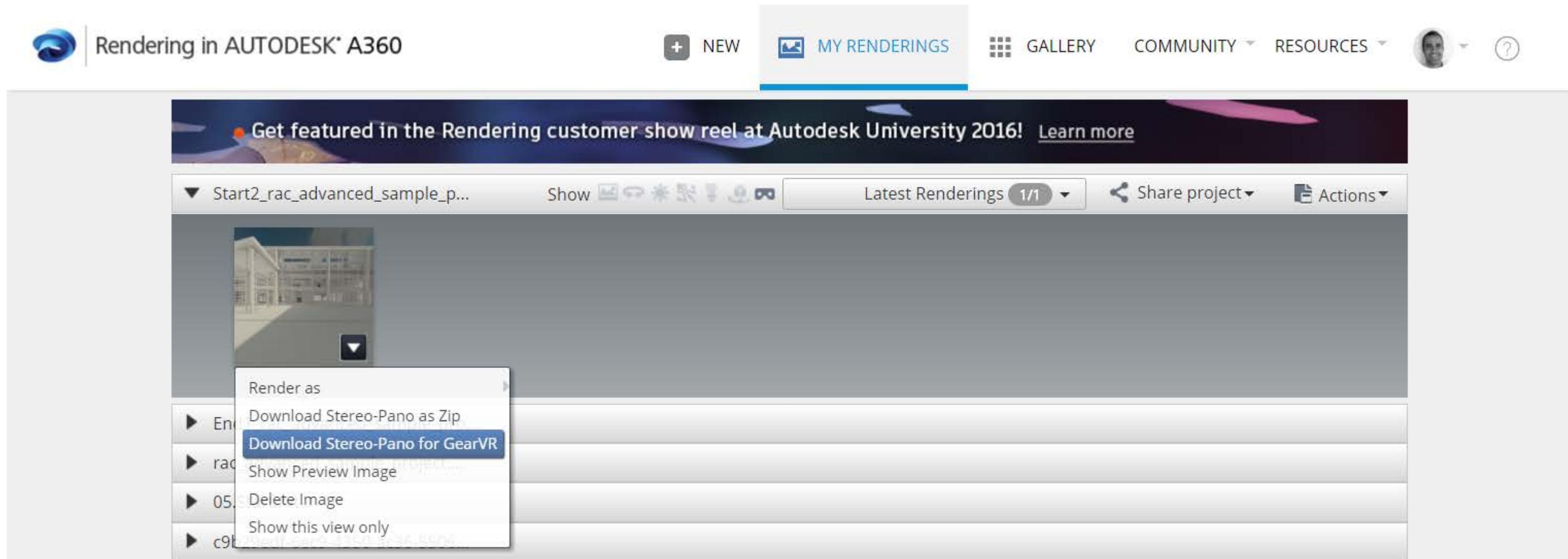
UI  
UI

# Lab activity 4

## Summary of steps

- Download Iris Scope App
- Upload previously rendered content to Iris
- View Iris content in a browser
- View Iris content in Google Cardboard

# Lab activity 4



The screenshot shows the Autodesk A360 interface. The top navigation bar includes 'Rendering in AUTODESK A360', 'NEW', 'MY RENDERINGS' (which is selected and highlighted in blue), 'GALLERY', 'COMMUNITY', 'RESOURCES', and a user profile icon. A banner at the top of the main content area encourages users to 'Get featured in the Rendering customer show reel at Autodesk University 2016!' with a 'Learn more' link. Below the banner, the project 'Start2\_rac\_advanced\_sample\_p...' is listed, with a dropdown arrow indicating more options. The main content area displays a thumbnail image of a building interior. A context menu is open over this image, showing the following options:

- Render as
- End
- rac
- 05
- c9
- Download Stereo-Pano as Zip
- Download Stereo-Pano for GearVR** (this option is highlighted with a blue background)
- Show Preview Image
- Delete Image
- Show this view only

Want to try V-Ray for Revit public beta?

[REGISTER](#)

# COMING SOON

Professional rendering for architects & designers



Revit

# Lab activity 4



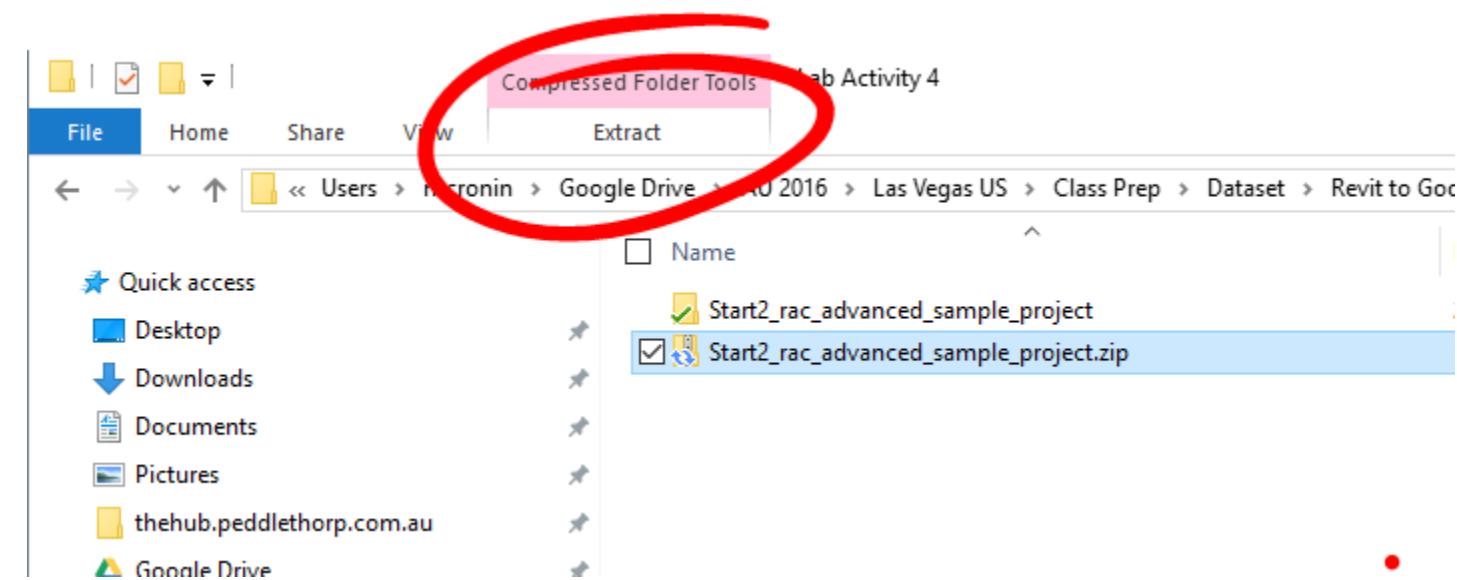
AUTODESK®  
3DS MAX® 2017

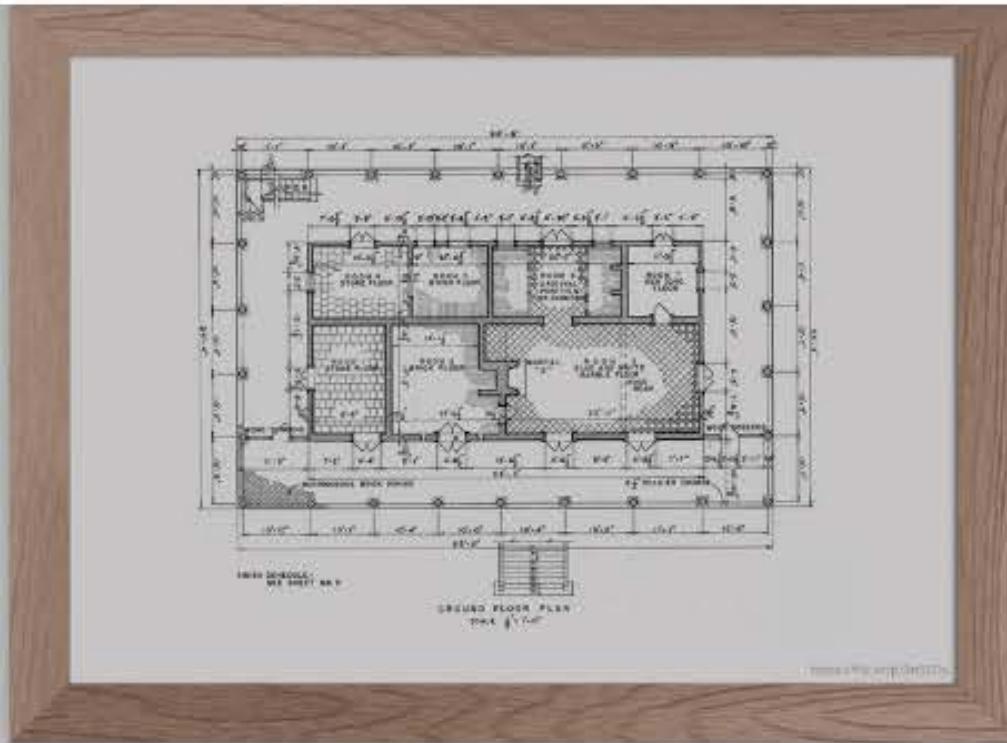
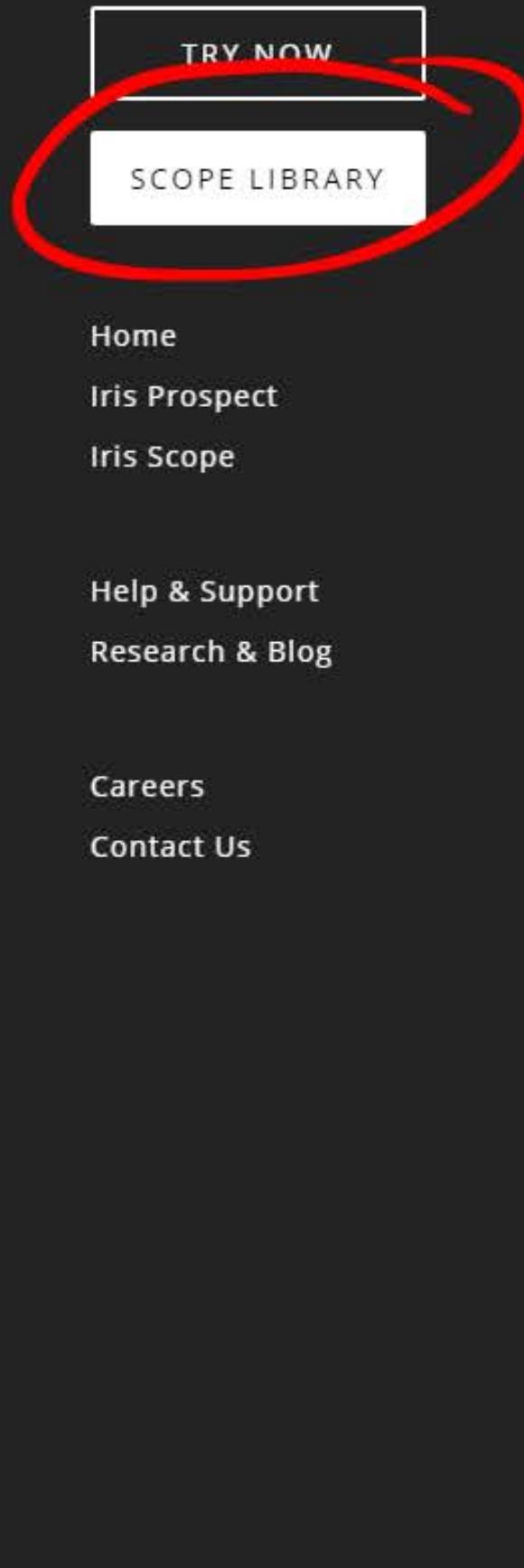


# Lab activity 4



# Lab activity 4





## SHARE YOUR VISION

Create your own virtual reality experiences in seconds  
Compatible with native 3D formats, no training required

*Trusted by:*

sh p

Mortenson  
construction

Miele  
Australia

TELEGERIC4K

co-office

TC  
ARCHITECTS



# Scope Library

Upload and delete your 360 panoramas here. When you log into the Iris Scope App, your panos are downloaded and are ready for viewing on your smartphone. If you don't have our app yet, you can [download it here!](#)

**Equirectangular panos will not currently work in Scope.**

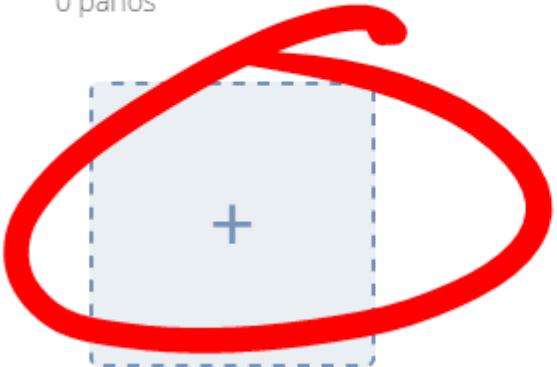
We launched upload support for a few alternative formats a little early. We are working on an update to the mobile apps that will be published soon so you can view your spherical panos and 360 captures in VR.

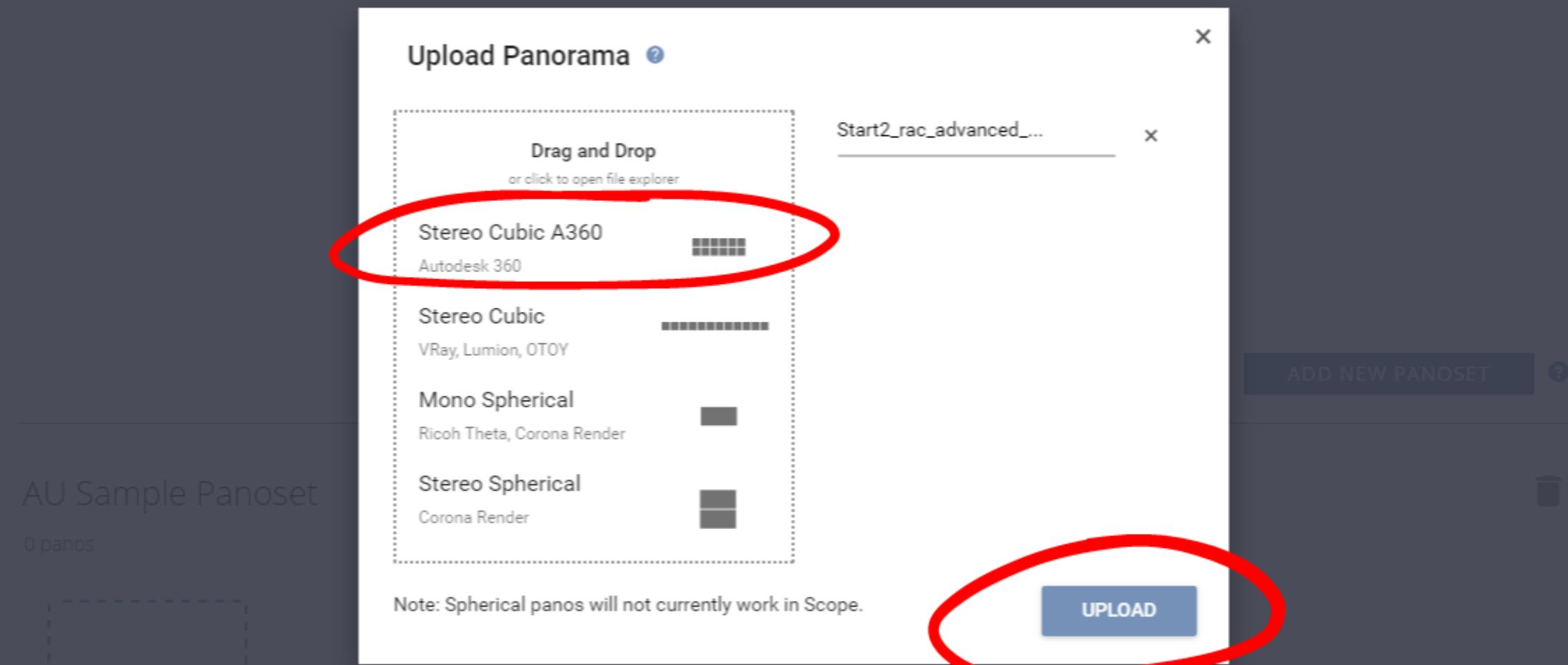
ADD NEW PANOSET



## AU Sample Panoset

0 panos





AU Sample Panoset

0 panos



## Log in

Email  
m.cronin@peddlethorp.com.au

Password  
\*\*\*\*\*

LOG IN

Don't have an account yet?

SIGN UP FOR FREE

4

## Sandbox

AU Sample Panoset Demo Content

- Salle Labrouste - #1  
by Bertrand Benoit
- Salle Labrouste - #2  
by Bertrand Benoit
- Church on the Water - #1  
by Aldo García
- Church on the Water - #2  
by Aldo García

DOWNLOAD SET REMOVE SET

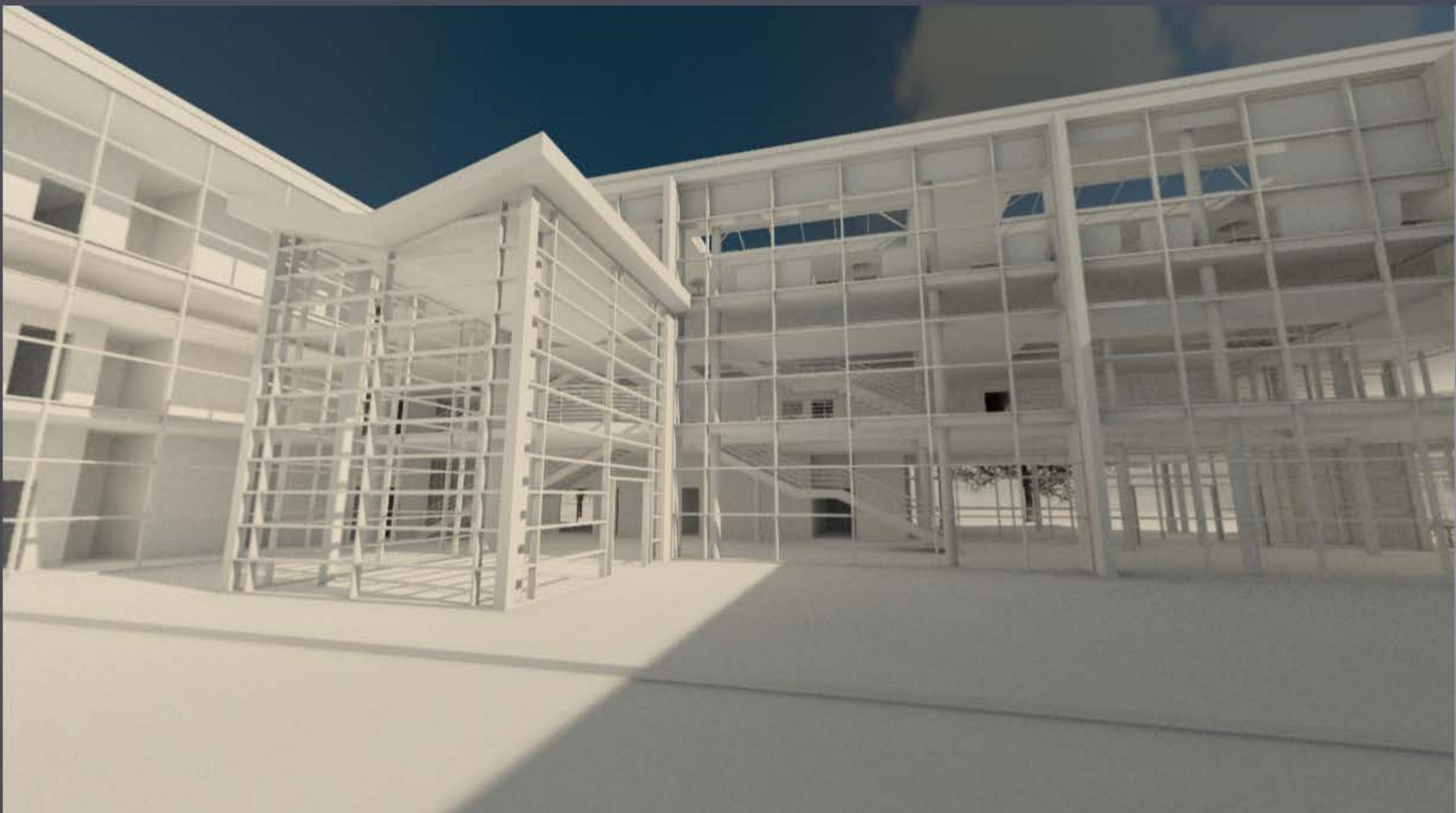
## Sandbox

AU Sample Panoset Demo Content

- Start2\_rac\_advanced\_sample  
1 minute ago DOWNLOAD

DOWNLOAD SET REMOVE SET

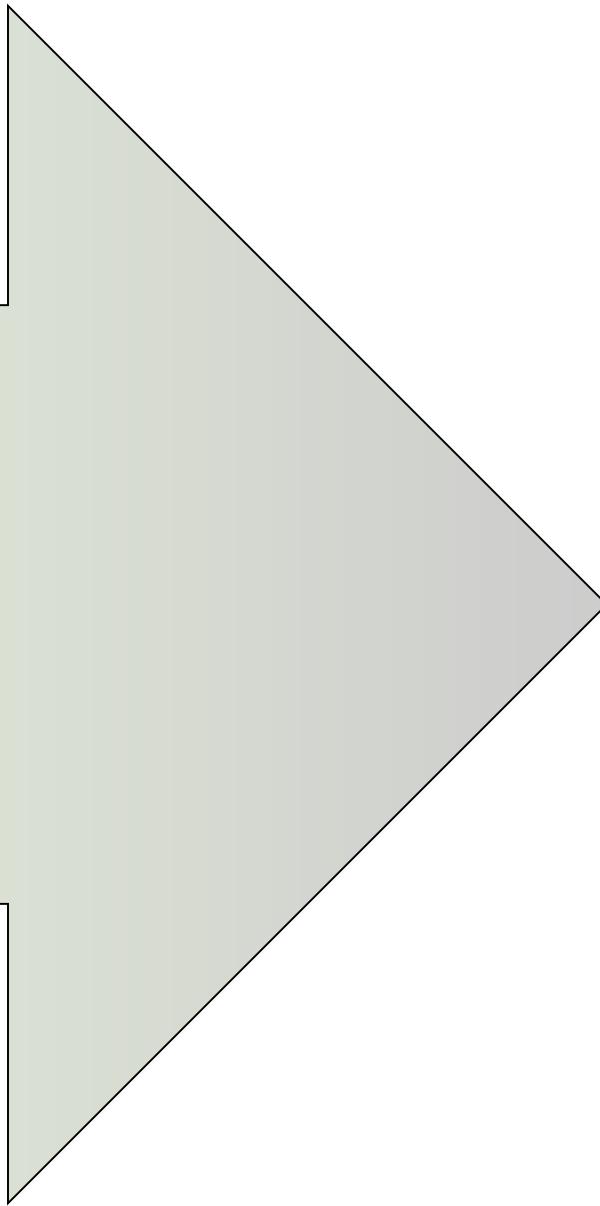
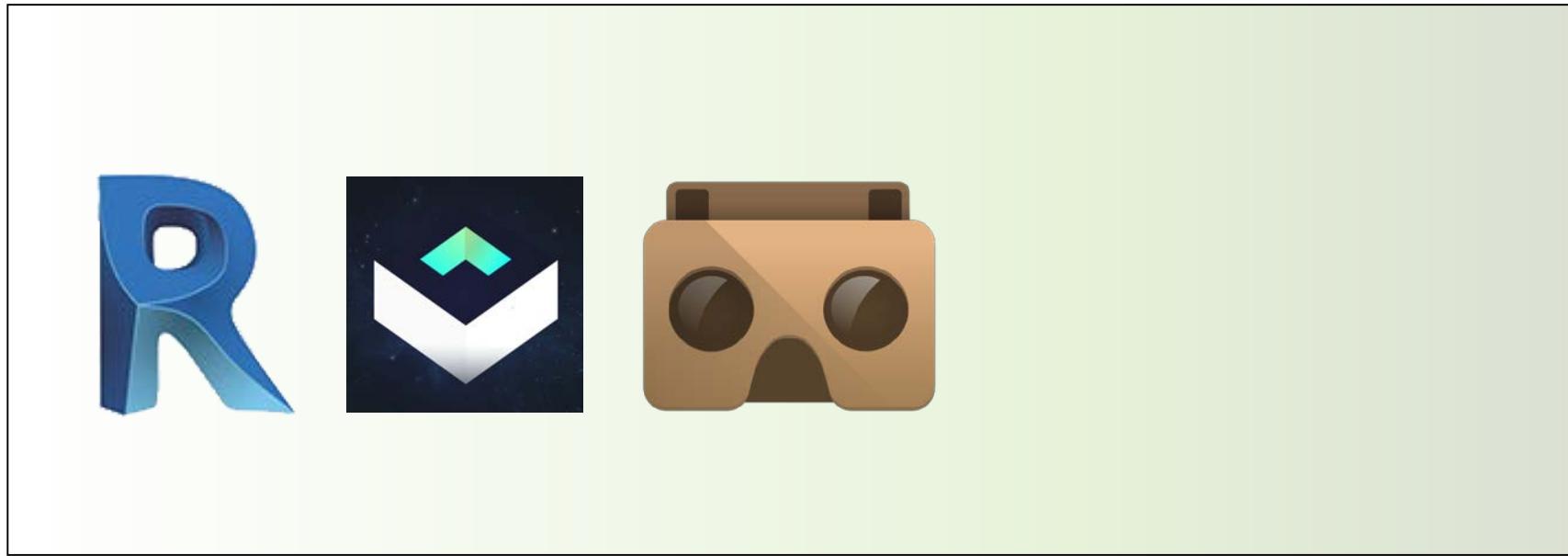




# Lab activity 5

# Lab activity 5

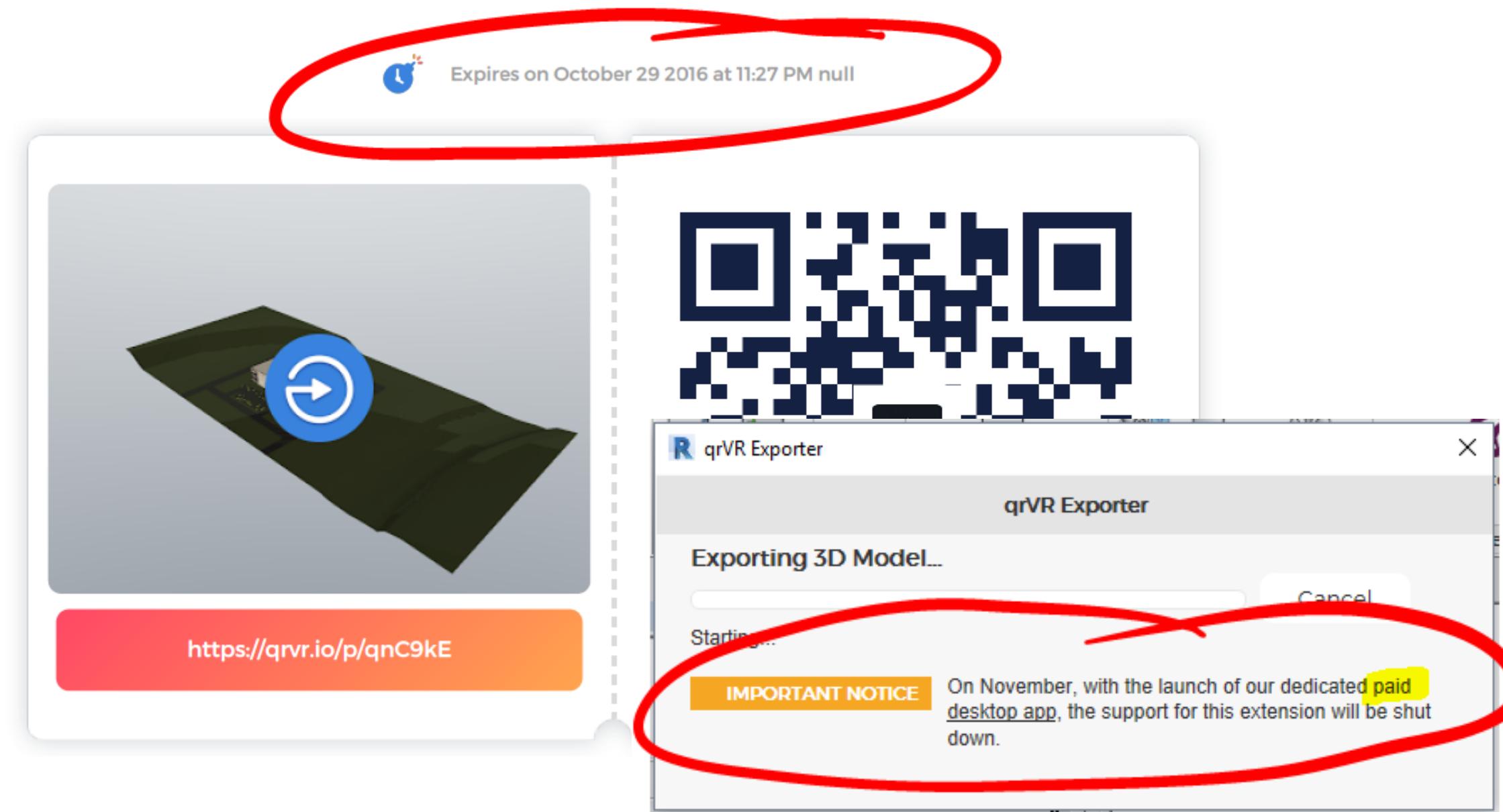
easy  
UI



UI  
UI

# Lab activity 5

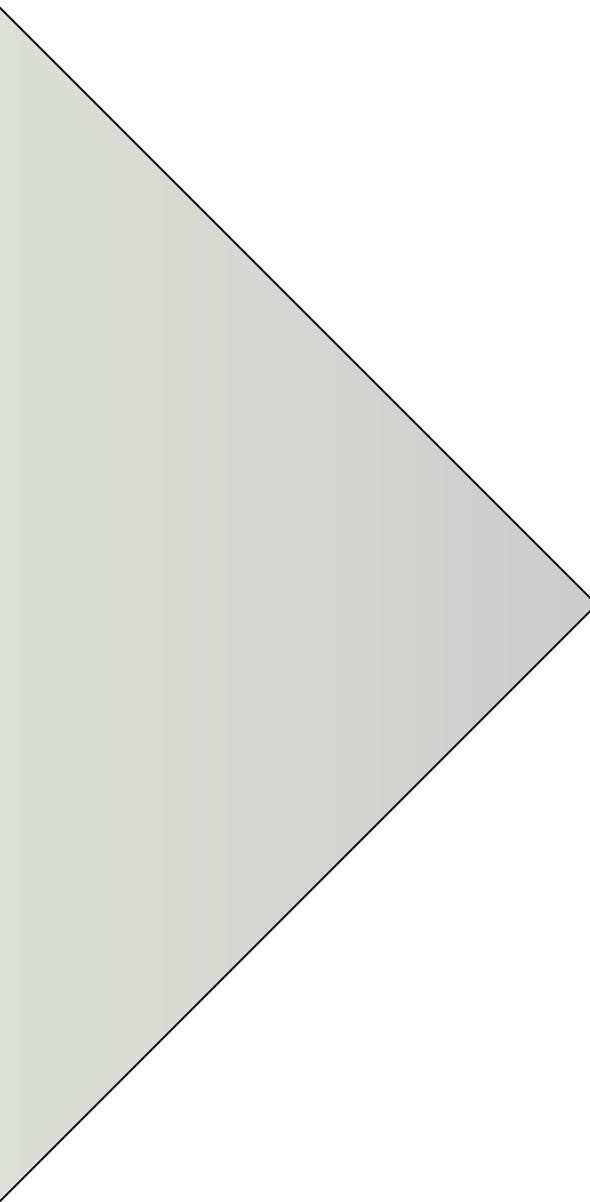
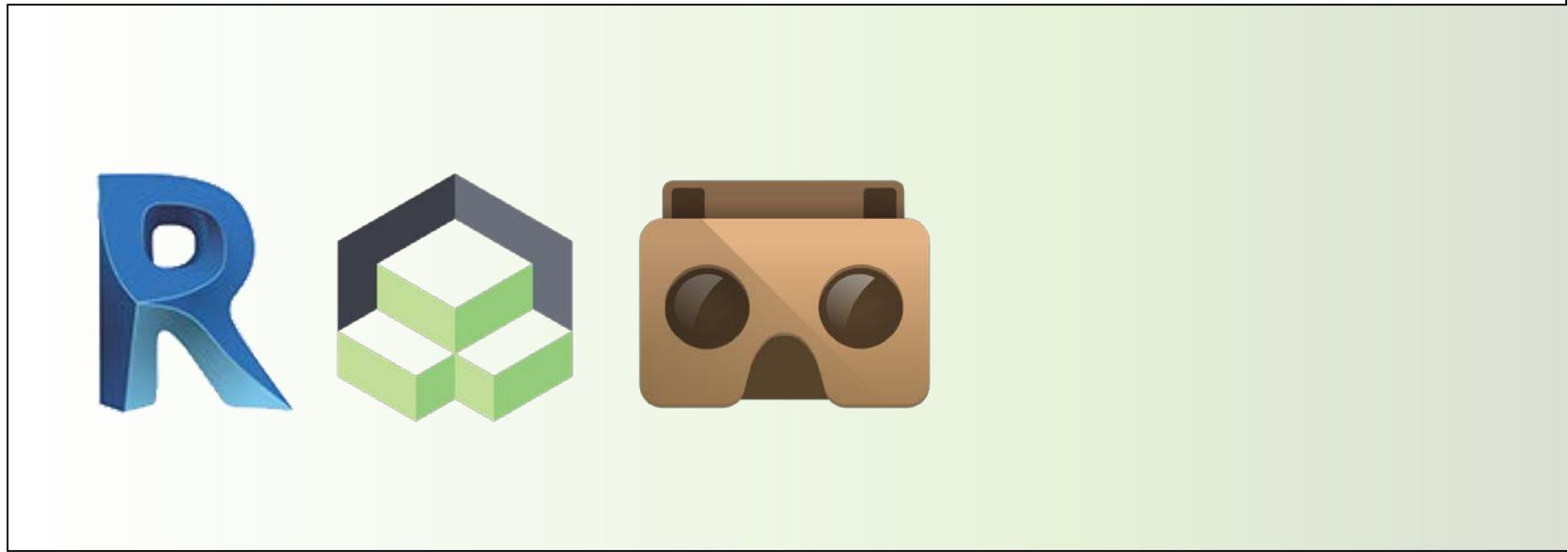
## Start4\_rac\_advanced\_sample\_project



# Lab ~~activity~~ 5 - Demo

# Lab activity 5 - Demo

easy  
3D  
W



3D  
Taro  
W

# Lab activity 5 - Demo

LOG IN



InsiteVR

The easiest way to visualize your designs in virtual reality.

REQUEST A DEMO

TRY FREE VIEWER

# Lab activity 5 - Demo



Help Center

M

Mark Cronin ▾

## Plan

Current Plan

**Free**  
\$0  
per month

- Up to 3 projects hosted
- 3 - 360 images per project

[Current Plan](#)

**Enterprise**  
**Contact Us**

- Upload 3D models and 360 images from Revit, Sketchup, and Rhino.
- GearVR support

[Contact Us](#)



# Lab activity 5 - Demo



Help Center

M Mark Cronin ▾

## Au sample

Permission: [Upload & Publish](#) Project Code: 2016 Visibility: [Invite Only](#) Created By: [Mark Cronin](#)

[Home](#) / [Projects](#) / [Au sample](#)

### 3D Model

Title	Uploaded By	Status
You haven't added a 3D Model. You can upload a 3D Model using the "Add 3D Model" button to the right.		

### Unpublished 360 Images

Title	Uploaded By
There are no 360 images pending publishing.	

### 360 Images

Title	Uploaded By
06. Med Res 3ds Max with Landscape.jpg	Mark Cronin

### Actions

- [Add 360 Image](#)
- [Add 3D Model](#)
- [View Team](#)
- [Settings](#)
- [Download App](#)
- [Start Presentation](#)



# Lab activity 5 - Demo

Powered By  
InsiteVR

To view in VR visit this link from your phone's browser:  
[www.insitevr.com/view/VJhVHL1nb](http://www.insitevr.com/view/VJhVHL1nb) [click to copy]

Presentation Mode

Devices  
select device to watch

device-9068

[f](#) [t](#) [g](#) [in](#) [e](#)

Lumion - Courtyard



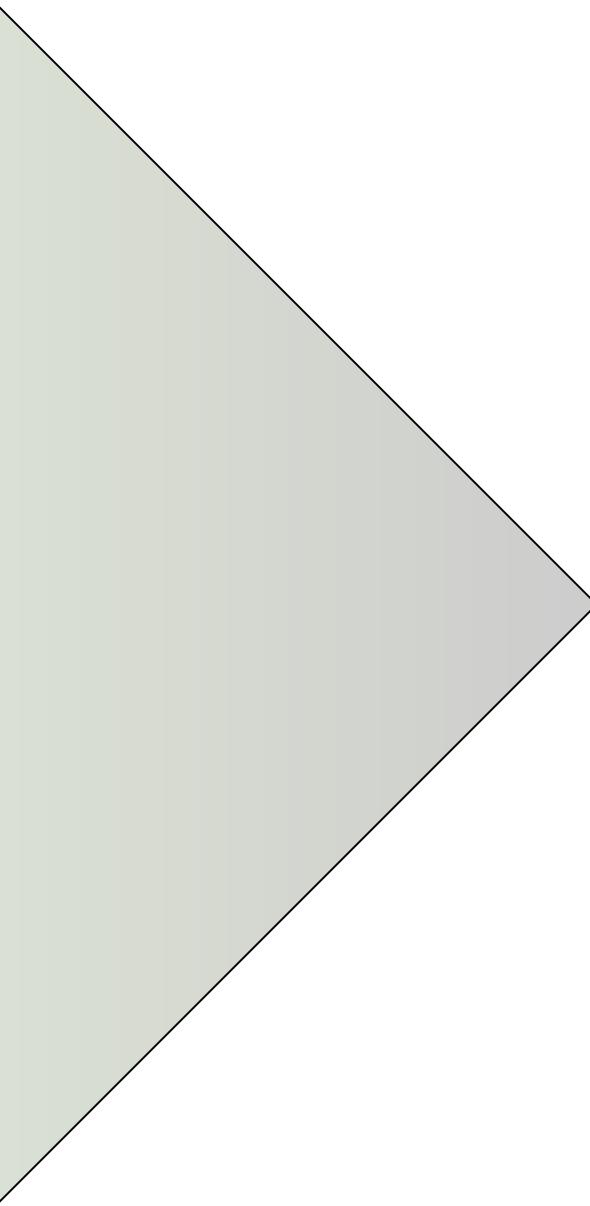
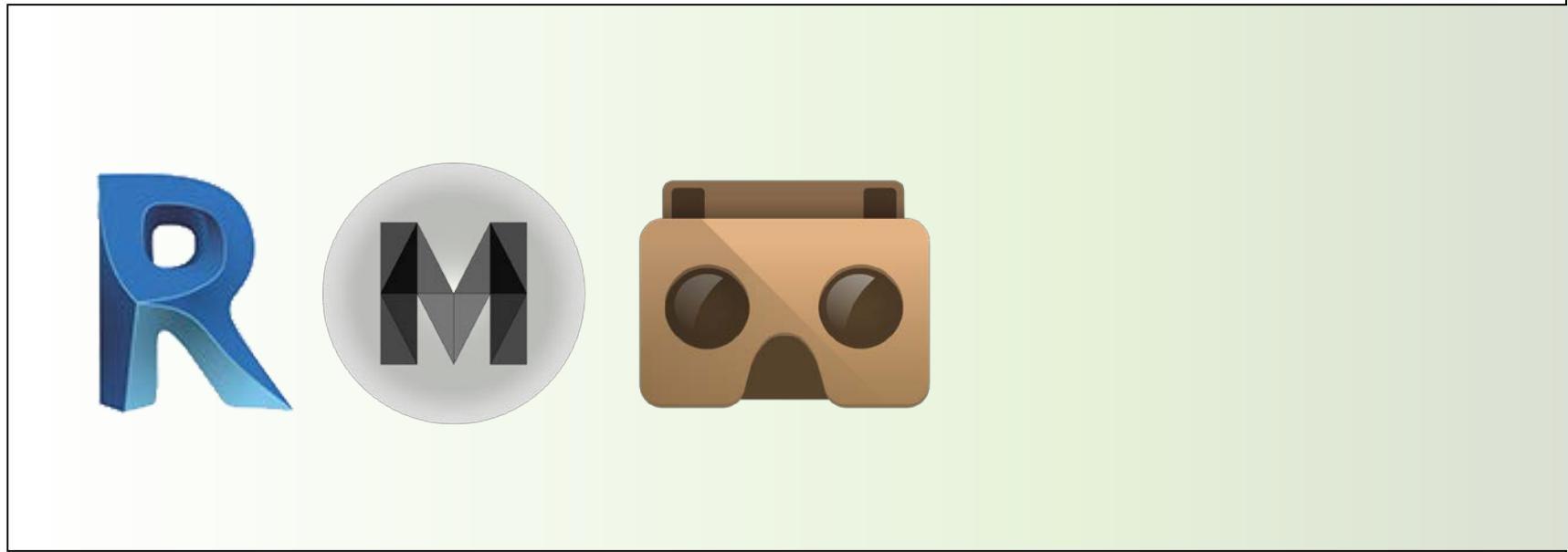
# Lab ~~activity~~ 5 - Demo

- <https://www.insitevr.com/view/VJhVHL1nb>



# Lab activity 5 - Demo

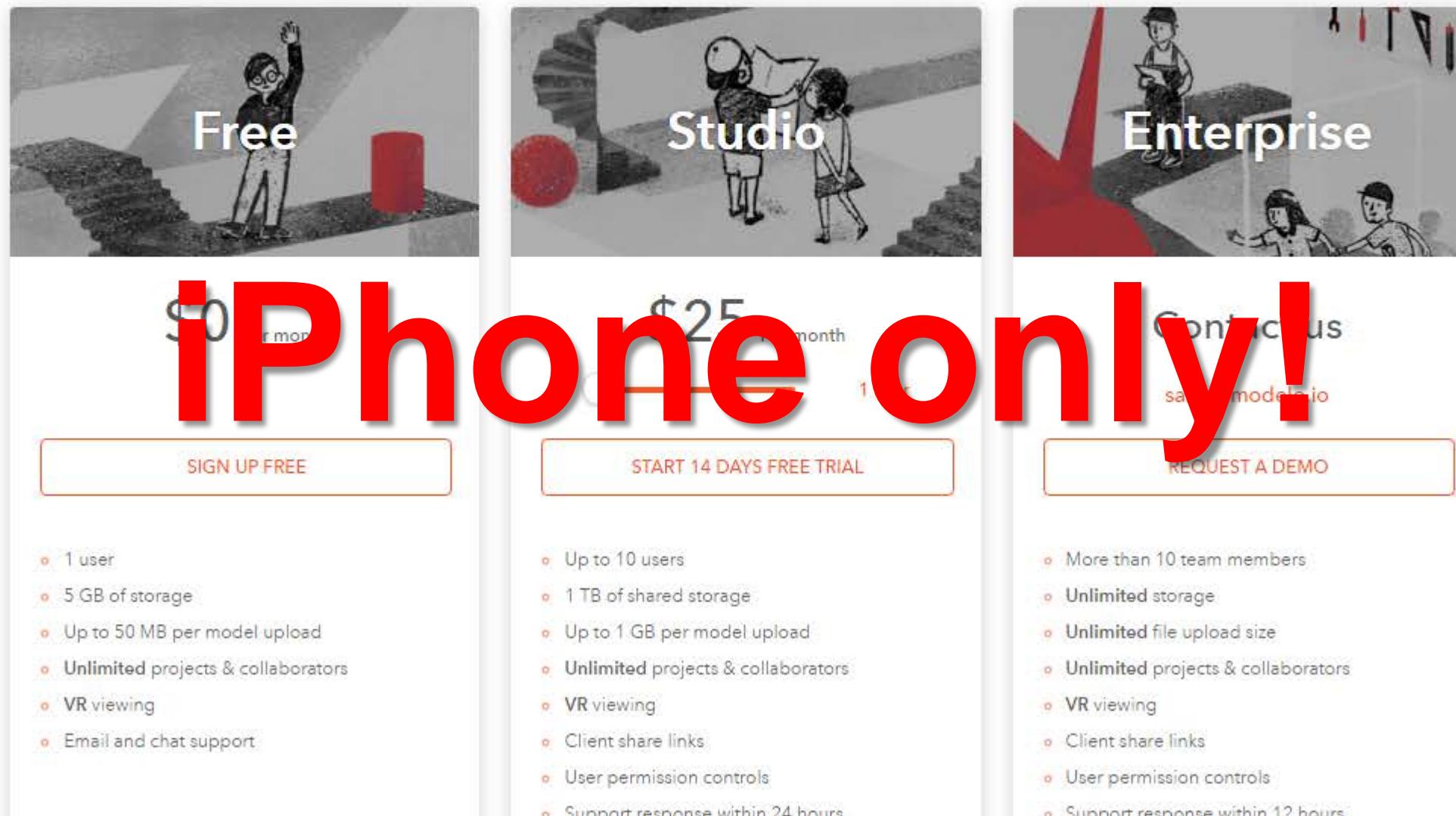
easy  
way



easy  
way

## Pricing Guide

Start collaborating in 3D with unlimited collaborators, for free.



**iPhone only!**

Plan	Price	Collaborators	Storage	Upload Size	Projects	Support
Free	\$0 per month	1 user	5 GB	Up to 50 MB	Unlimited	Email and chat support
Studio	\$25 per month	Up to 10 users	1 TB	Up to 1 GB	Unlimited	VR viewing, Client share links, User permission controls, Support response within 24 hours
Enterprise	Custom	More than 10 team members	Unlimited	Unlimited	Unlimited	VR viewing, Client share links, User permission controls, Support response within 12 hours

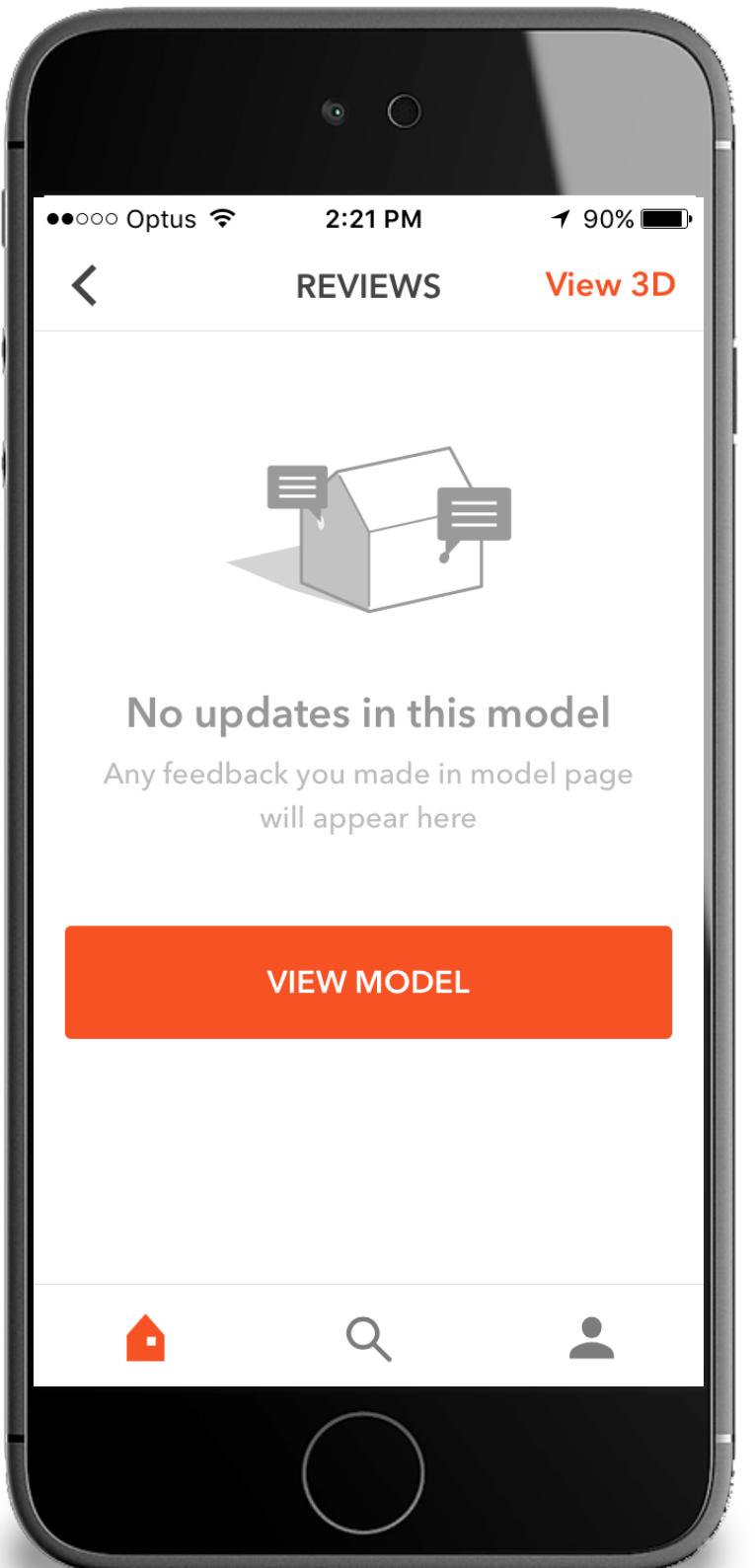
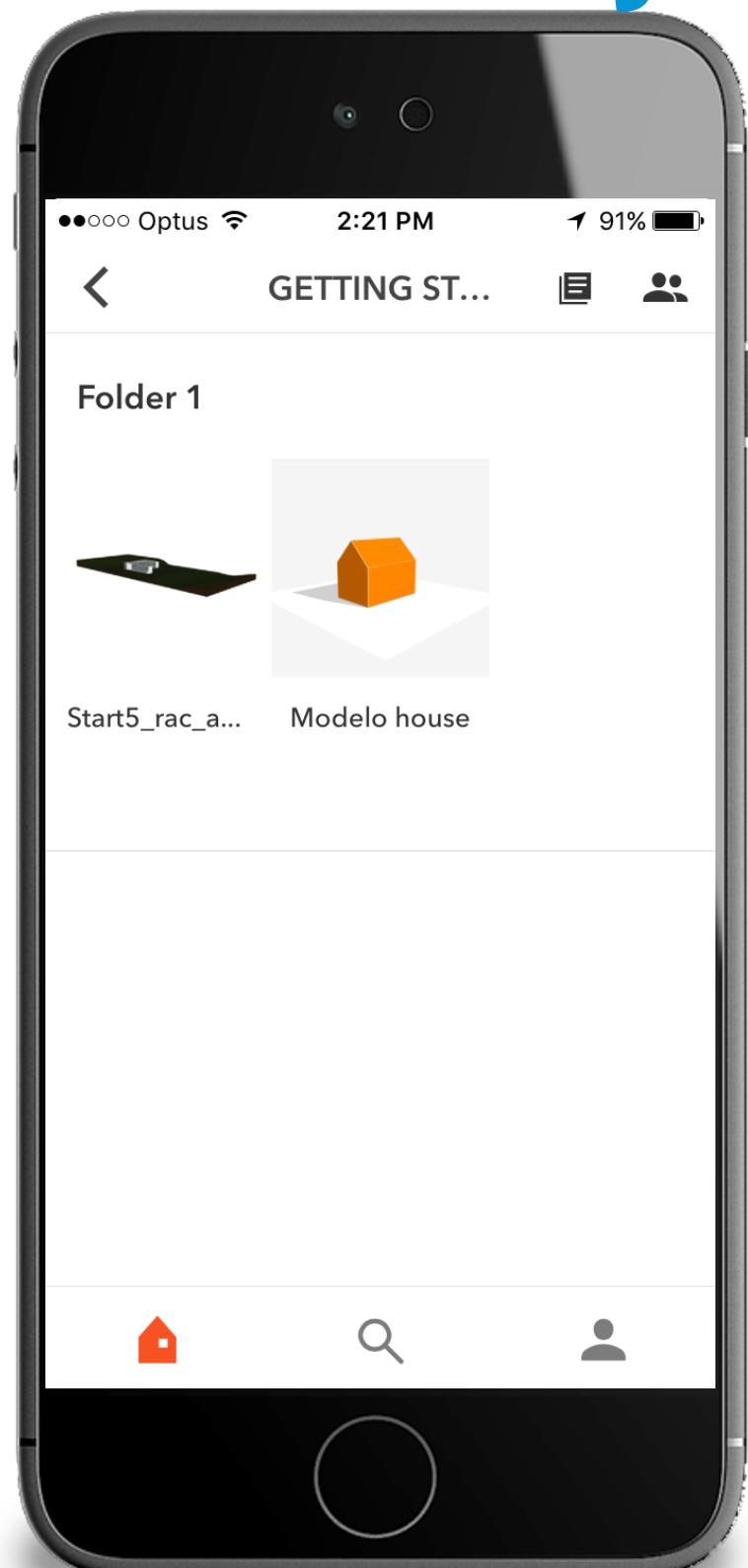


# Lab activity 5

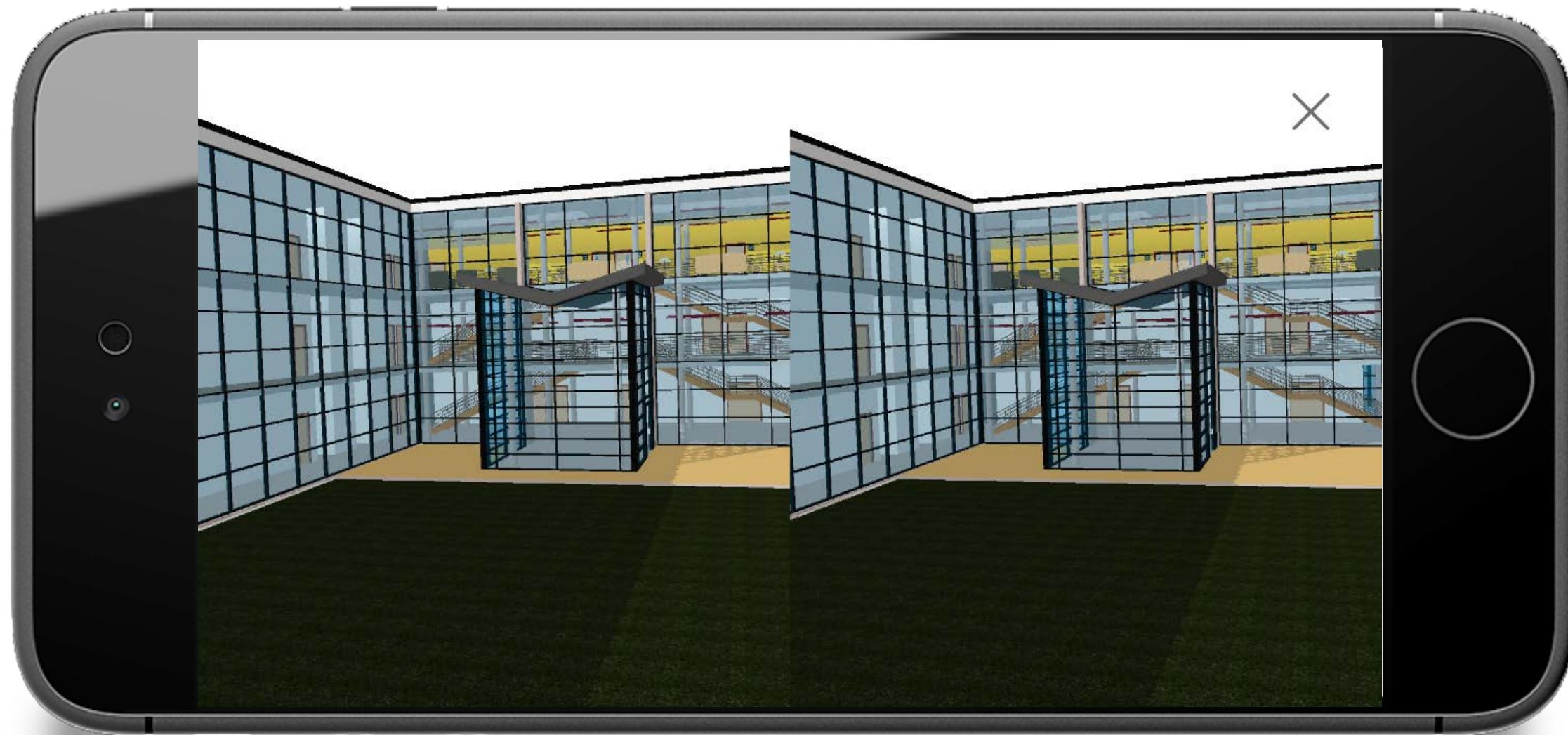
Video Link:

- Refer to Dataset (Lab Activity 5)

# Lab activity 5 - Demo



# Lab activity 5 - Demo



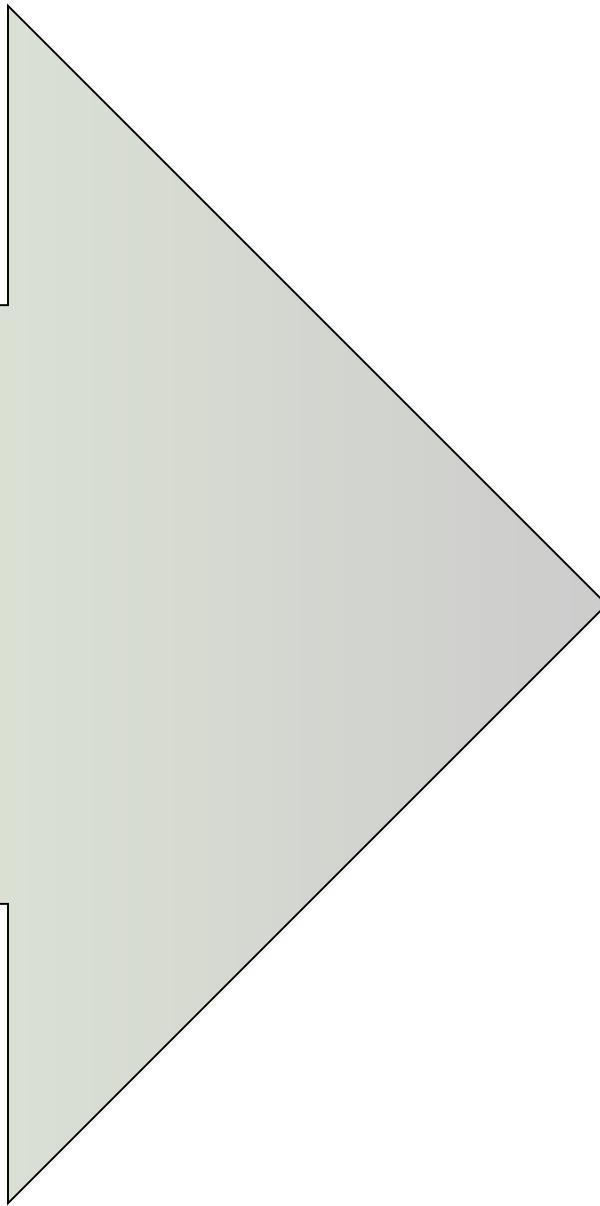
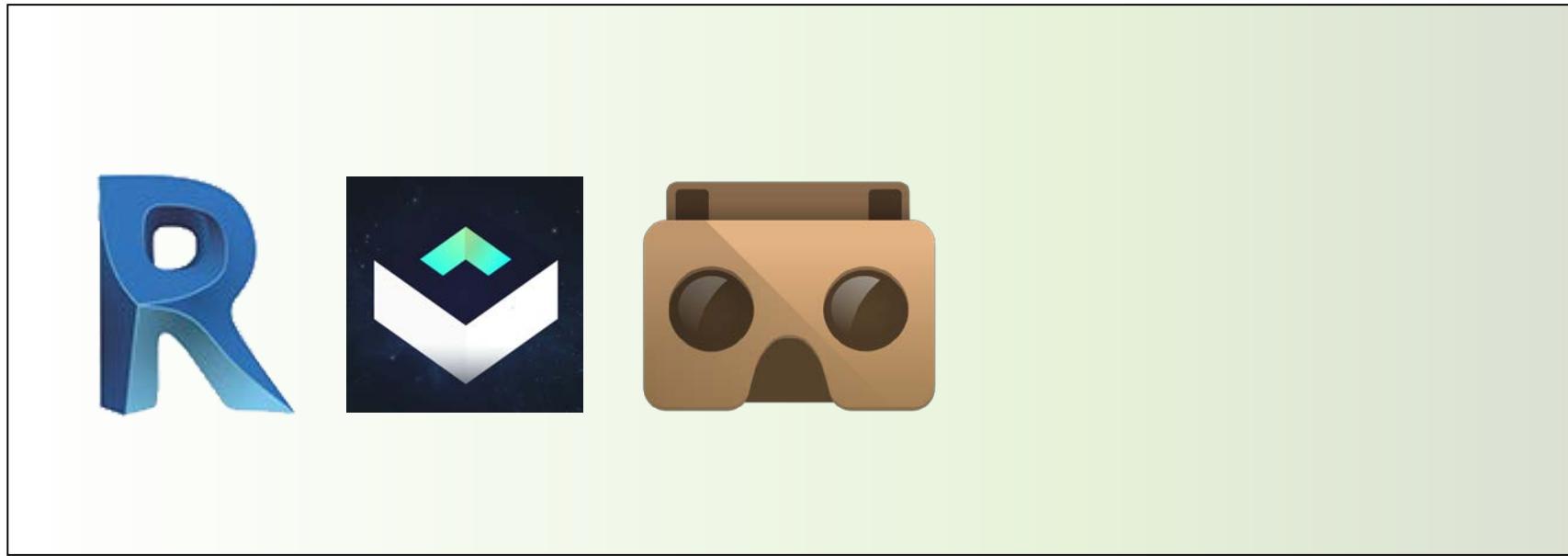
# Lab ~~activity~~ 5 - Demo

- <https://beta.modelo.io/share-token/jDuOE0s5ji>



# Lab activity 5 - Demo

easy  
UI



UI  
UI

# Lab activity 5 - Demo

Powered by **Kubity**

qrVR

What is qrVR?  Play video  Learn more

## Convert any 3D file to qrVR

SketchUp, Revit, Rhino & more

Drag your 3D file here

+

+

+

OR BROWSE



Cast from the qrVR app

Download the app

Download on the App Store 

GET IT ON Google Play 

Feedback 

Get your Google CardBoard 

About Partner Terms Privacy Support  English (United States) ▾



AUTODESK UNIVERSITY 2016



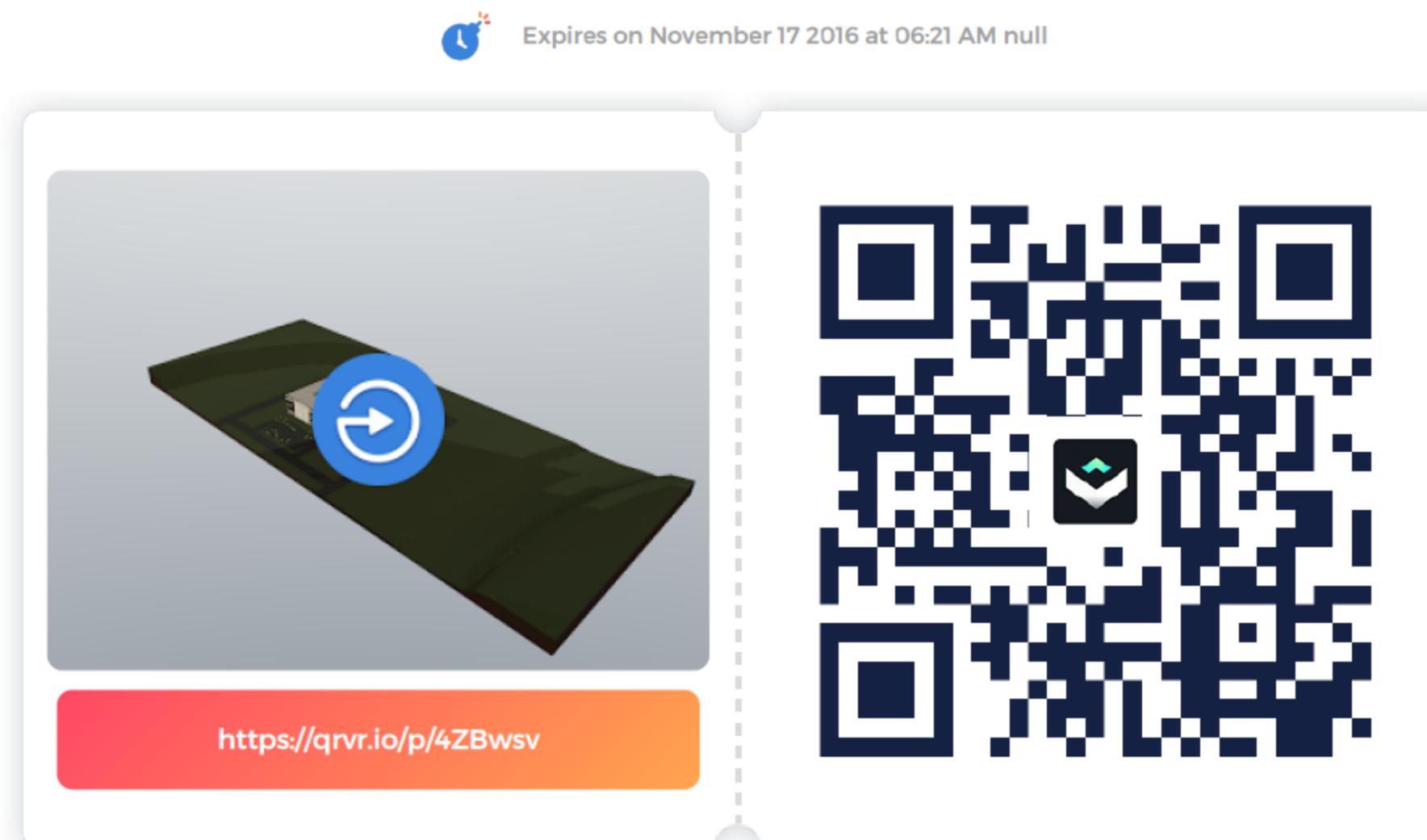
# Lab ~~activity~~ 5 - Demo

Video Link:

- Refer to Dataset (Lab Activity 5)

# Lab activity 5 - Demo

Start5\_rac\_advanced\_sample\_project



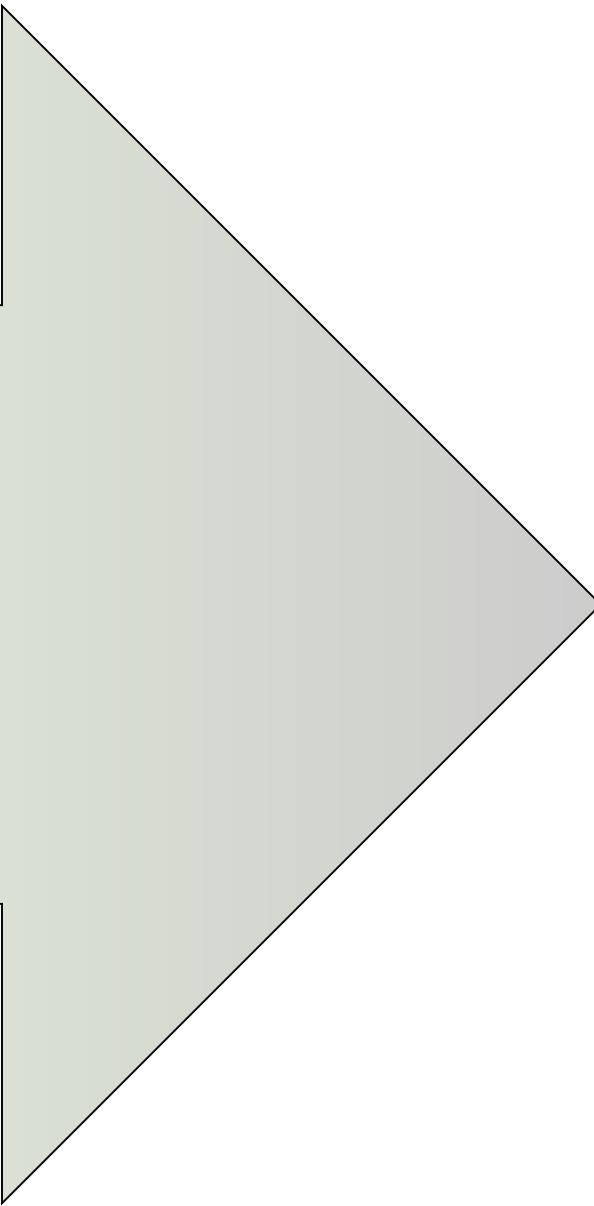
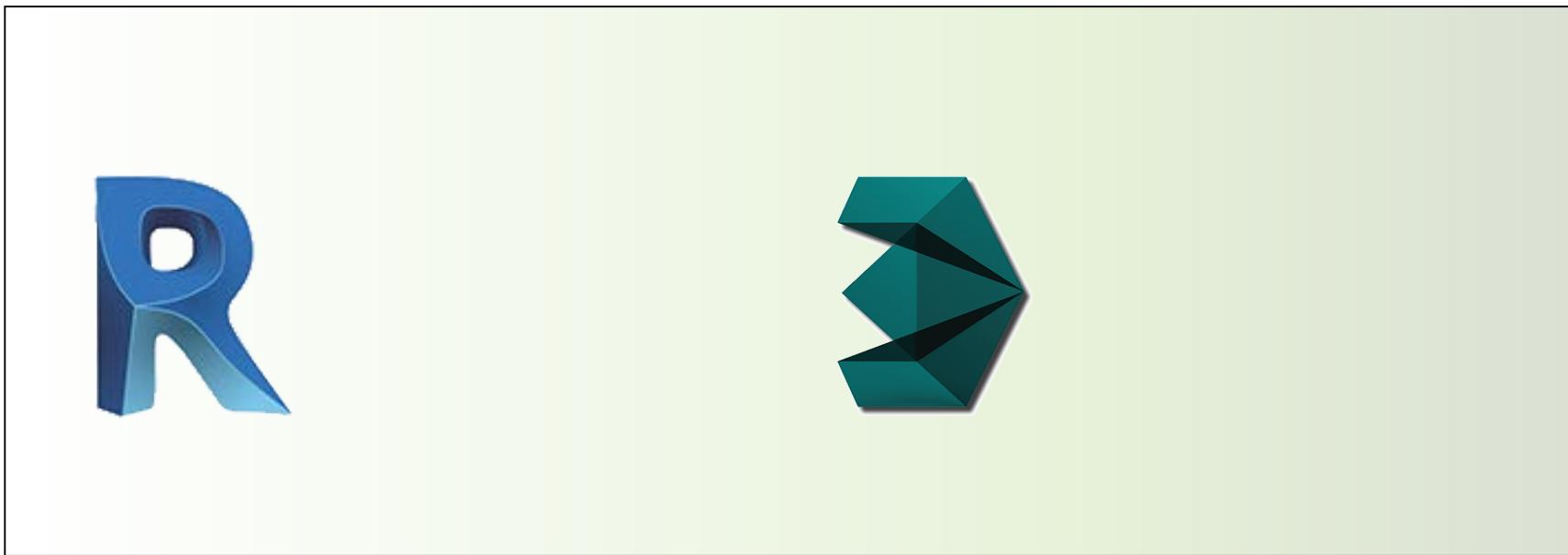
Download the app



# Lab activity 6

# Lab activity 6

easy  
data  
with



data  
with

# Lab activity 6

## Summary of steps

- Export fbx file from Revit
- Import into 3ds Max
- Check exposure control
- Default render with panorama exporter

# Lab activity 6

Continuing in Revit 2017, or alternatively open:

Open:

Start6\_rac\_advanced\_sample\_project.rvt

Located:

C:\Datasets\Lab01 San Polo 3401A\Revit to Cardboard\Lab Activity 6

If there is no dataset on your PC:

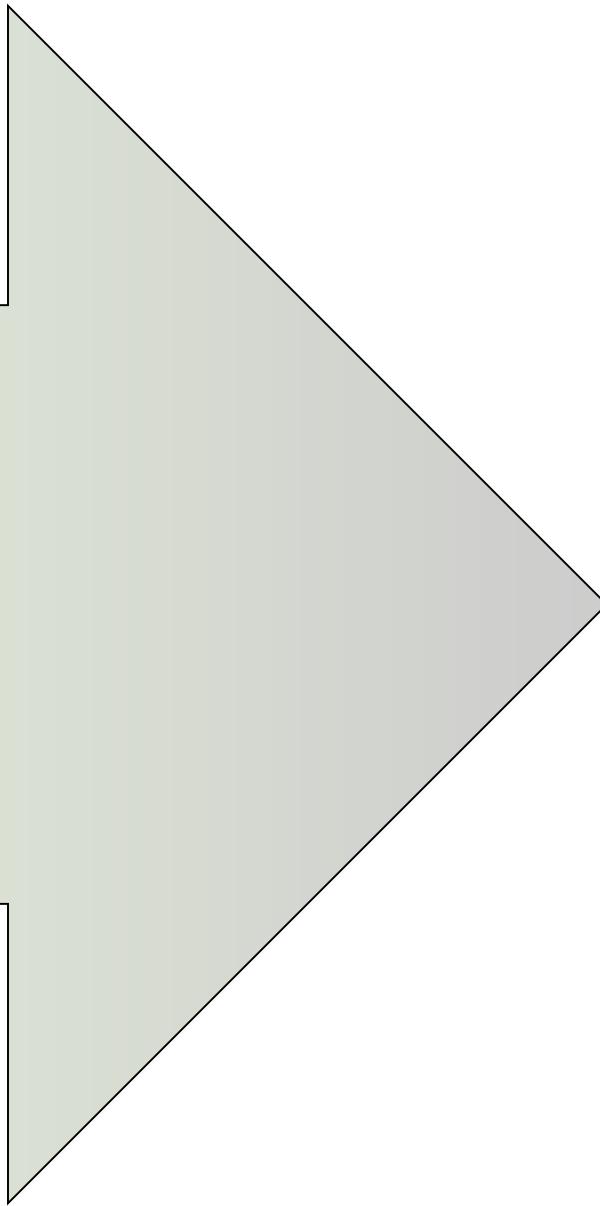
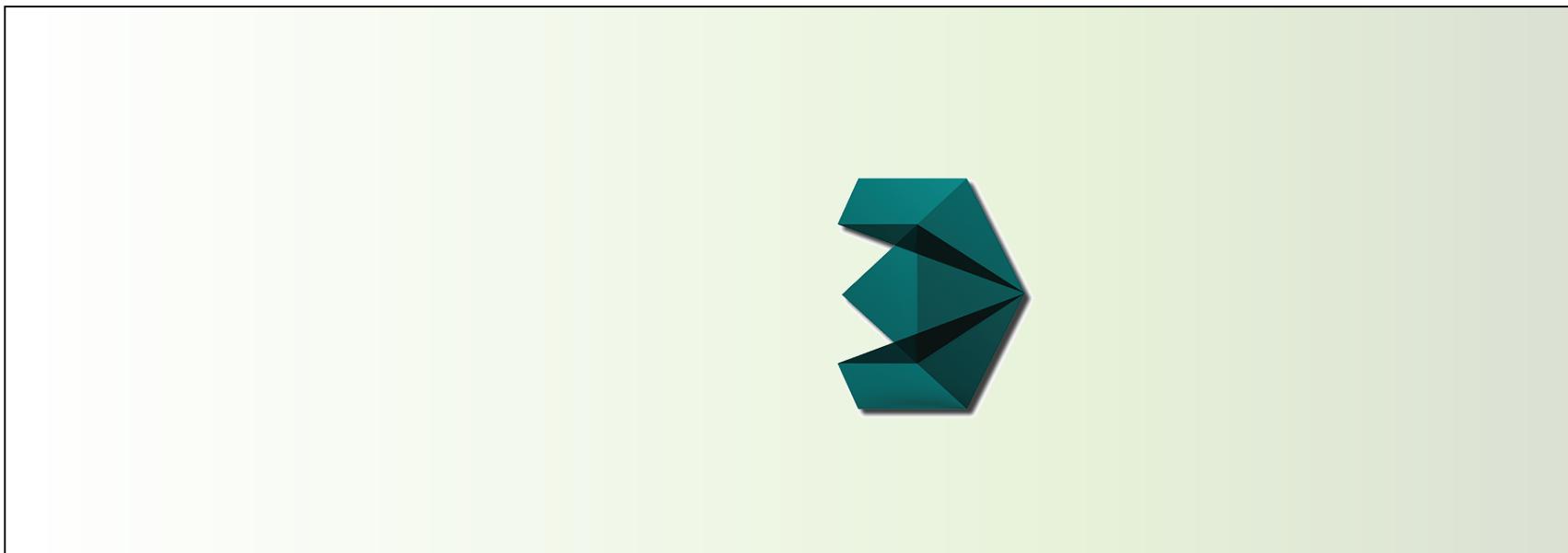
C:\Program Files\Autodesk\Revit 2017\Samples



# Lab activity 7

# Lab activity 7

easy  
draw



draw  
easy

# Lab activity 7

## Summary of steps

- Create and apply materials
- Adjust lighting
- Select different render engine
- Render with panorama exporter

# Lab activity 7

Continuing in 3ds Max 2017, open:

Start7\_rac\_advanced\_sample\_project.max

Located:

C:\Datasets\Lab01 San Polo 3401A\Revit to Cardboard\Lab Activity 7

# Lab activity 7

The screenshot shows the Windows Settings app with the 'Power & sleep' section highlighted. The left sidebar lists various settings categories: Home, System, Display, Apps & features, Default apps, Notifications & actions, Power & sleep, Battery, Storage, Offline maps, Tablet mode, Multitasking, Projecting to this PC, Apps for websites, and About. The 'Power & sleep' item is selected and has a yellow background. The main content area is divided into three sections: 'Screen', 'Sleep', and 'Network connection'. The 'Screen' section shows settings for turning off the display: 'On battery power, turn off after' is set to '10 minutes' and 'When plugged in, turn off after' is set to '1 hour'. The 'Sleep' section shows settings for putting the PC to sleep: 'On battery power, PC goes to sleep after' is set to '1 hour' and 'When plugged in, PC goes to sleep after' is set to 'Never'. The 'Network connection' section has a checked checkbox for 'On battery power, stay connected to network while asleep'. The 'Related settings' section at the bottom links to 'Additional power settings'.

← Settings

Home

Find a setting

System

Display

Apps & features

Default apps

Notifications & actions

Power & sleep

Battery

Storage

Offline maps

Tablet mode

Multitasking

Projecting to this PC

Apps for websites

About

Screen

On battery power, turn off after

10 minutes

When plugged in, turn off after

1 hour

Sleep

On battery power, PC goes to sleep after

1 hour

When plugged in, PC goes to sleep after

Never

Save me power when my device knows I'm away

Off

Network connection

On battery power, stay connected to network while asleep

Related settings

Additional power settings





**Virtual Reality is here and it's  
bringing the world closer than you think.**

**Download the App to your device**

You can get the QUT Global Goggles experience on both iOS and Android devices.



# Lab activity 7

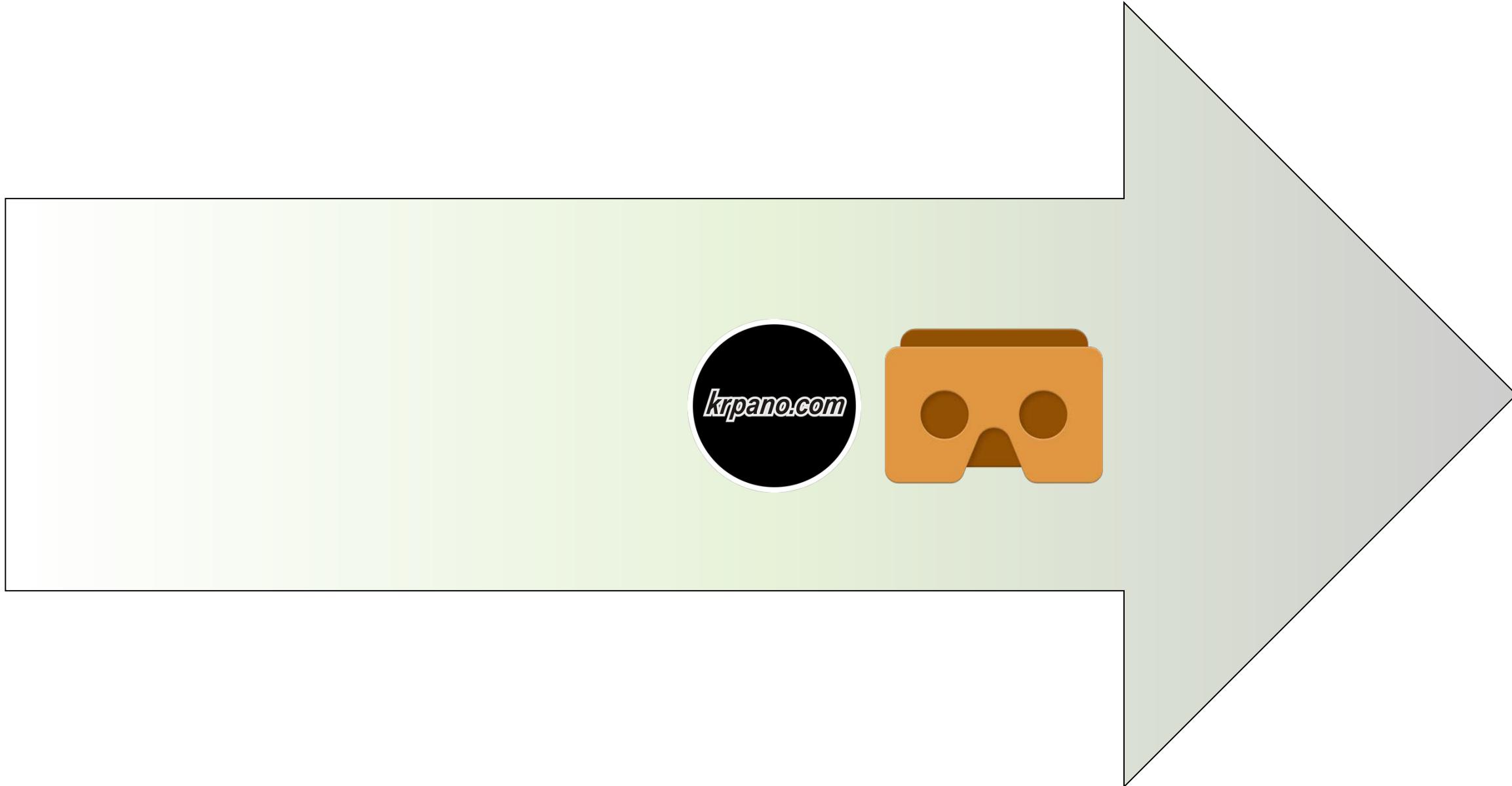
Refer to app. Download from:

- <http://qutglobalgoggles.com/>

# Additional Lab Demo

# Additional Lab Demo

3D  
Lab  
Workshop



3D  
Lab  
Workshop

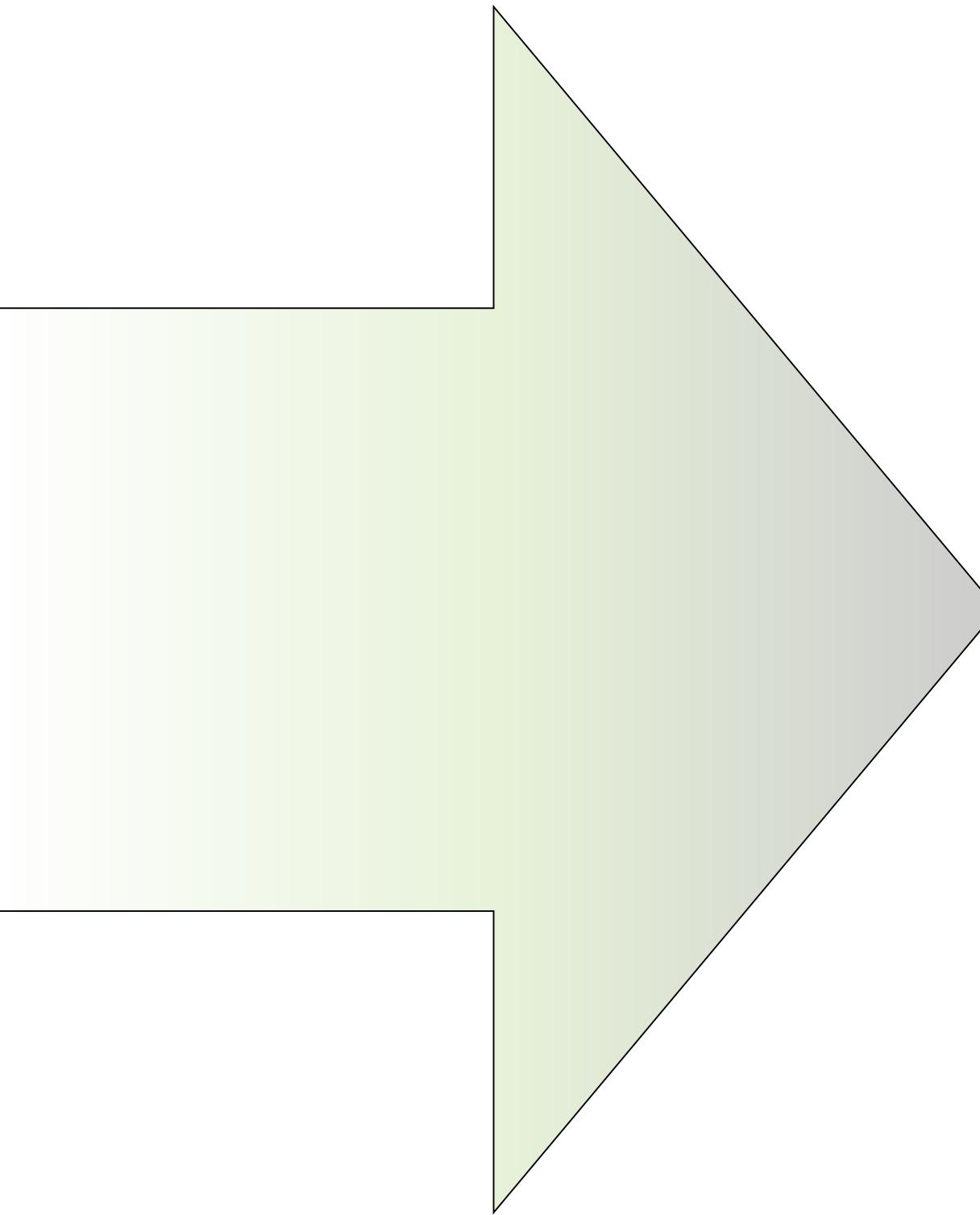
# Additional Lab Demo

- Continuing with the content created in previous lab activities
- Preparing files for hosting on your own website
- Preparing tours (multi-scene via hotspot)

# Additional Lab Demo

Virtual Reality  
Tour  
Client

-  Burleigh\_Church\_VR.jpg
-  Griffith Uni Library\_VR\_LEFT.jpg
-  Griffith Uni Library\_VR\_MIDDLE.jpg
-  Griffith Uni Library\_VR\_RIGHT.jpg
-  Mater\_Redlands\_OT\_VR\_VIEW\_01.jpg
-  Mater\_Redlands\_OT\_VR\_VIEW\_02.jpg
-  Mater\_Redlands\_OT\_VR\_VIEW\_03.jpg
-  University of Papua New Guinea\_BSPP\_VR.jpg
-  Waigani\_Aerial\_VR\_.jpg
-  Waigani\_Court\_VR.jpg
-  Waigani\_Entry\_VR\_.jpg



-  aspnet\_client
-  Cust
-  panos
-  plugins
-  skin
-  index.html
-  PT\_Logo.png
-  PTH\_Logo.png
-  tour.js
-  tour.swf
-  tour.xml
-  tour\_editor.html

Virtual Reality  
Tour  
Client

# Additional Lab Demo

Video Link:

- Refer to Dataset (Lab Demo 8)

# Additional Lab Demo

Video Link:

- Refer to Dataset (Lab Demo 8)

# Additional Lab Demo

All sample renders from today  
hosted on Peddle Thorp's  
website via krpano

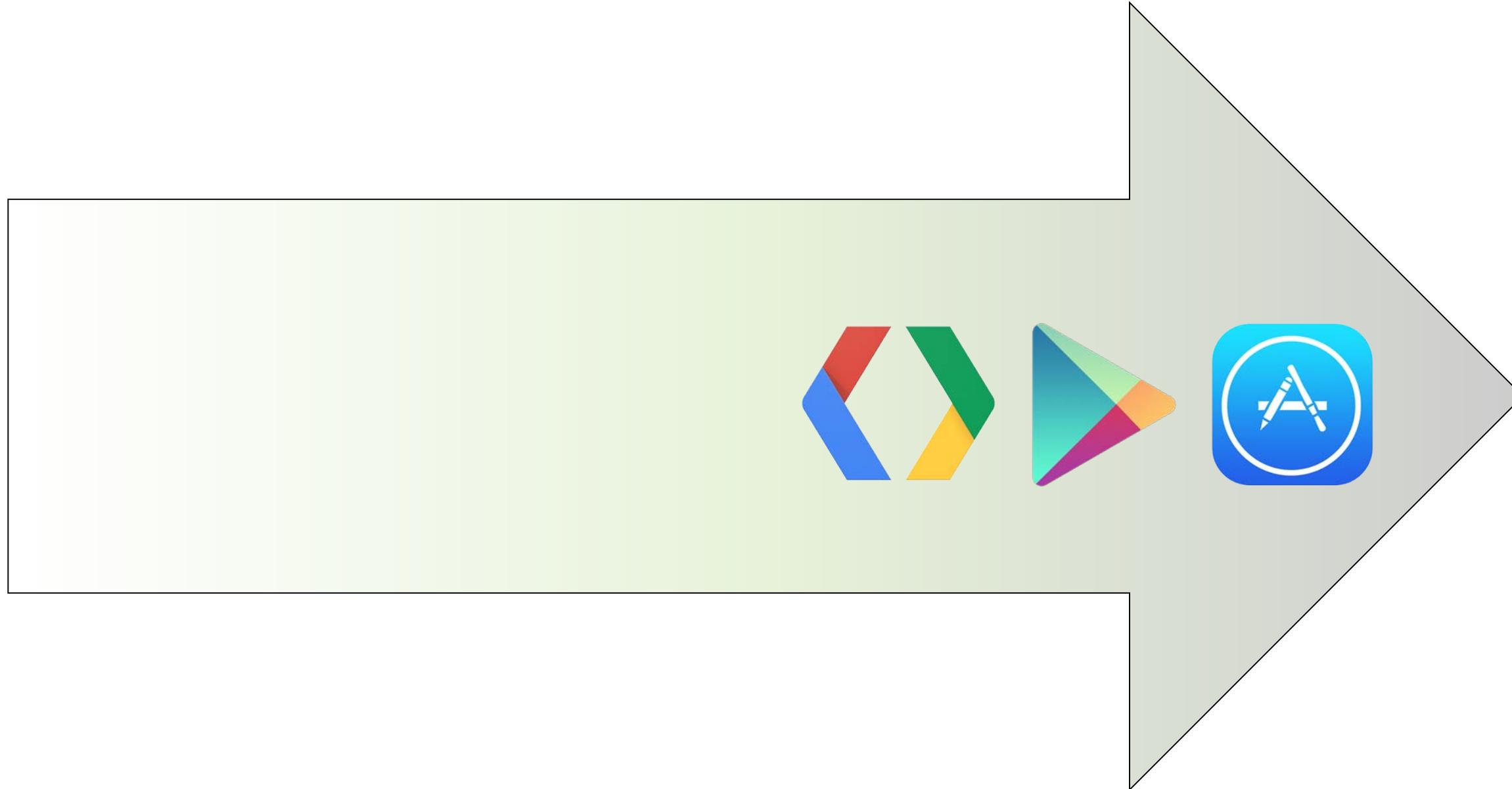
<http://vr.peddlethorp.com.au/AU2016/>



# More Advanced Concepts

# More Advanced Concepts

easy  
UI



UI  
UI

# More Advanced Concepts



# More Advanced Concepts



Google Developers

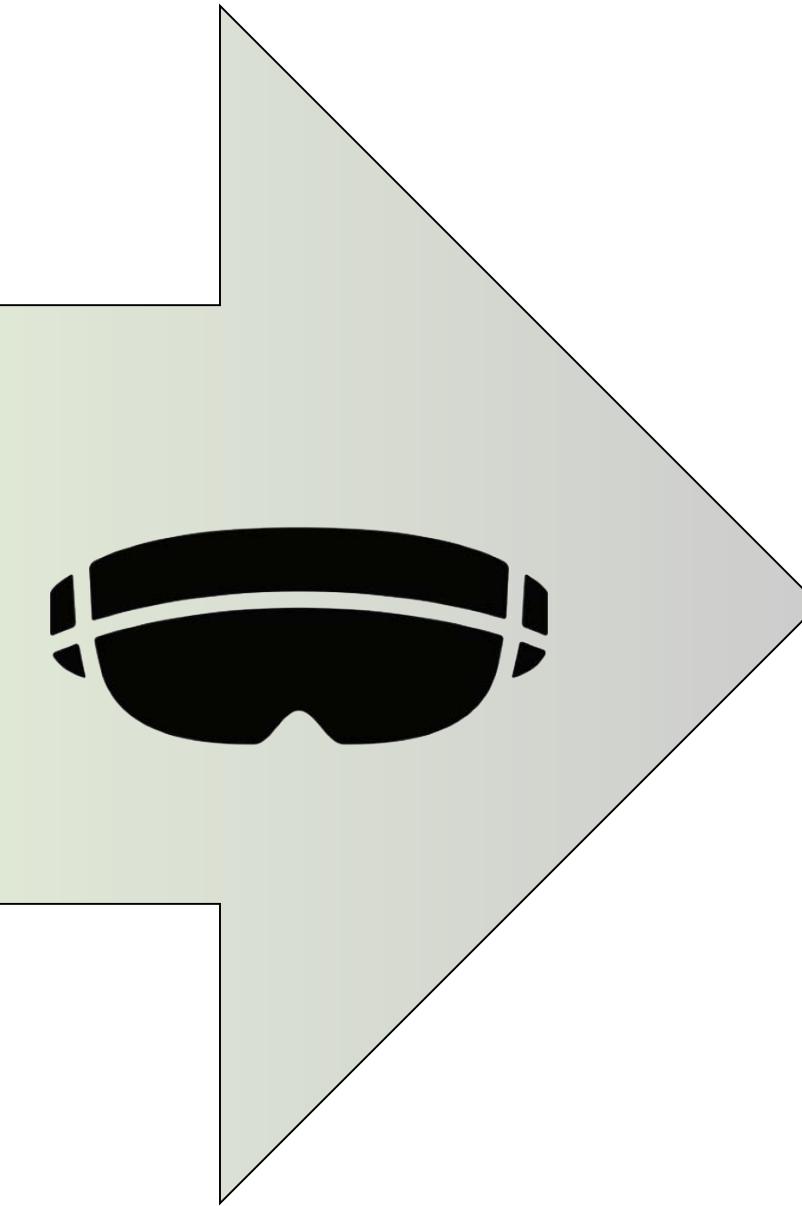
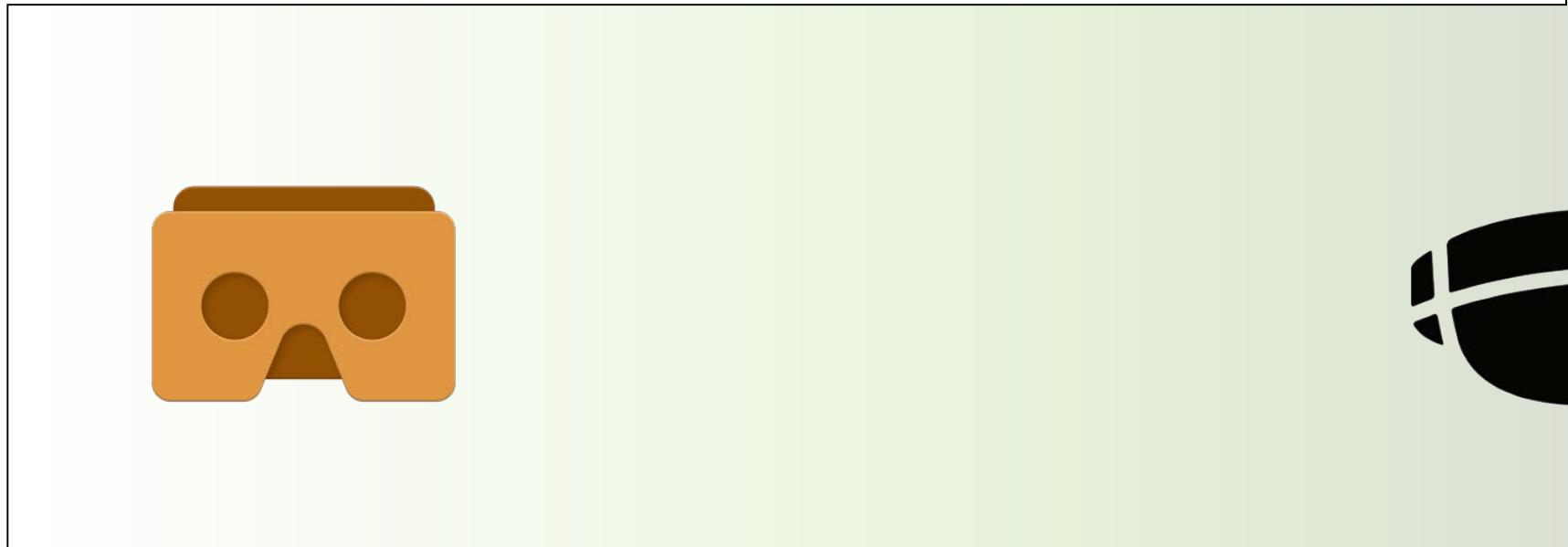
```
1 package com.autodesk.a360cardboard;
2
3 import com.google.vrtoolkit.cardboard.CardboardActivity;
4
5 import android.annotation.SuppressLint;
6 import android.content.Context;
7 import android.os.Build;
8 import android.os.Bundle;
9 import android.os.Vibrator;
10 import android.util.Log;
11 import android.webkit.WebSettings;
12 import android.webkit.WebView;
13 import android.webkit.WebViewClient;
14
15 public class MainActivity extends CardboardActivity {
16
17     private static final String TAG = "A360CardboardActivity";
18     private static final int DELAY = 500;
19
20     private Vibrator mVibrator;
21     private WebView mWebView;
22     private boolean mInModel;
23     private boolean mClicked;
24     private boolean mHandled;
25     private int mClickCount;
26
27     @SuppressLint("SetJavaScriptEnabled")
28     @Override
29     public void onCreate(Bundle savedInstanceState) {
30         super.onCreate(savedInstanceState);
31
32         mVibrator = (Vibrator) getSystemService(Context.VIBRATOR_SERVICE);
33         mClicked = false;
34         mHandled = false;
```



# Future Direction (Summary)

# Future Direction (Summary)

Now



Future

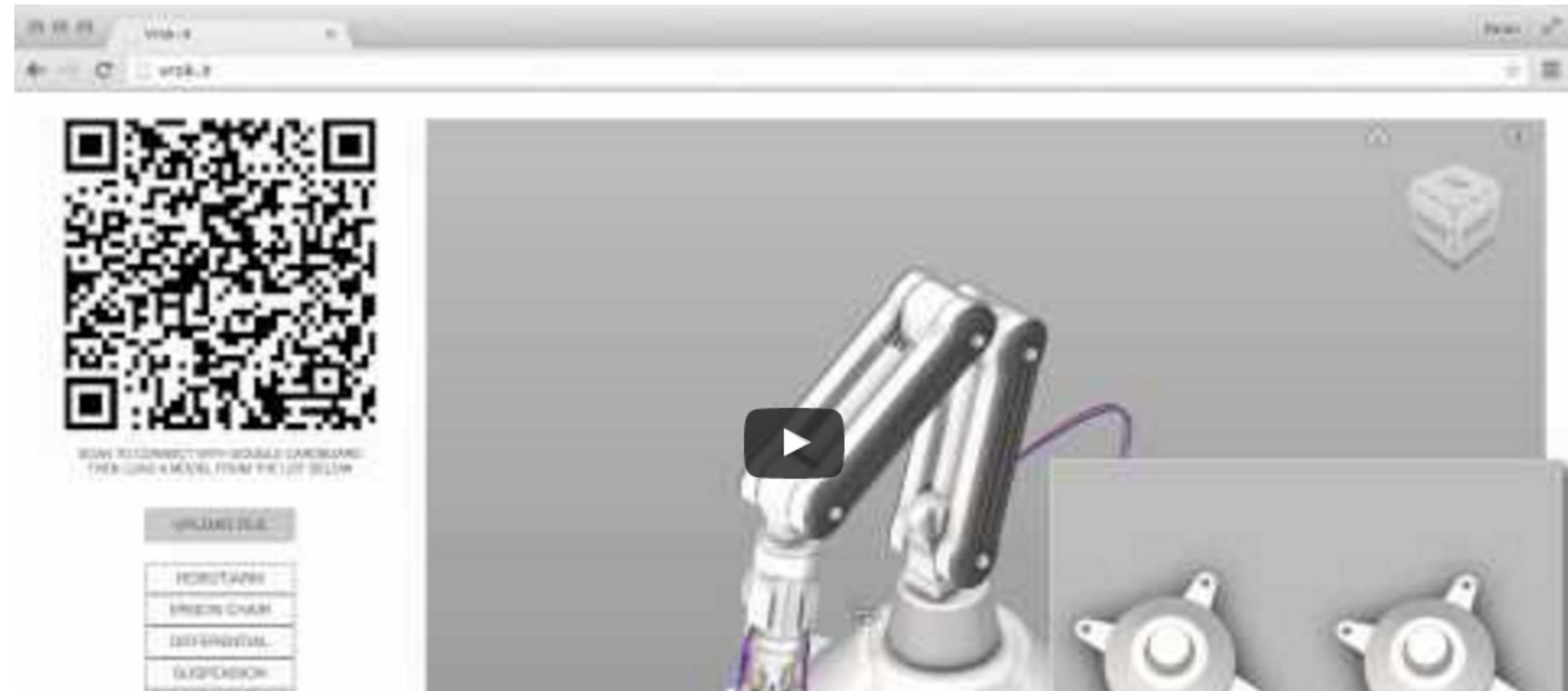
# Welcome to Vrok-it!

"Vrok" is a combination of *Virtual Reality Online Collaboration* and the verb *to grok*. Vrok-it allows multiple people to grok a 3D model in a way that simply wasn't possible before.

## Getting started

Click the QR code – or scan it from your phone – to launch a stereoscopic 3D viewer for [Google Cardboard\\*](#) connected to this session. The 3D models you load via this page – and operations you perform on them – will be visible to all connected viewers. You can upload your own models, but for best results keep these under 2MB in size.

Here's a video of Vrok-it in action showing both this master page and a connected client device:



[← Back to the Lab](#)

# VR Viewer

Build a shareable VR model that updates in real-time.



Flux Labs - Design Iterations in SketchUp using Virtual Reality

FLUX + FLUXLabs

## SketchUp in VR w/ Flux

— <https://labs.flux.io/flux-unity-viewer/>

[VIEW BUILDING IN VR](#)

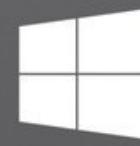
# Future Direction (Summary)



Daydream View

# Future Direction (Summary)





# Windows 10



# Future Direction (Summary)

Video Link:

- <https://www.microsoft.com/microsoft-hololens/en-us>

# Future Direction (Summary)

Get your  
Development Edition.

Developers can order up to five devices through the online store. Devices ship immediately to the US and Canada, and start shipping in late November to Australia, France, Germany, Ireland, New Zealand, and the United Kingdom.

\$3,000

[Buy now](#)



# Future Direction (Summary)



Video link:

- <https://www.google.com/get/cardboard/plastic/>

# Downloads



#AU2016



TOP

LIVE



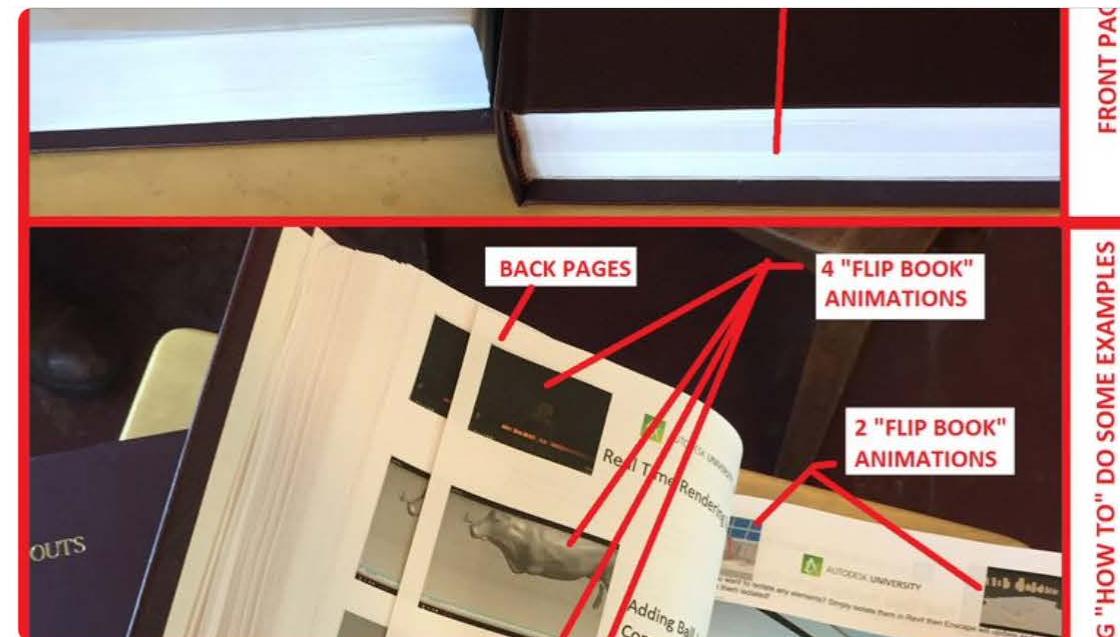
Following

**marcello sgambelluri** @marcellosgamb 1h

This Yr I am bringing very Special Extended Ed. Handouts 4 **#AU2016!**

Hardbound with animations! c pic + post 4 sample

[therewitcomplex.blogspot.com/2016/11/specia...](http://therewitcomplex.blogspot.com/2016/11/specia...)



4



13



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RAMY HANNA  
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AUTOCAD  
MATT MURPHY  
The Productivity Power of AutoCAD To...



AUTOCAD  
PAUL MUNFORD  
AutoCAD Tool Palettes Master Class (P...

# Thank you

Any  
questions





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