

2D to 3D

Conversions

Using the LeiaPix
on-line 3D Converter

By George Themelis
NSA - 2023

2D to 3D Conversions have a long history

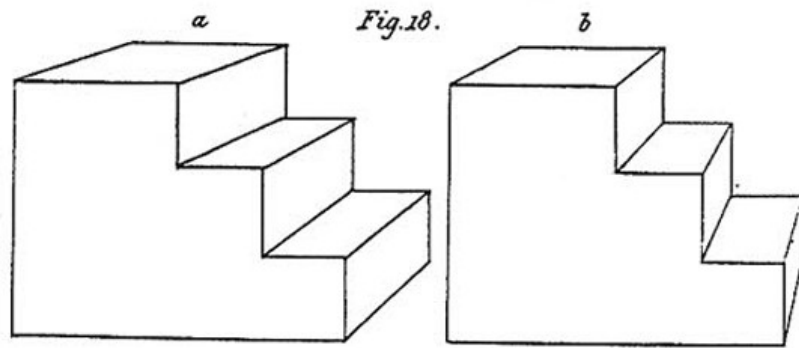


Fig. 18.

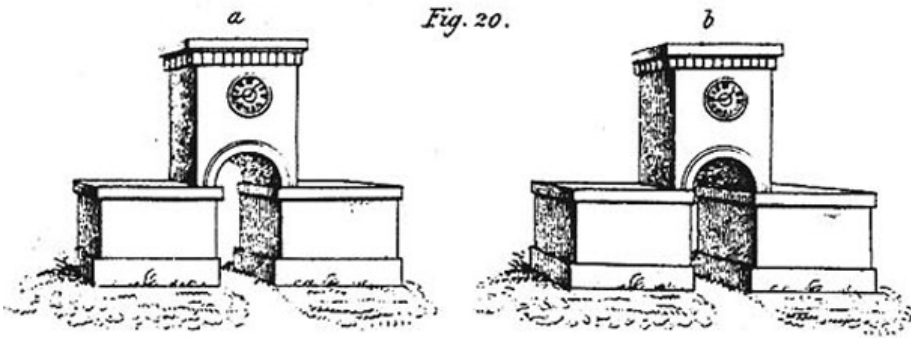
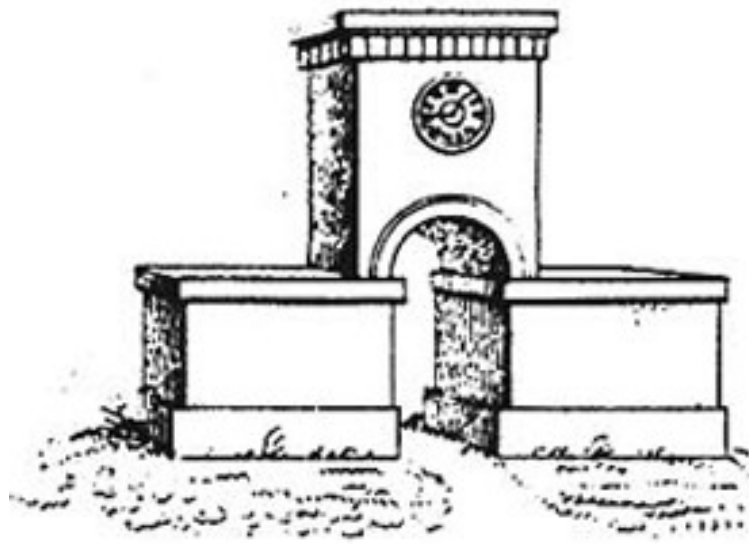


Fig. 20.



Wheatstone (1838)

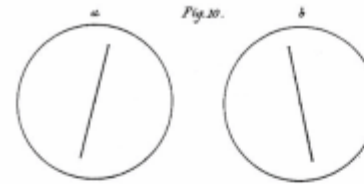


Fig. 21.

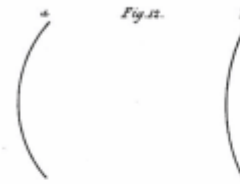


Fig. 22.

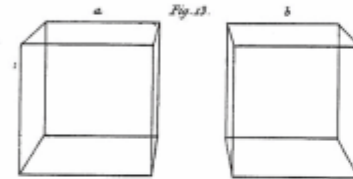


Fig. 23.

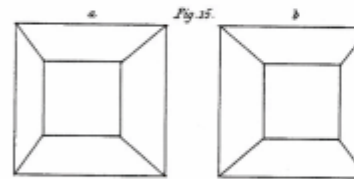


Fig. 25.

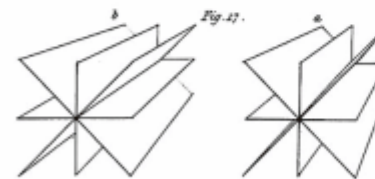


Fig. 27.

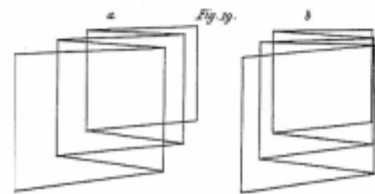


Fig. 29.

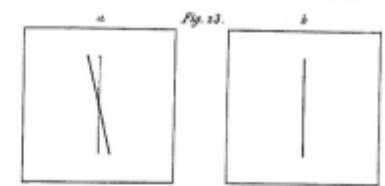


Fig. 23.



Fig. 22.

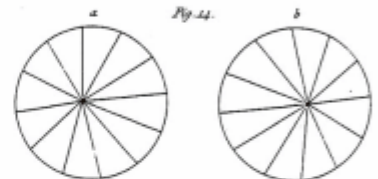


Fig. 24.

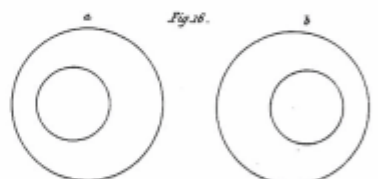


Fig. 26.

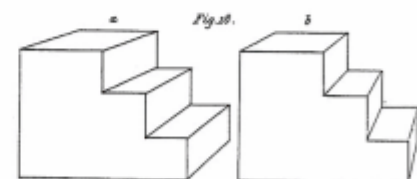


Fig. 28.

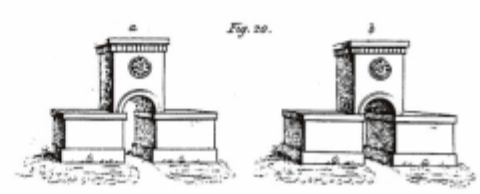


Fig. 20.

Phil. Trans. MDCCCXXXVIII. Plate XL. p. 37.

Computers made the conversion process easier



Several NSA Presentations on 2D to 3D Conversions:

- Dan Shelley
- Jim Long
- Gene Mitofsky
- Jim McManus

Mastering 2D to 3D Conversion



*How to Convert Your Priceless
2D Family Heirloom Photos to
Stunning 3D Stereo Images*

*Learn all the Secrets to Making a Perfect
3D Conversion of any Image*

*by
Michael Beech*



My first serious encounter with photographic images converted to 3D was when I attended the **2011 NSA convention**, in Loveland, Colorado

John Hart showed a 3D program from a 1985 safari in Africa, that he photographed in 2D.

He had his best images converted to 3D by **William3D**





John Hart (1985) Conversion by William3D



John Hart (1985) Conversion by William3D



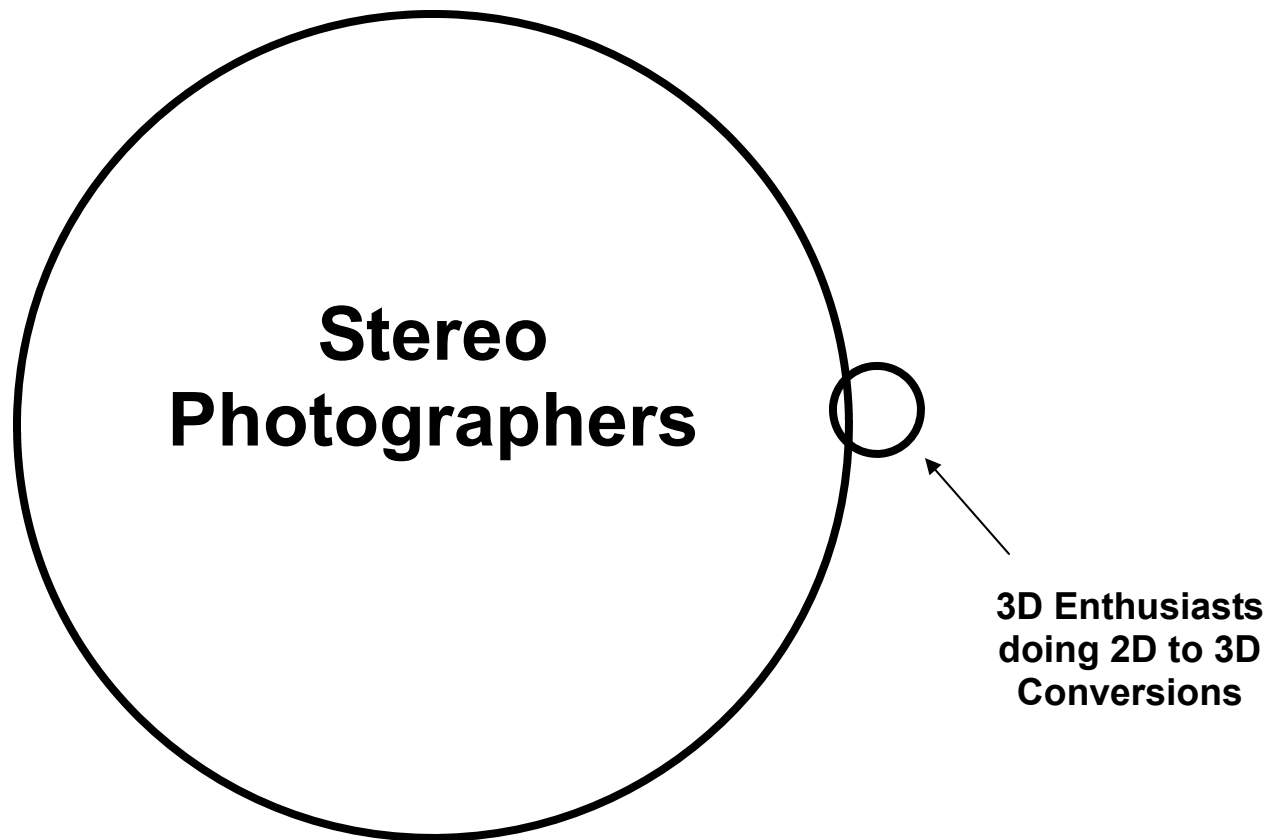
John Hart (1985) Conversion by William3D



John Hart (1985) Conversion by William3D

Next 10 Years?

Crickets



2021 - LeiaPix 3D Converter



National Stereoscopic Association



VR Nima · Oct 7, 2021 · 🌐

Hey everyone! Leia has just released a new tool that let's you convert ANY of your 2D images into a 3D image! It lets you also edit the generated depth map.

You can then export the converted image as a Lightfield Animation in MP4 or GIF format, or export it in Leia Image Format for viewing on RED Hydrogen One or Leia Lume Pad.

And it's totally free! I hope you all like it!



leiainc.com

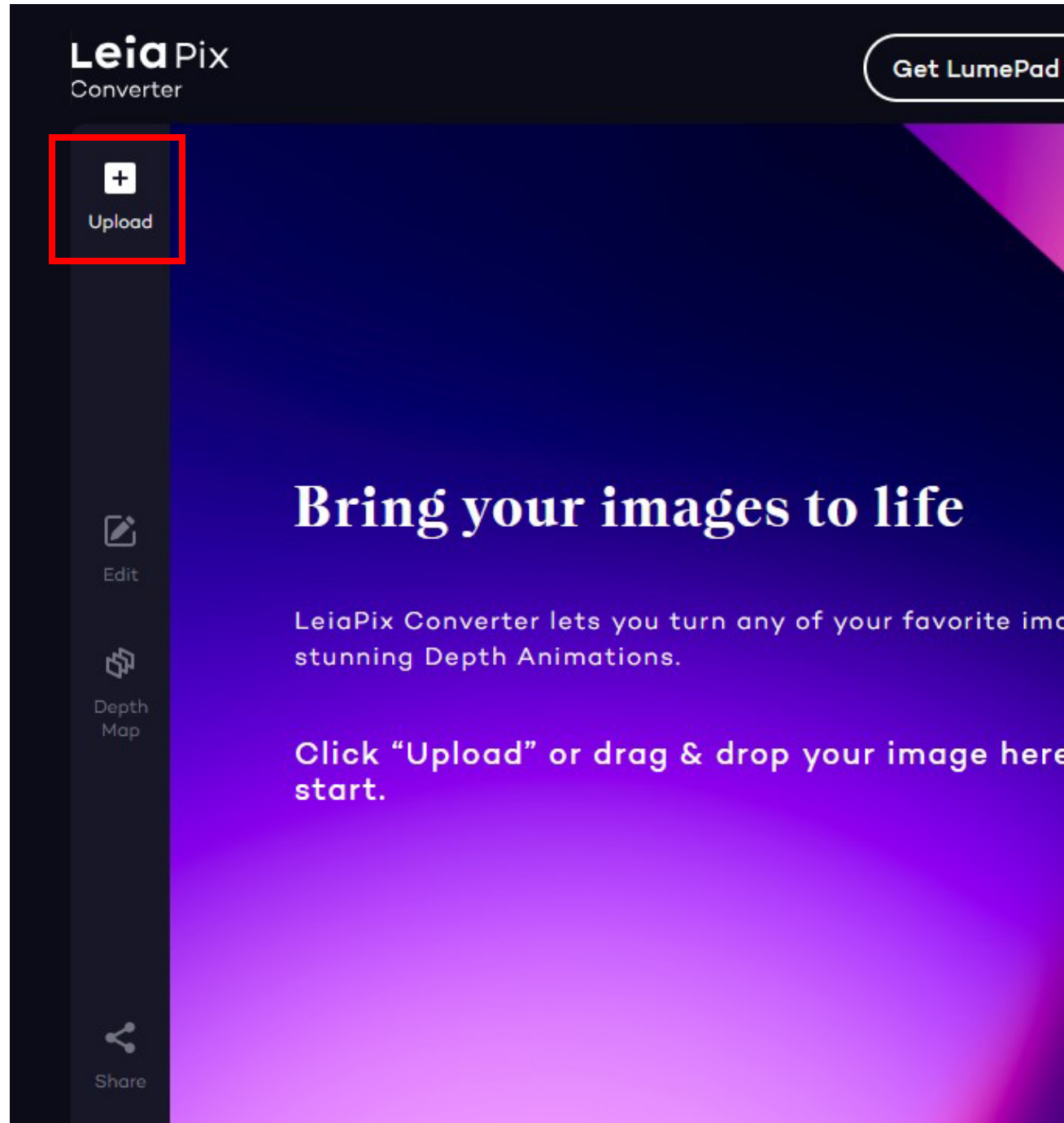
**Convert 2D to 3D from your Web Browser with
LeiaPix Converter**

LeiaPix 3D Converter

- Google: LeiaPix Converter

[https://
convert.leiapix.com/](https://convert.leiapix.com/)

- Create an account
- Upload or drop an image





Upload



Animation Length



Animation Style



Amount of Motion



Focus Point



Edge Dilation



Advanced Editor



Edit



Depth
Map



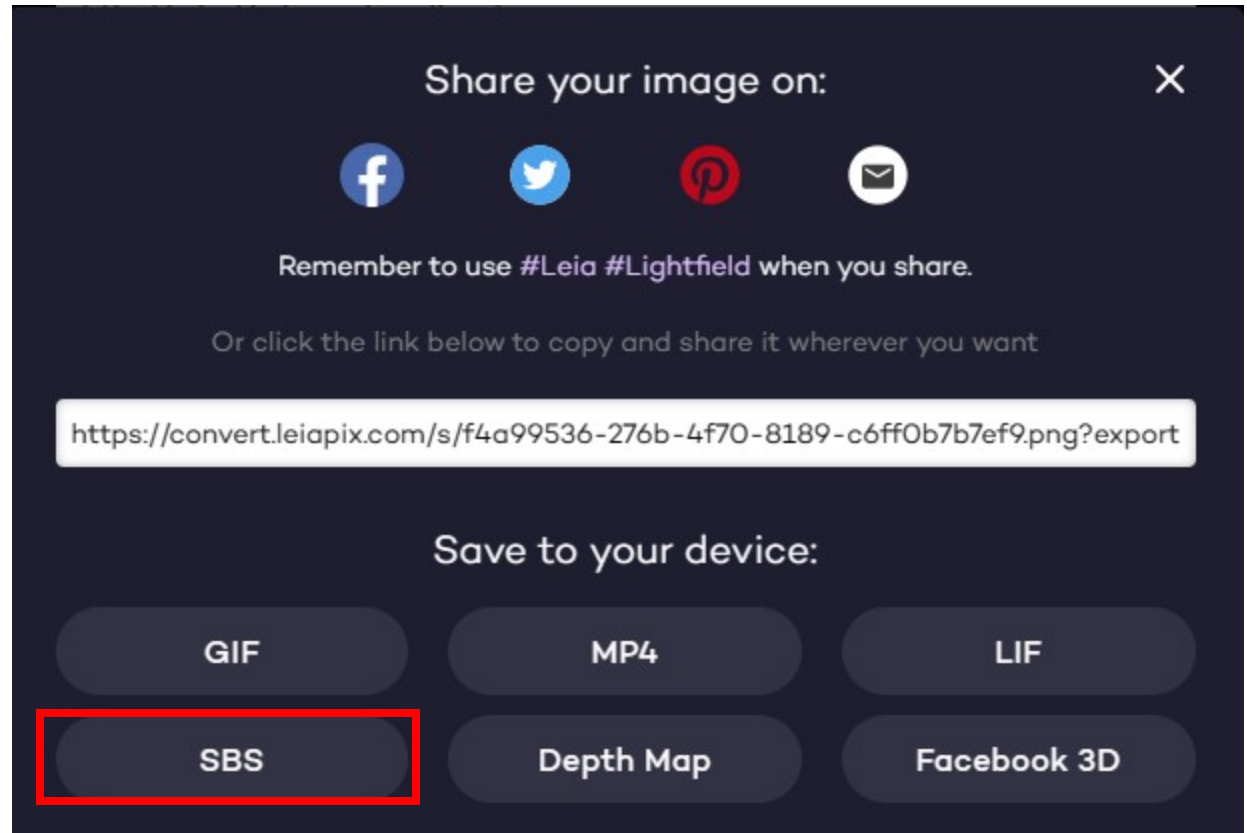
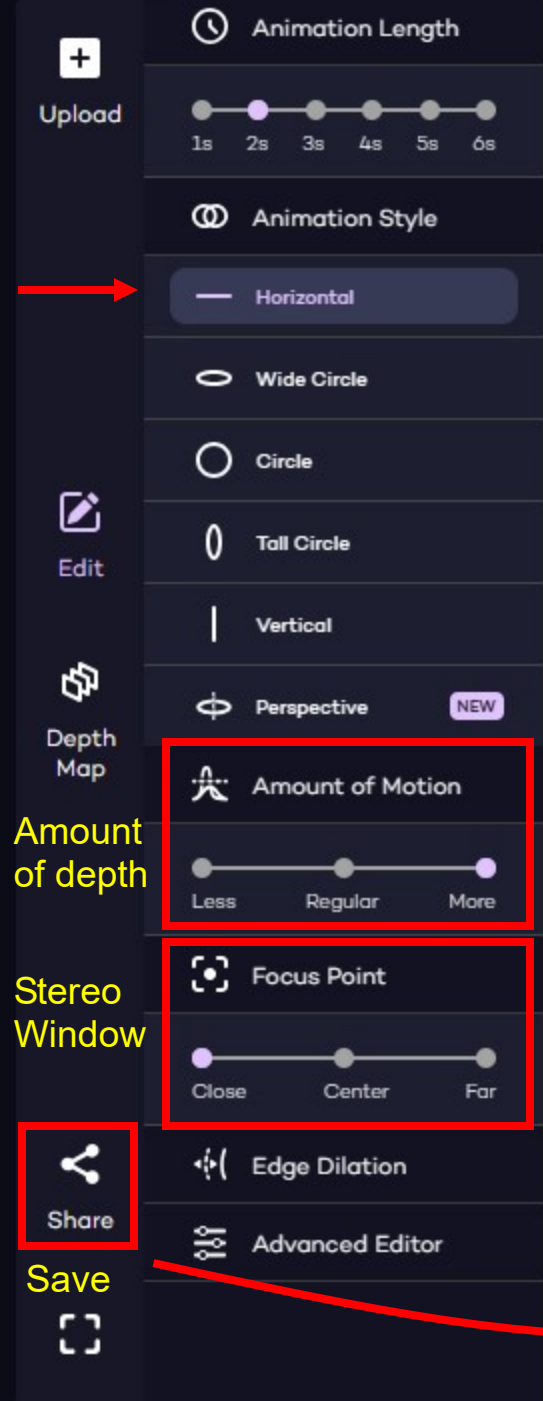
Share



You see an animation



LeiaPix 3D Converter



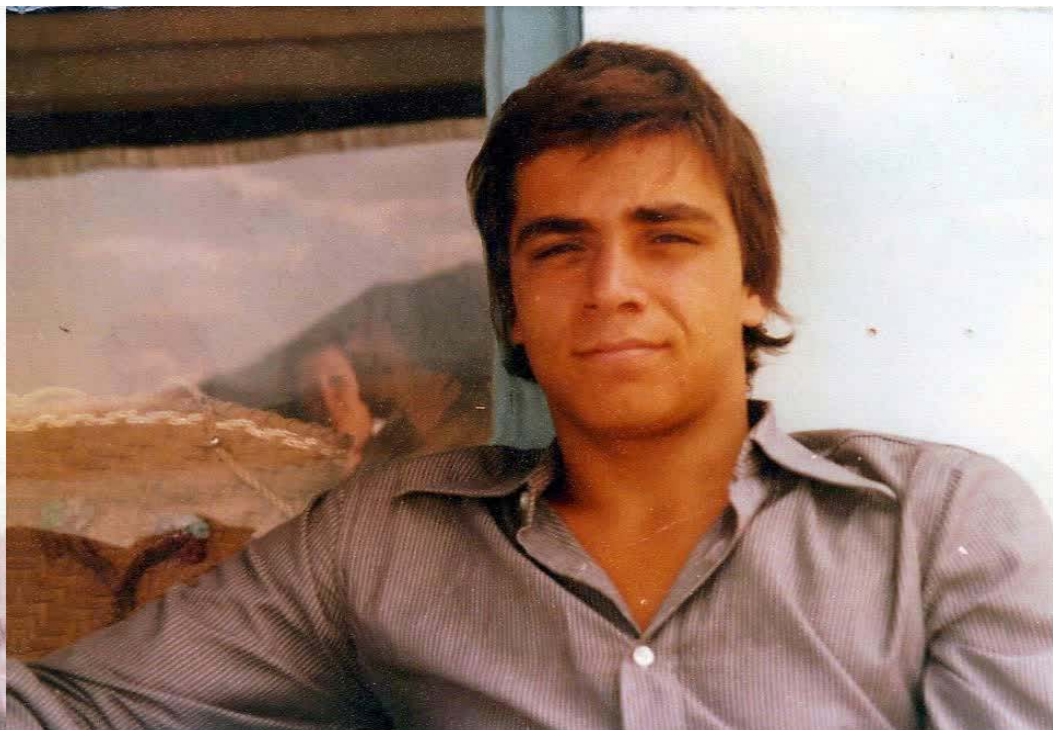
Types of 2D to 3D Conversions **People Do**

- **Pictures that a person has only taken in 2D**
- **Paintings, Art, Abstract / AI Pictures**
- **Pictures that others have taken in 2D**
- **Pictures taken in 3D**

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George at 17



John Waldsmith & John Bueche at Ohio 3D Meeting



Rick Adams & George Themelis (2023)



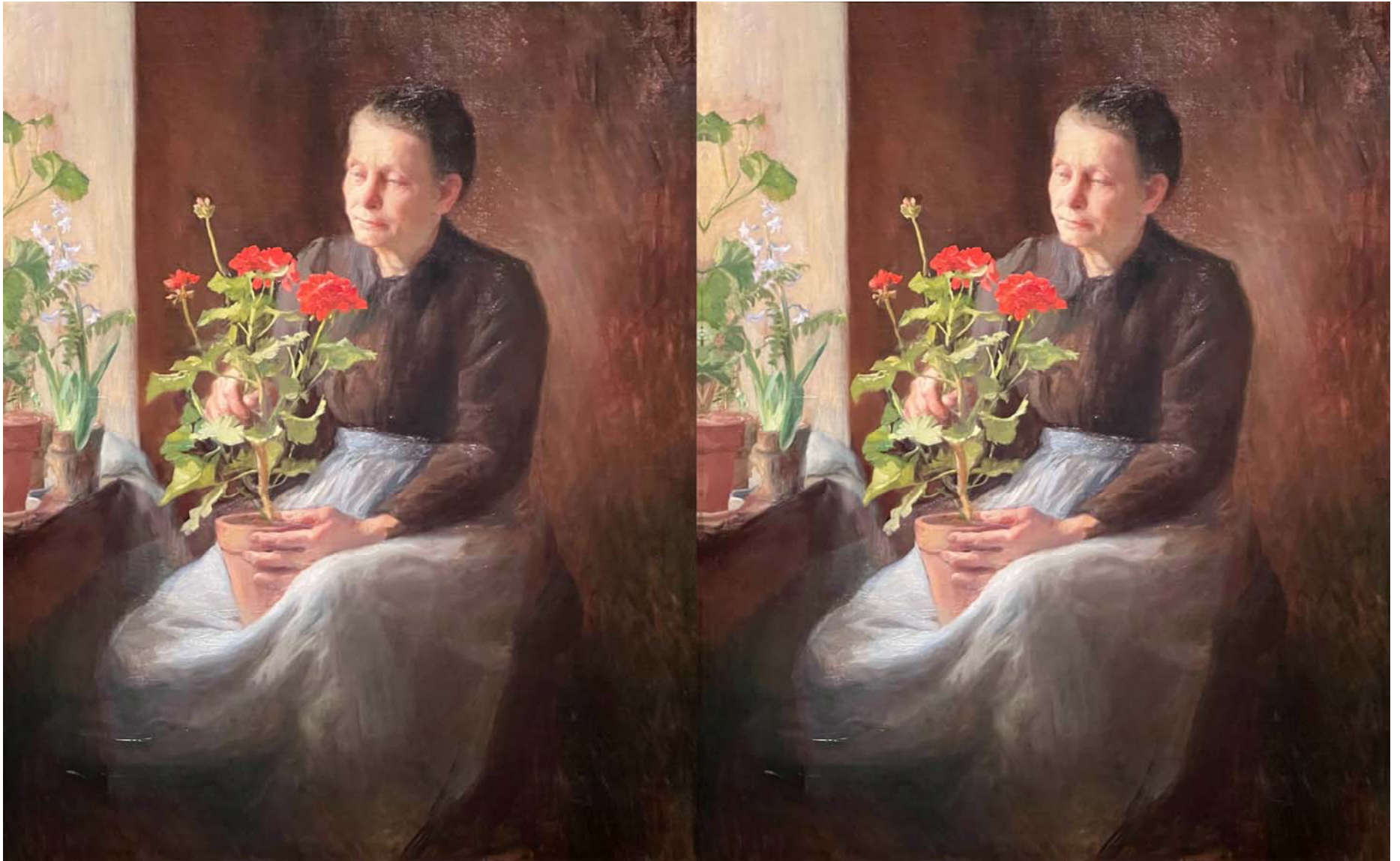
Lea Themelis & Fred Bedsworth @ Meteora Greece (2022)



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“Woman with a Geranium” by Caroline Lord





Carl Bromwich (Facebook)



Carl Bromwich (Facebook)



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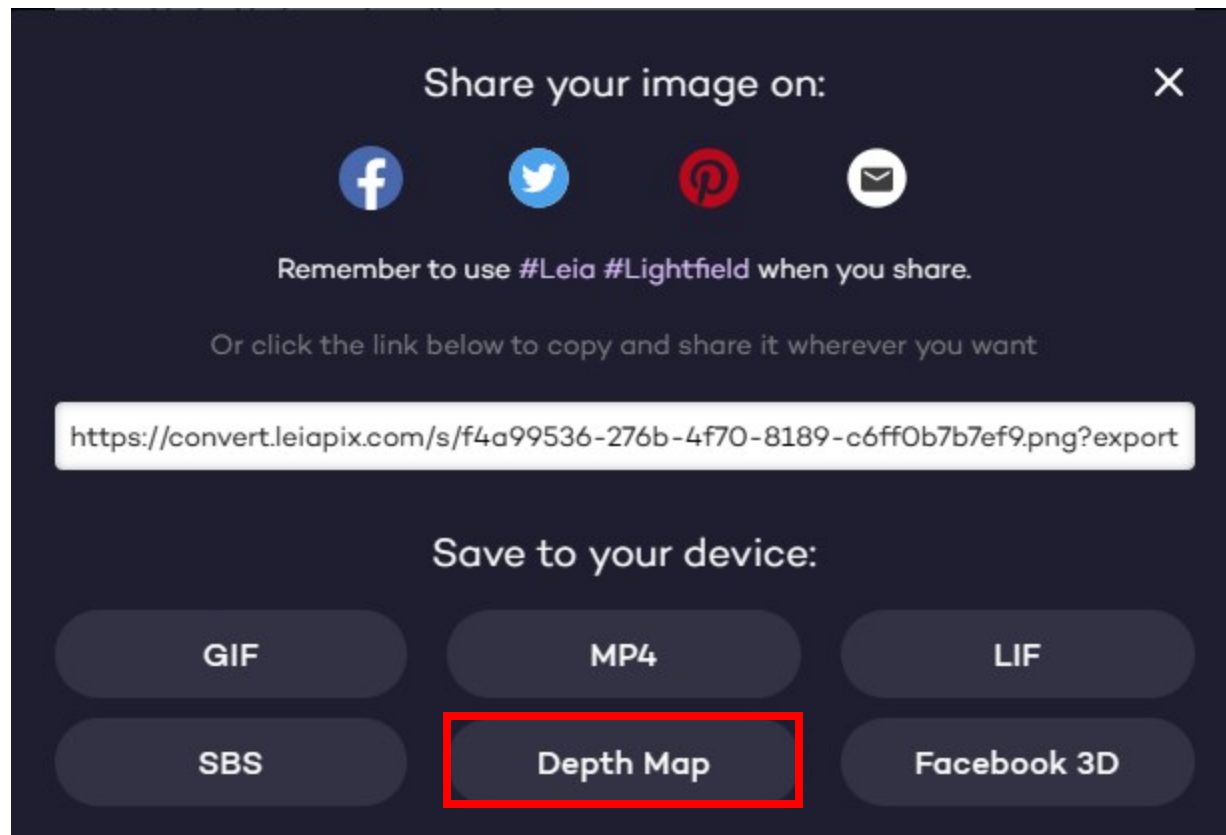
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- **Pictures taken in 3D**
 - ◆ **Curiosity**
 - ◆ **Flaws in the 3D**

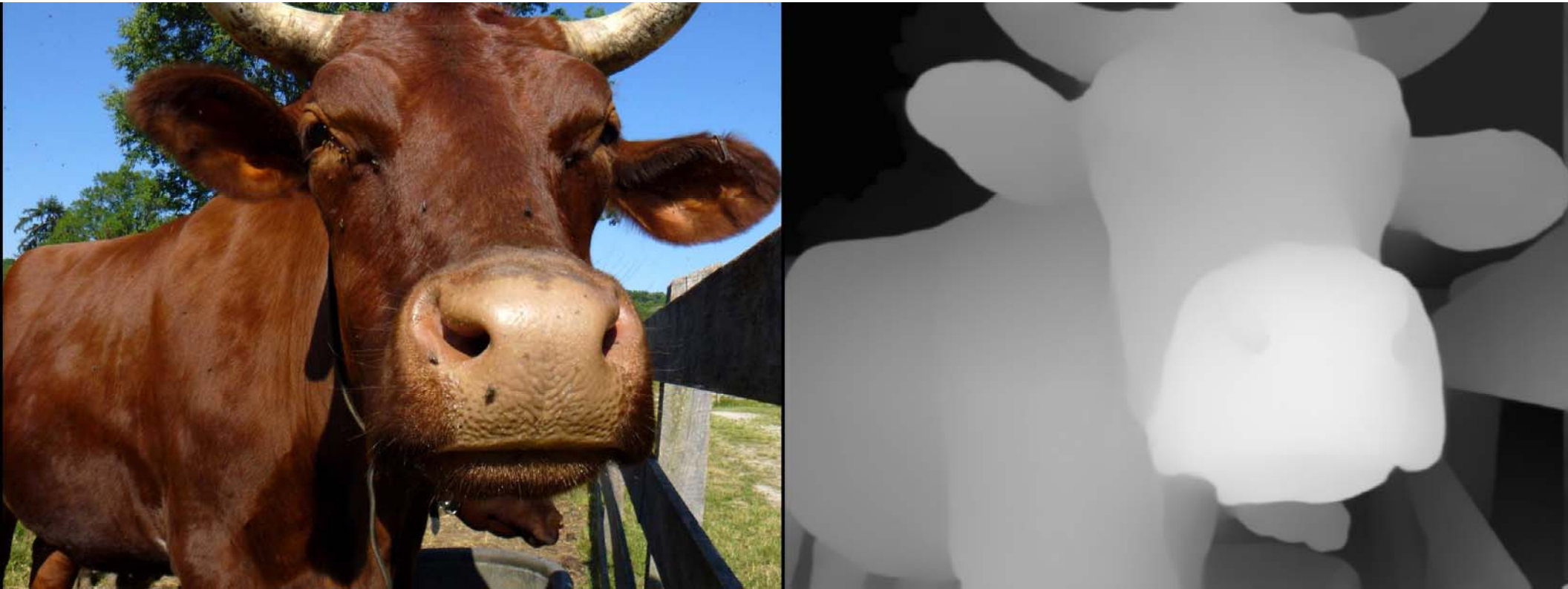


Top: Original, Bottom: Converted

The Next Step



Depth Maps



- **Depth map** is a **graphical representation** of the **depth** (distance of object from the camera)
- **Grayscale representation**: Objects closer are brighter, far away are darker
- One can **generate a depth map from a 3D pair**
- With a 2D image and a depth map one can **recreate a 3D image** (with various amounts of depth)
- **Depth maps** can be **edited**

Man
vs.
Machine



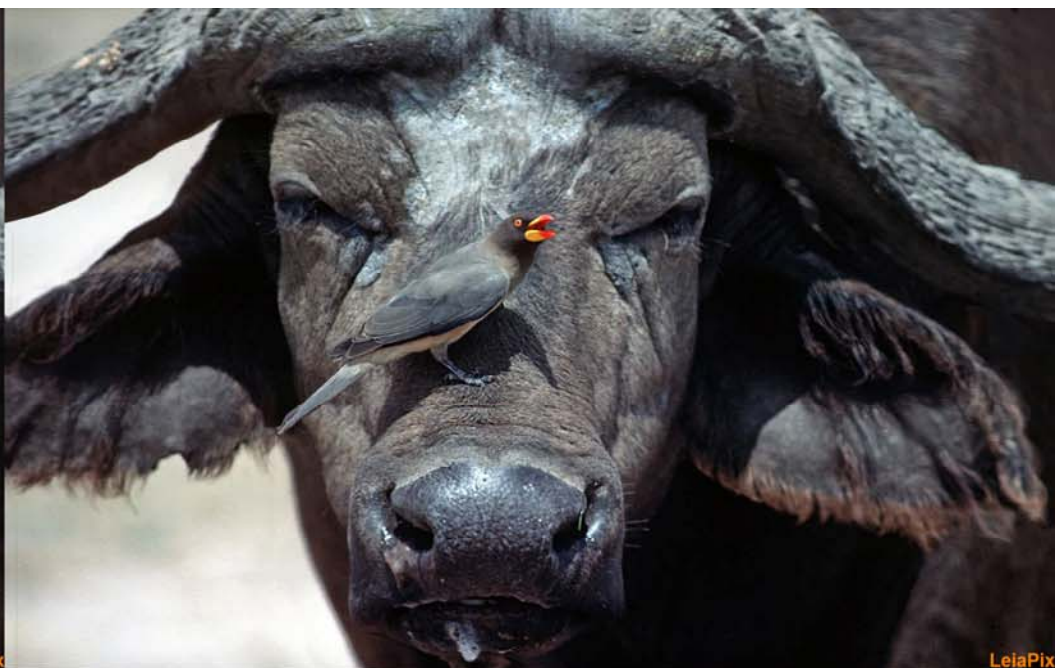
William3D



William3D



LeiaPix



LeiaPix

**Should Conversions
be allowed
in photographic
competitions?**

Who's Who in Photography

PSA
Photographic
Society of
America

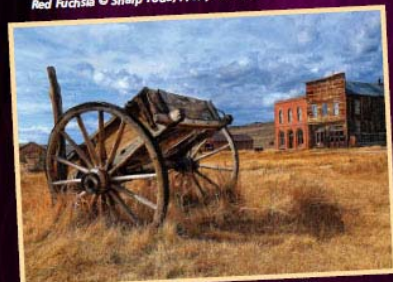
2013



Red Fuchsia © Sharp Todd, FPSA, GMPA



Grizzly Grin © Viki Gaul



Wagon and Bodle Town © Larry Cowles, FPSA, GMPA



La costumbre de Oscar © Luis Franke, GMPA

PSA “Division Envy”

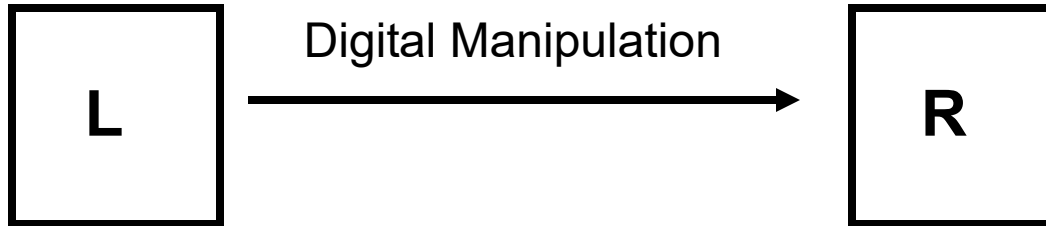


Who's Who in Photography

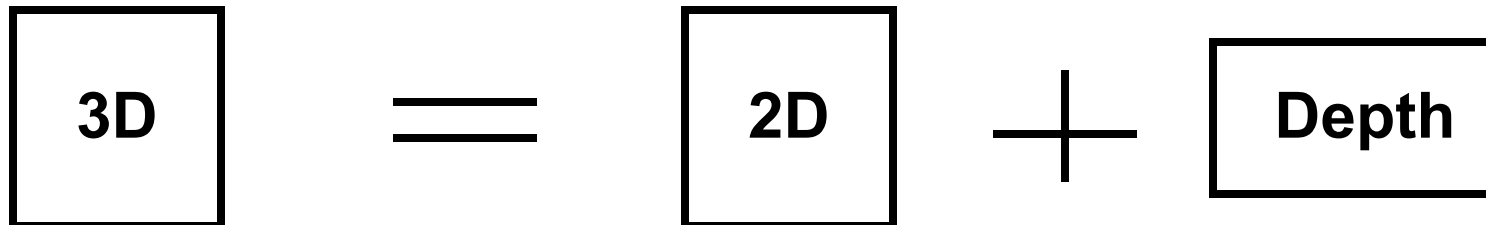


2021

Two ways to think of 2D to 3D Conversions



- We start from the left (real photographic) image and do digital manipulations (horizontal shifts) to create the right image
- Because digital manipulations are allowed, conversions should be allowed



- A 3D image is a 2D image plus depth
- A converted image consists of a real photographic 2D image and computer generated Depth
- We should require depth, one of the most important elements in 3D photography, to be generated photographically and not artificially. Therefore conversions should not be allowed.

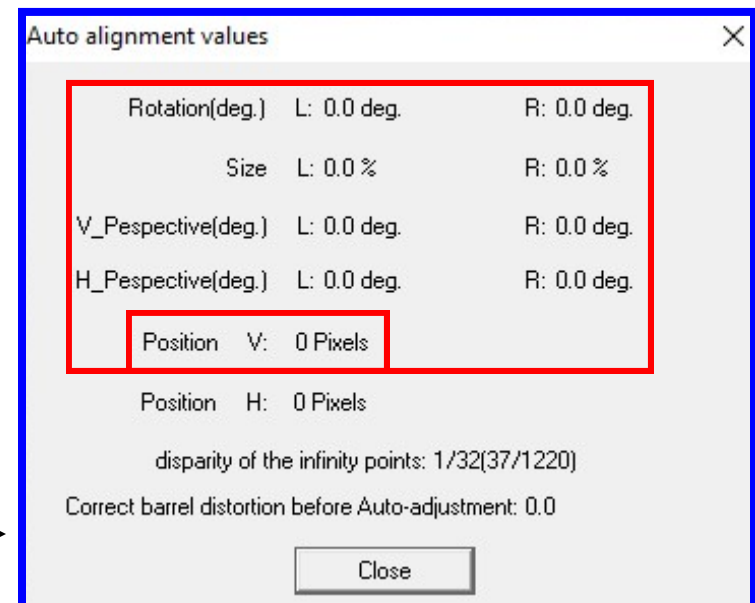
How to Tell that a 3D Image is a Conversion?

1. Depth Flaws

2. Unusual Depth Distribution

3. No Alignment Errors!

(credit: Jerry Chisnell)



SPM Alignment
Report

