From Real to Digital and back to Physical

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Class summary

From photos to 3D — this hands-on lab will teach you how it is really done. We'll cover best practices for taking photos for photogrammetry in various types of environments. We will then get a deep dive in Autodesk® ReCap™ Photo, model preparation and postproduction in Project Memento and Meshmixer 2.0 and we'll cover the basic for creating a high quality visualizations in Maya.

Key learning objectives

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

- Take best possible photos for photogrammetry;
- Convert Photos into 3D models;
- How to 3D print models;
- Laser cut or CNC your models;
- Create an animation, turntable and basic renderings;
- Learn advanced modeling techniques;

Capturing devices – The new modeling tools

range sensors

laser scanning

scan to BIM

feature recognition

Reality Capture

point survey

Reality Modeling

photogrammetry

hybrid modeling

mesh healing

Reality Computing

survey control

augmented reality

measurement

time delta analysis

Reality Delivery

additive manufacturing

3d printing

Reality Analysis

volume calculation

reverse engineering

Reality Computing is about the many ways

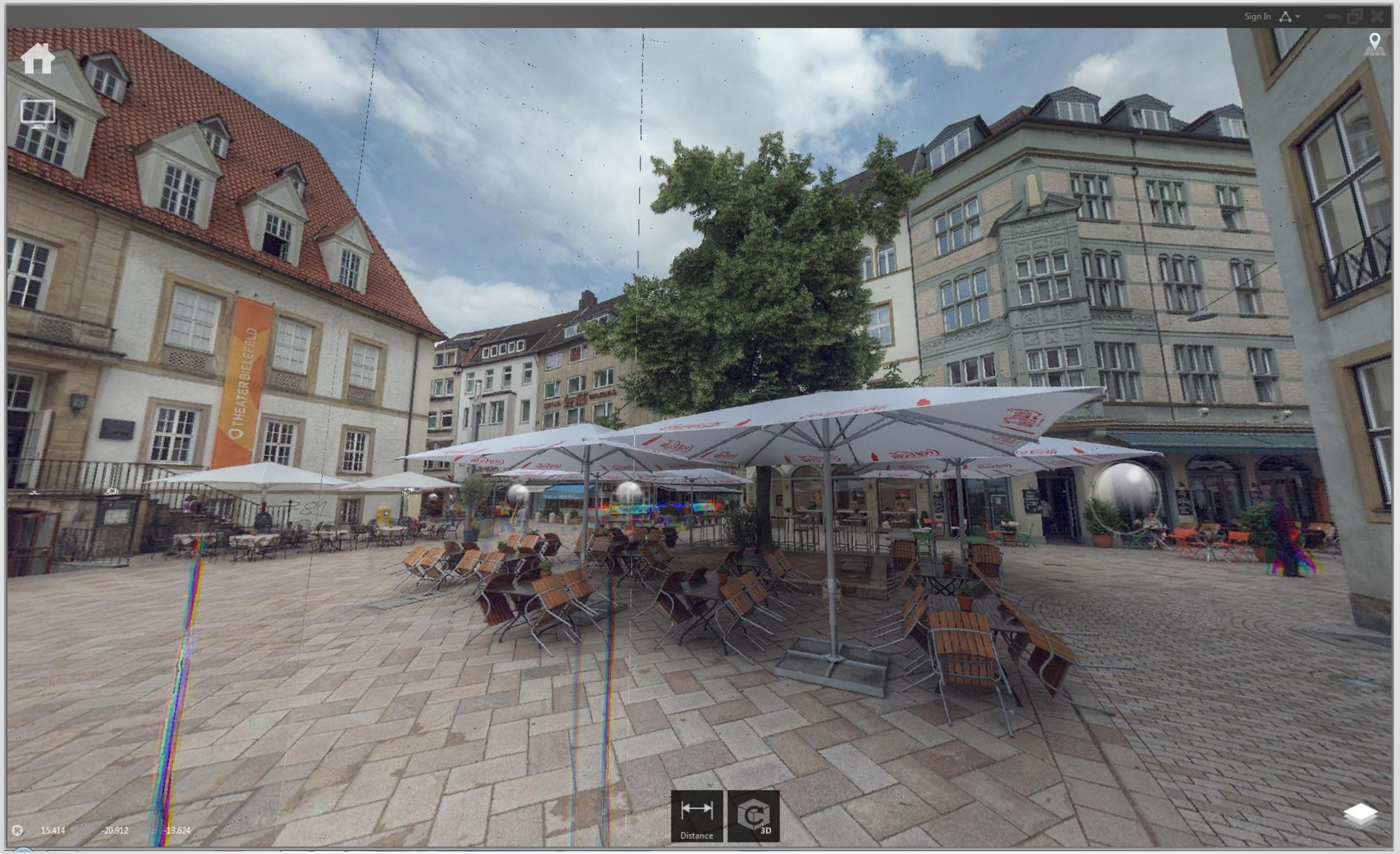
data is captured from the physical world;

put to use with digital tools for the creation of designs and new information;

and ultimately put to work back in the physical world.

Without ReCap modeling the reality is extremely hard

Today with Reality Computing



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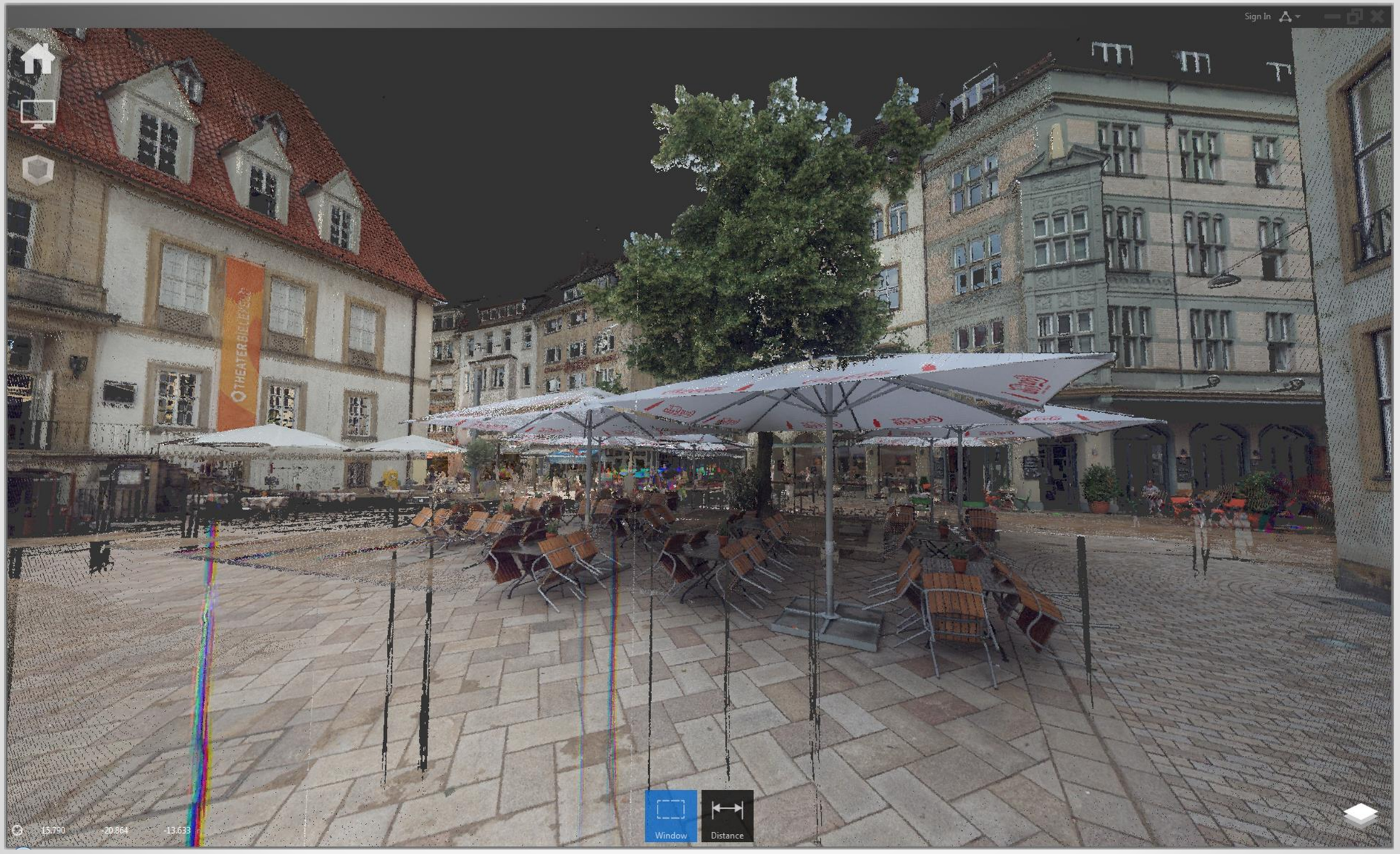

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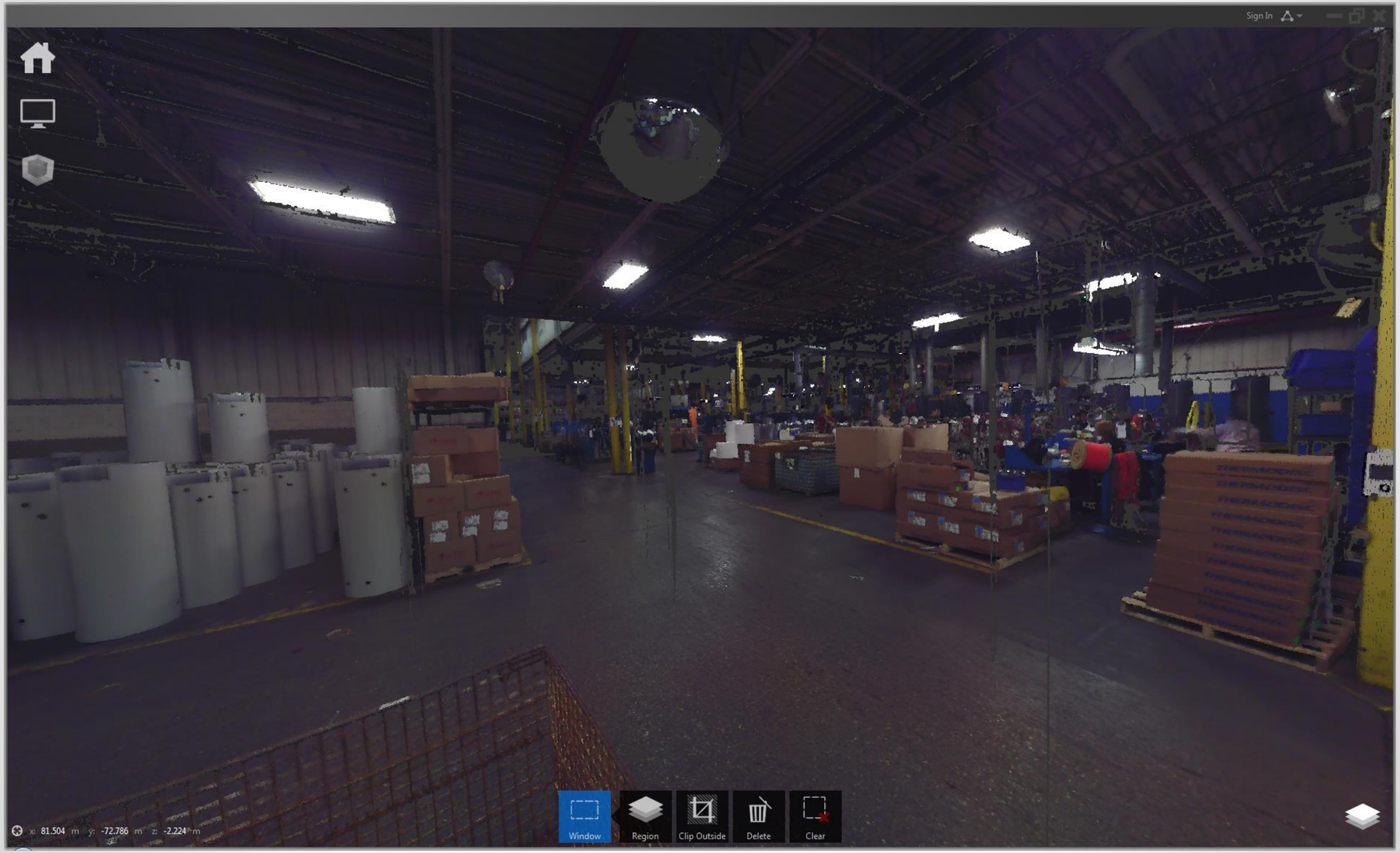

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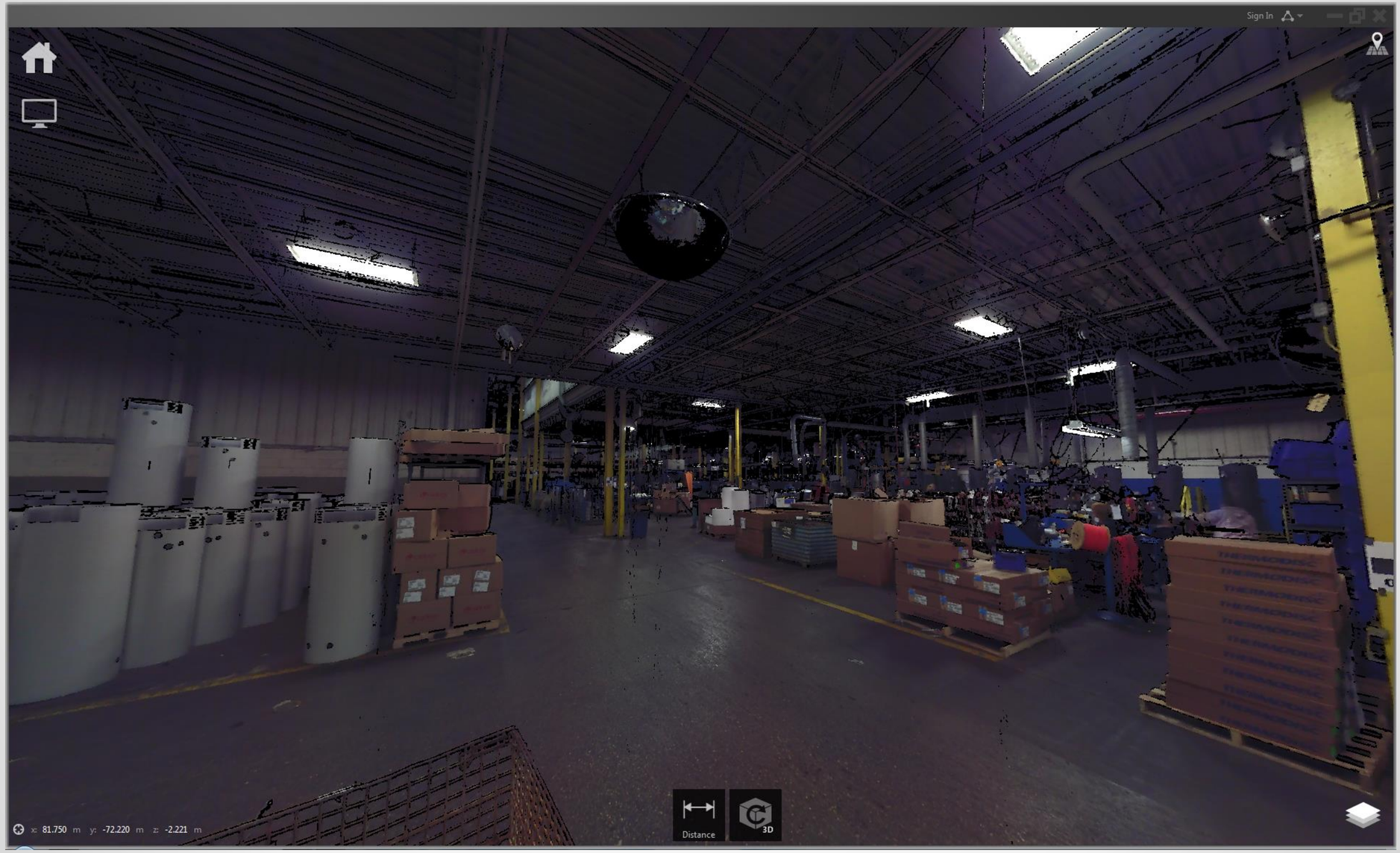

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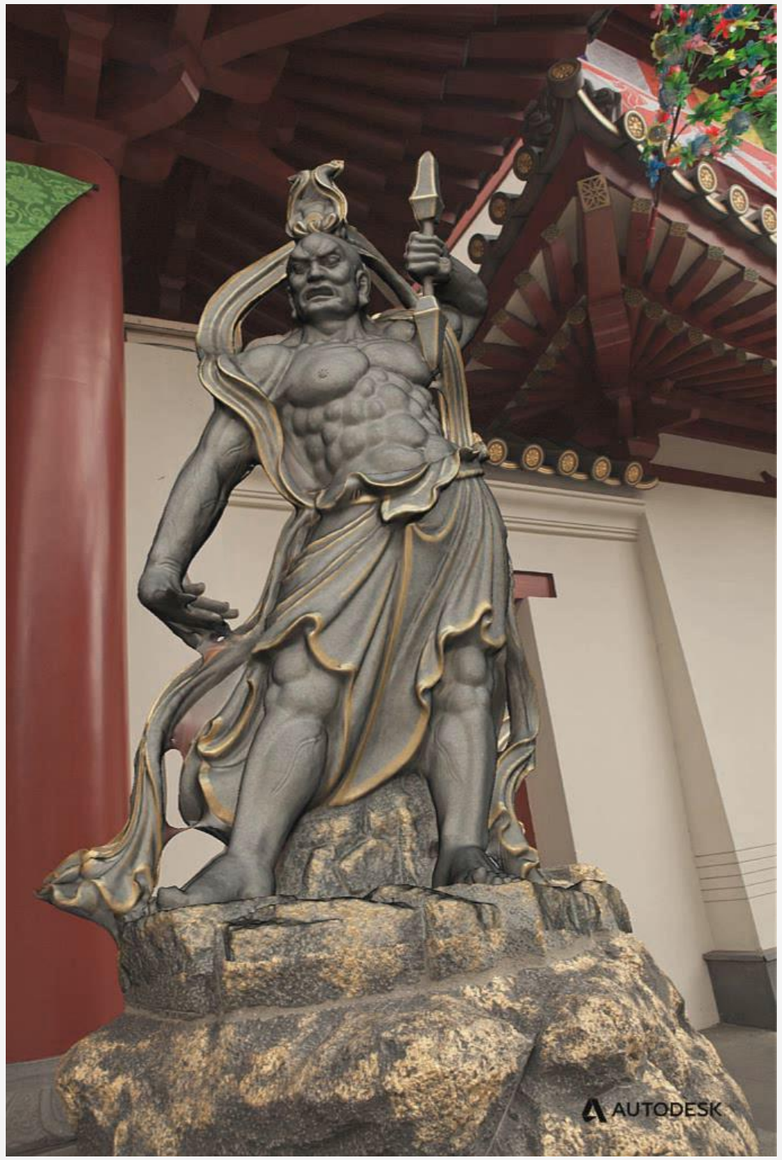


Step 1 – Taking the right photos

Follow these simple rules to get a high resolution model:

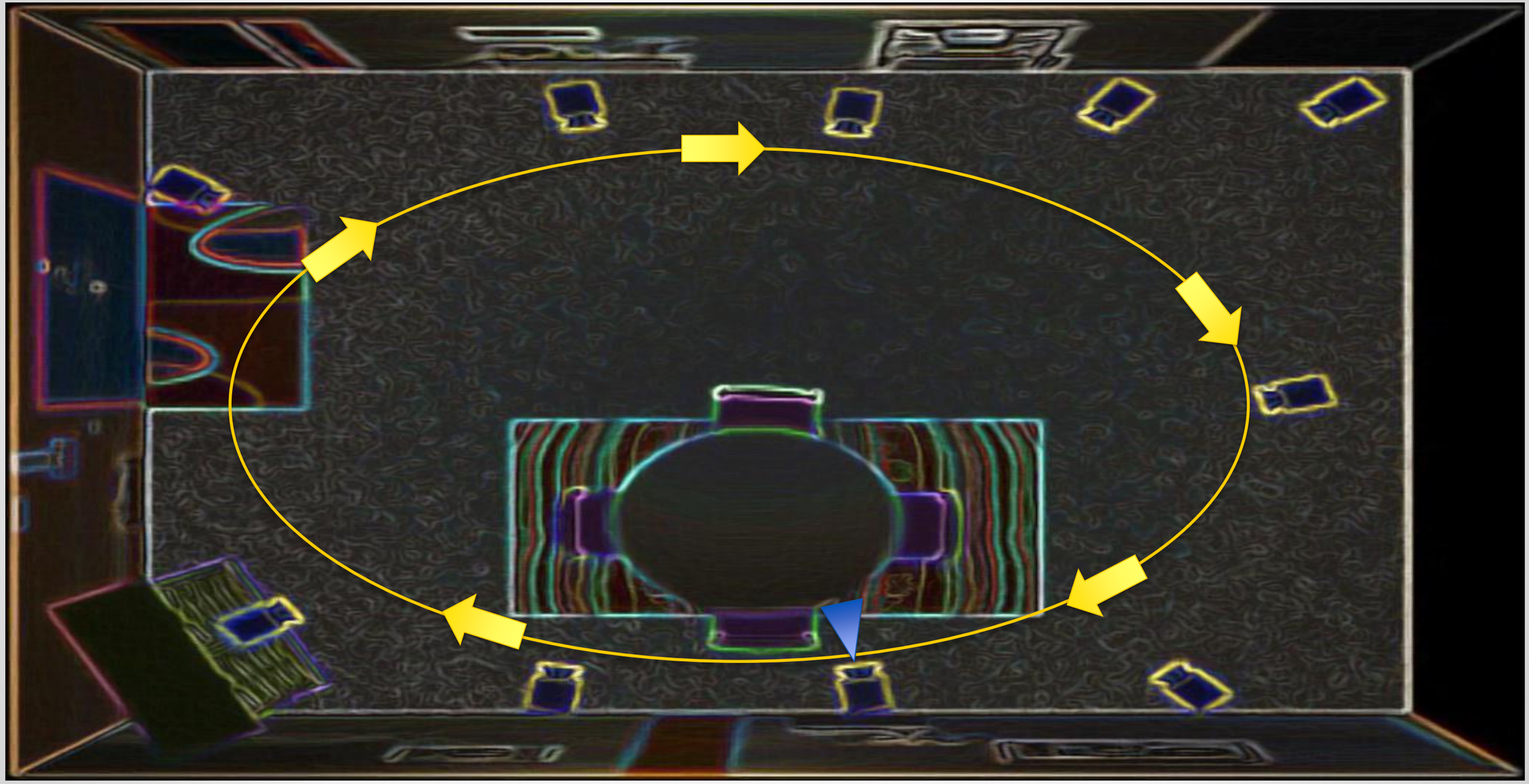
- Take sharp photos;
- Try to use ISO100 and the minimal aperture F3.5;
- Try to get good results only by adjusting the exposure;
- Continue to take overlapping photos without changing the settings between photos;
- Your photo is good when there are no dark areas and no over exposed surfaces;
- When zoomed-in, we want to see as much as details as possible;
- You'll need at least 3 photos from any detail that you want a 3D reconstruction;
- Try to capture the complete object and as much in the photo as possible;
- Try to use tripod;
- Use defuse light;

Step 1 – Taking the right photos

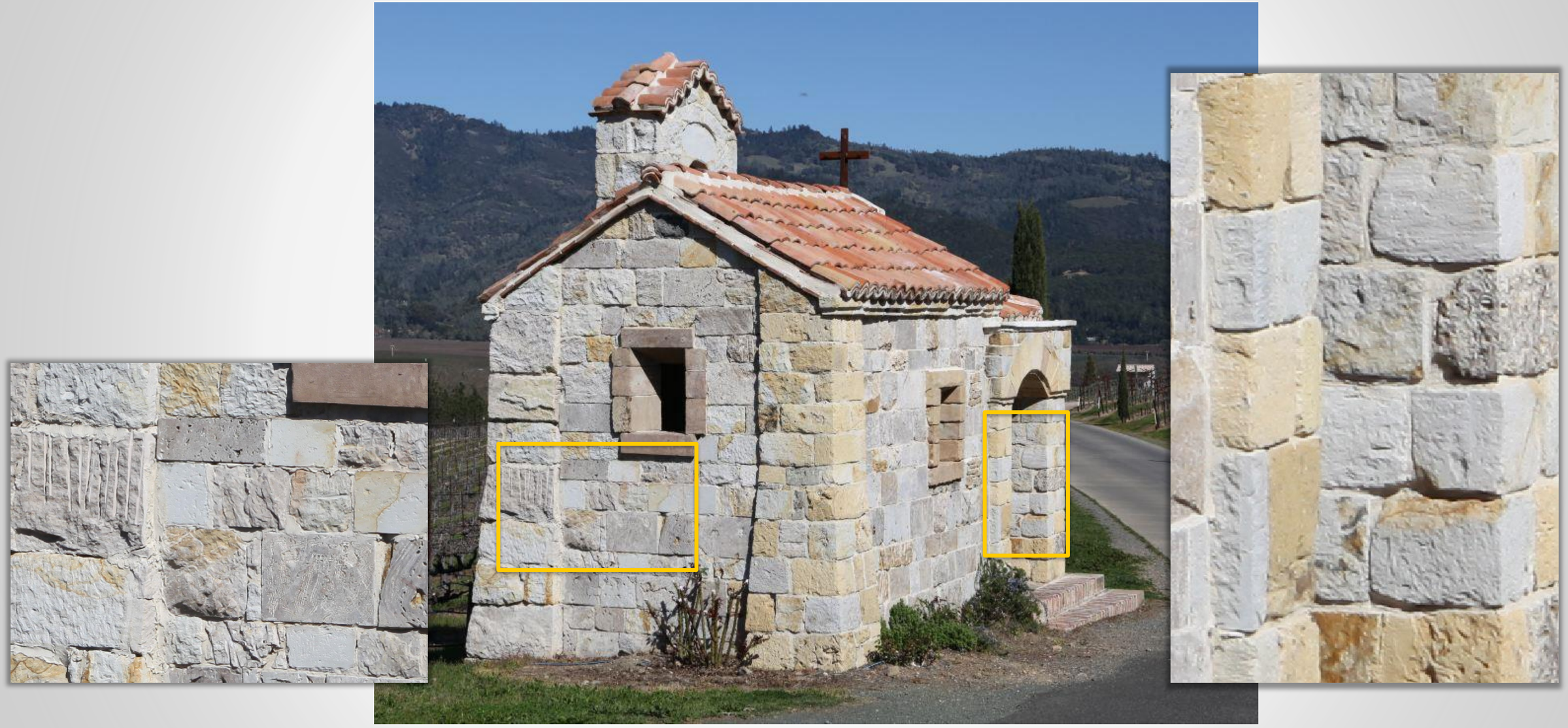
What to avoid:

- Direct sunlight;
- Shadows;
- Blurry photos;
- Moving objects;
- Changing camera settings between photos;
- Shining objects;
- Don’t take photos from the same location;
- Don’t crop your photos;

Step 1 – Taking the right photos



Good examples



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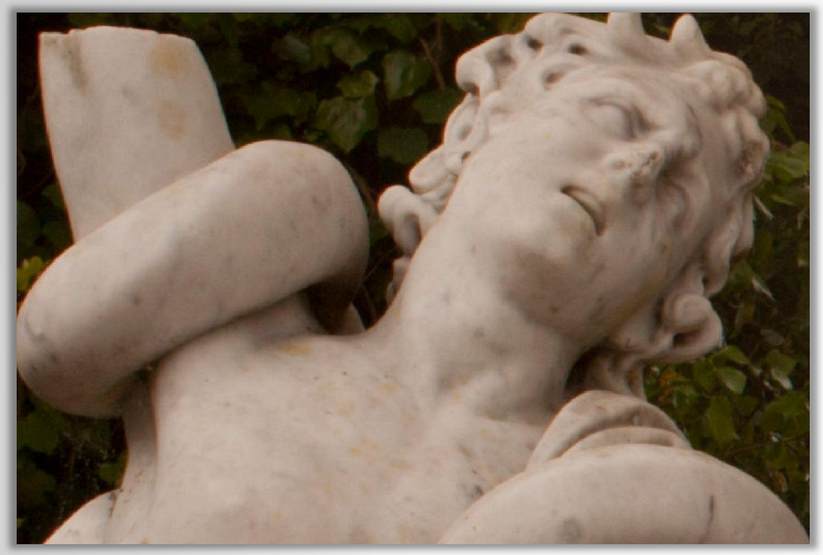

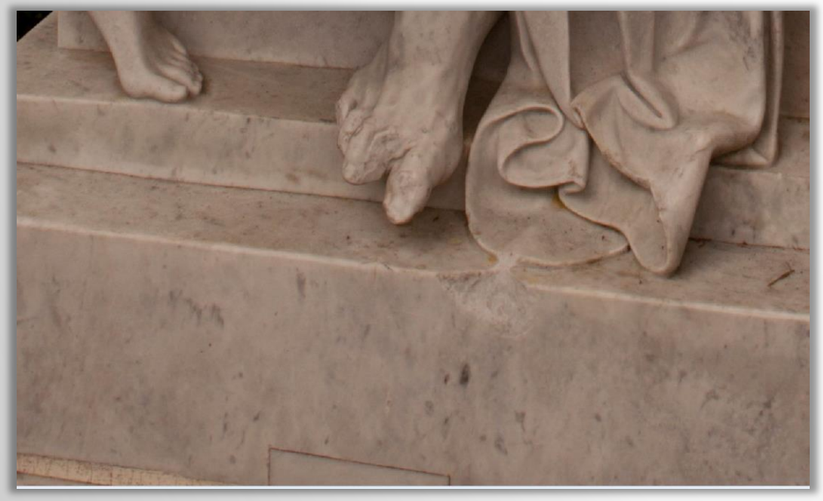

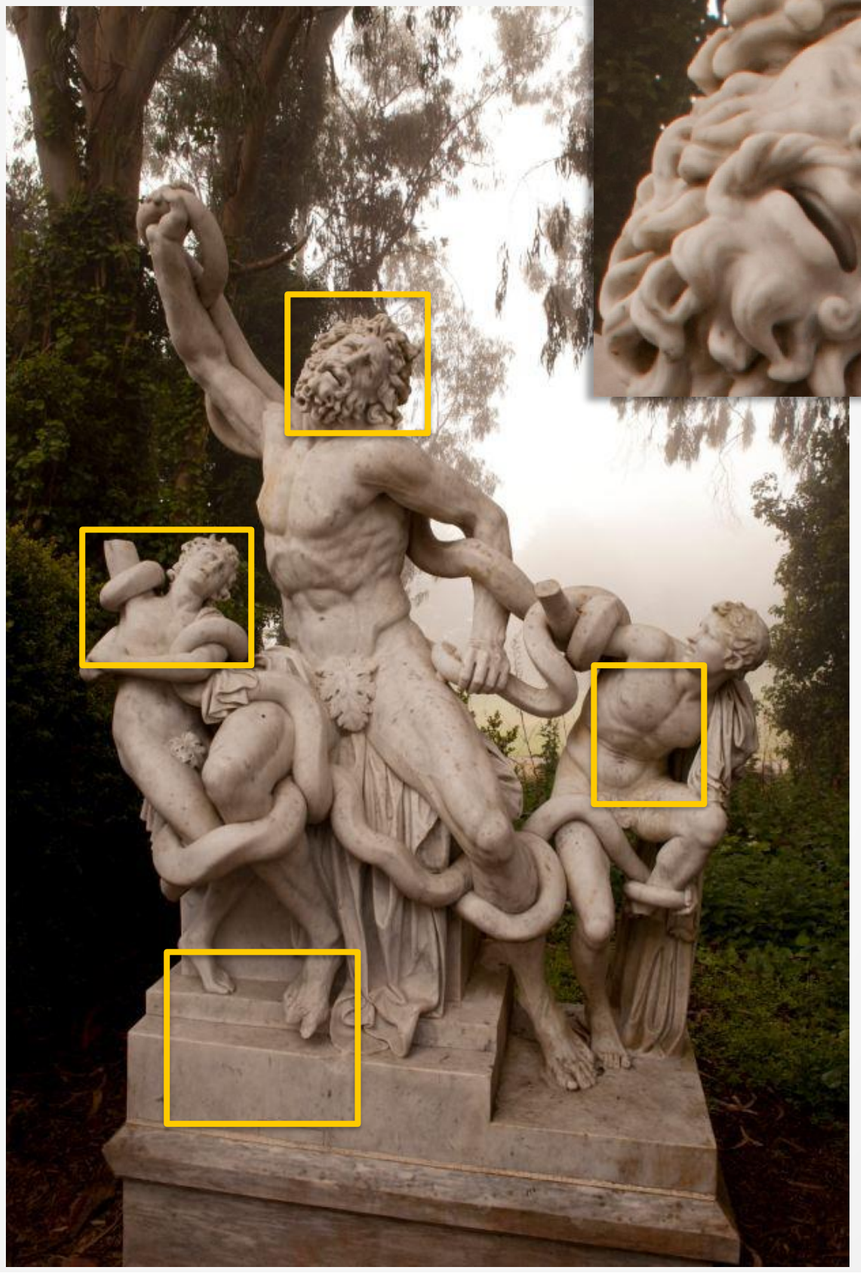

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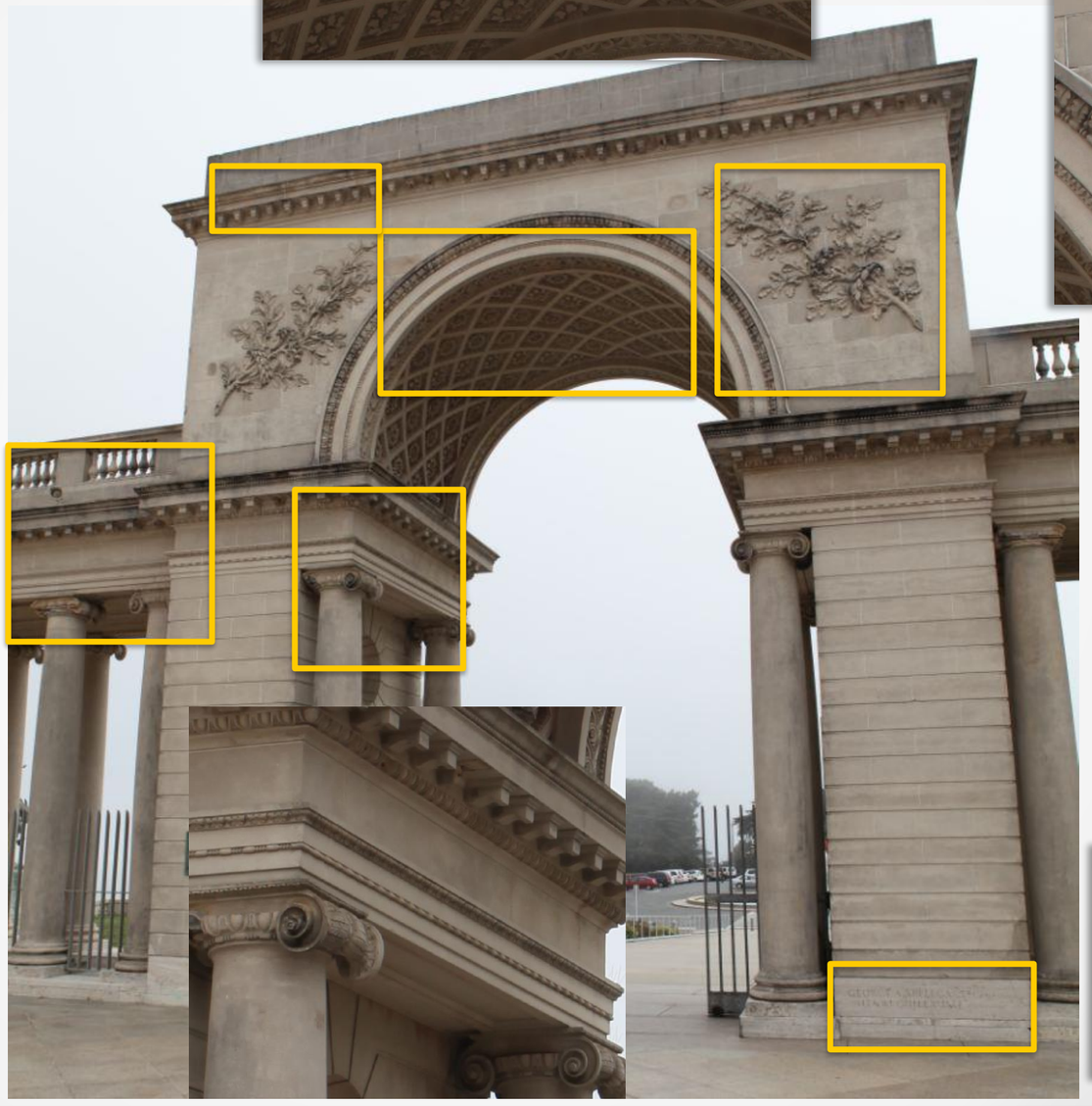

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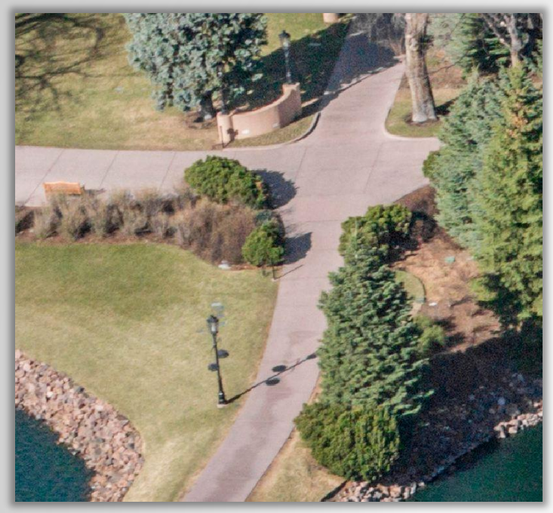

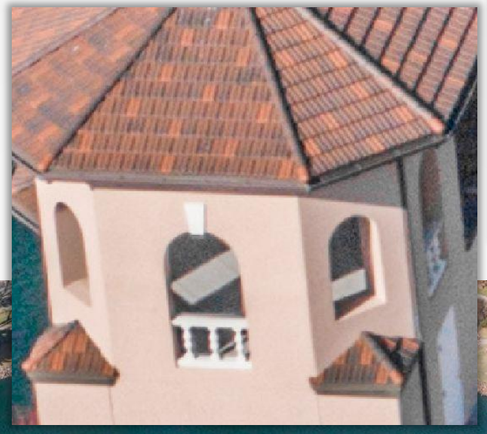

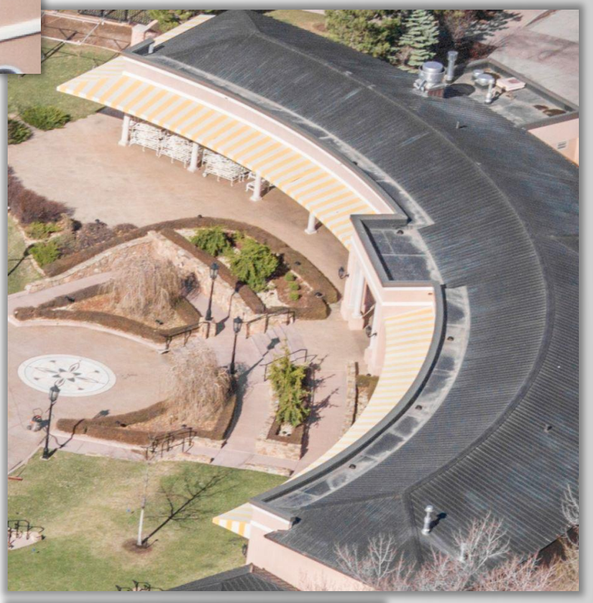

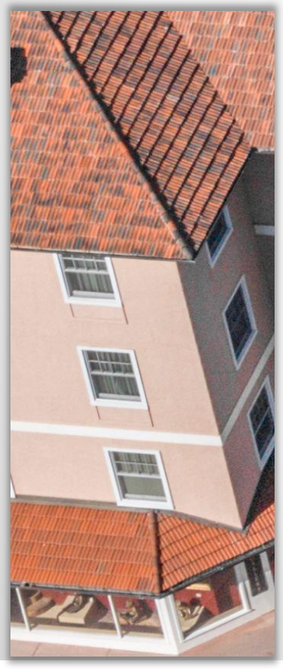

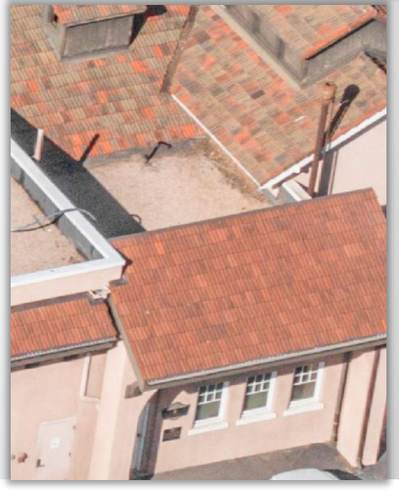

Step 2: using ReCap 360

What do you need:

- Internet connection;
- Autodesk account;
- And your photos ready;

Step 2: using ReCap 360

http://recap.autodesk.com/

Step 2: using ReCap 360

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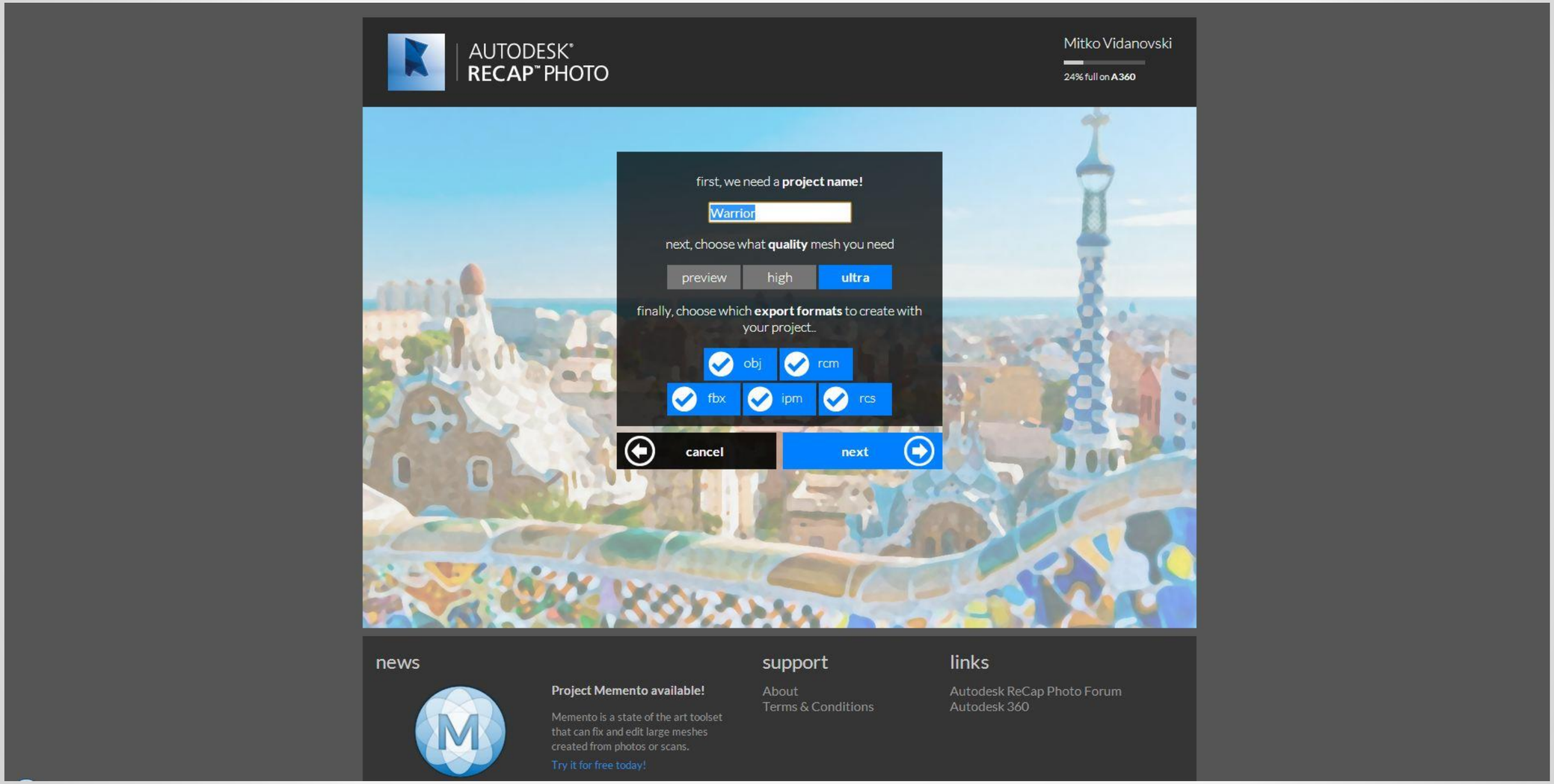

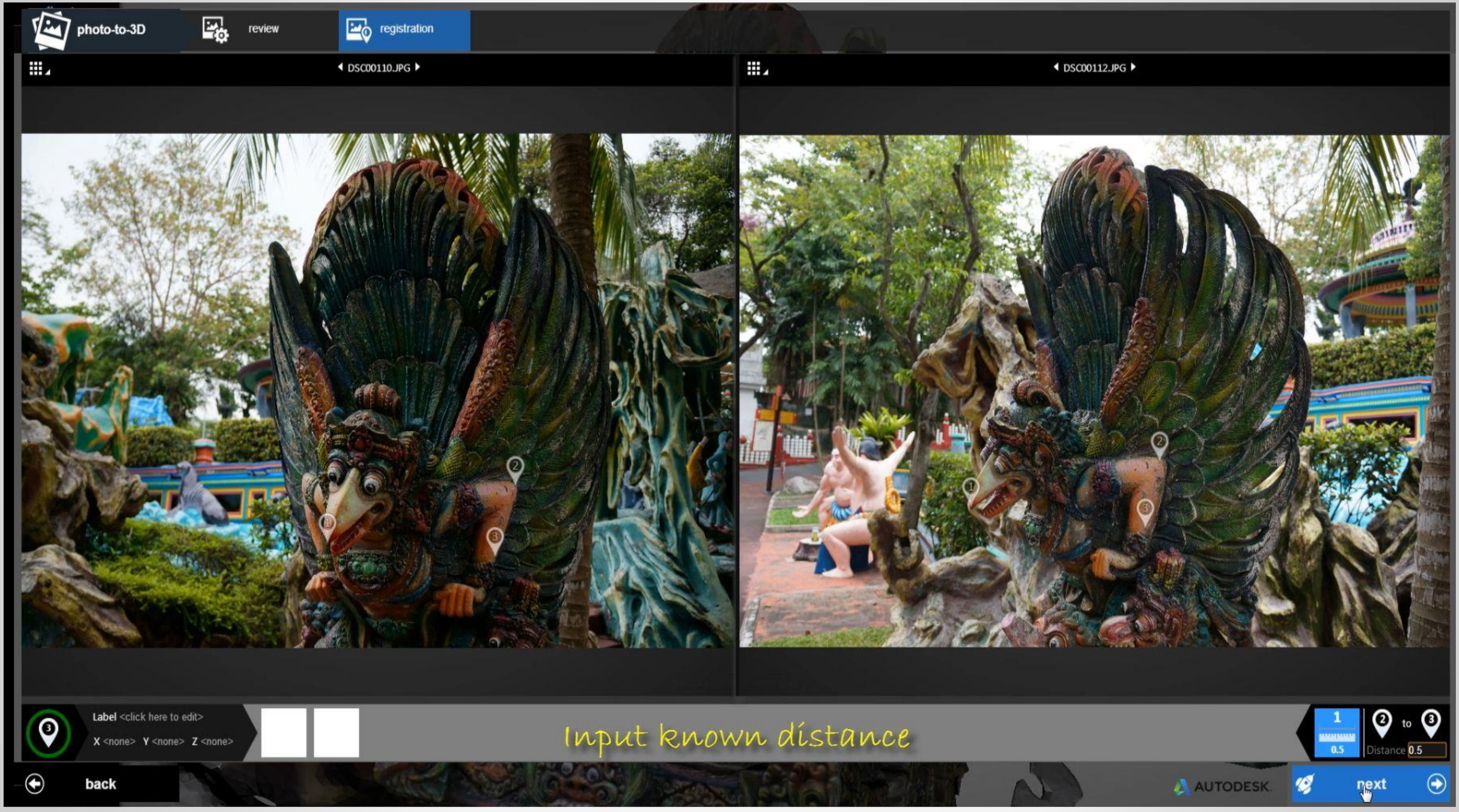
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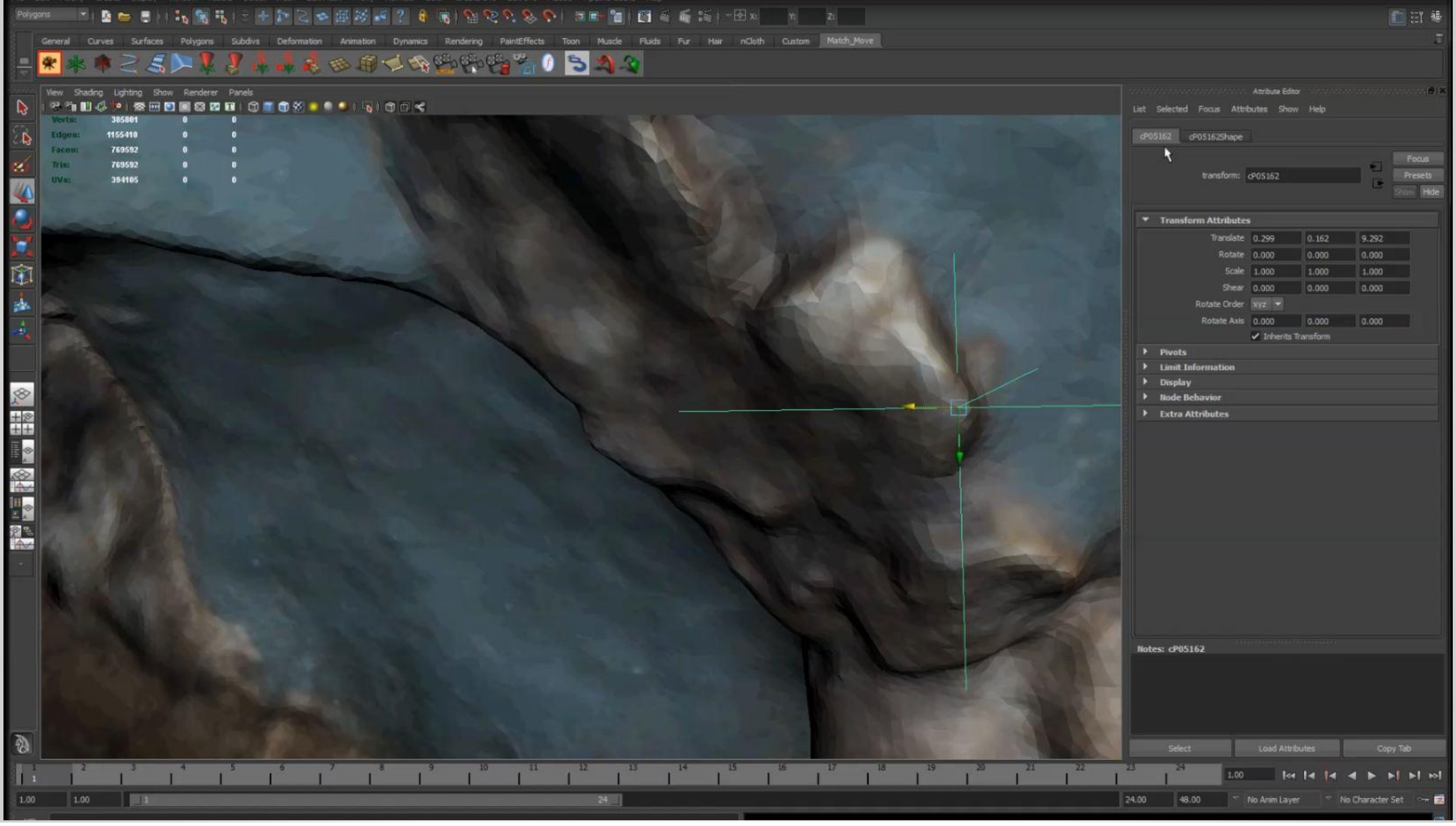
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