



SOS Ed Forum



A.I.-Augmented 3D Dataset Visualization
for SOS with Blender

April 10, 2024



Updates to webinar recordings

- Find webinar slides here:
<https://sos.noaa.gov/education/education-forum/>
- Contact me for a link to webinar recordings if they are not linked
- Most recordings are shared with the network for personal viewing only
- **TODAY - I'd like to post this video, so please keep your camera and microphone off and use chat for discussions.**
- I'll stop recording for the Q/A

Agenda

Ronald Proctor, Kitt Peak National Observatory

- Ron Proctor (Kitt Peak National Observatory / NSF NOIRLab) will demonstrate techniques for visualizing large 3D datasets for SOS using Blender and ChatGPT. Blender, a free and open-source 3D animation software, contains a powerful Python-driven backend. We will work with ChatGPT to develop a Python script that enables Blender to read-in 3D coordinates from a CSV file, importing them as a point cloud object. We will then use Blender's Geometry Nodes to visualize the points before rendering equirectangular pictures for SOS.

Maybe ...

Eclipse stories



Reading CSV Data Into Blender With Help From ChatGPT

Ron Proctor

NSF NOIRLab / Kitt Peak National Observatory

Discovering Our Universe Together



Outline



- Introductions
- The Dark Energy Spectroscopic Instrument (DESI)
- Developing Solutions with ChatGPT
- Reading-in CSV Data
- Visualizing Data Points with Geometry Nodes
- Simple Material
- Render to 360° x 180° Equirectangular

Discovering Our Universe Together

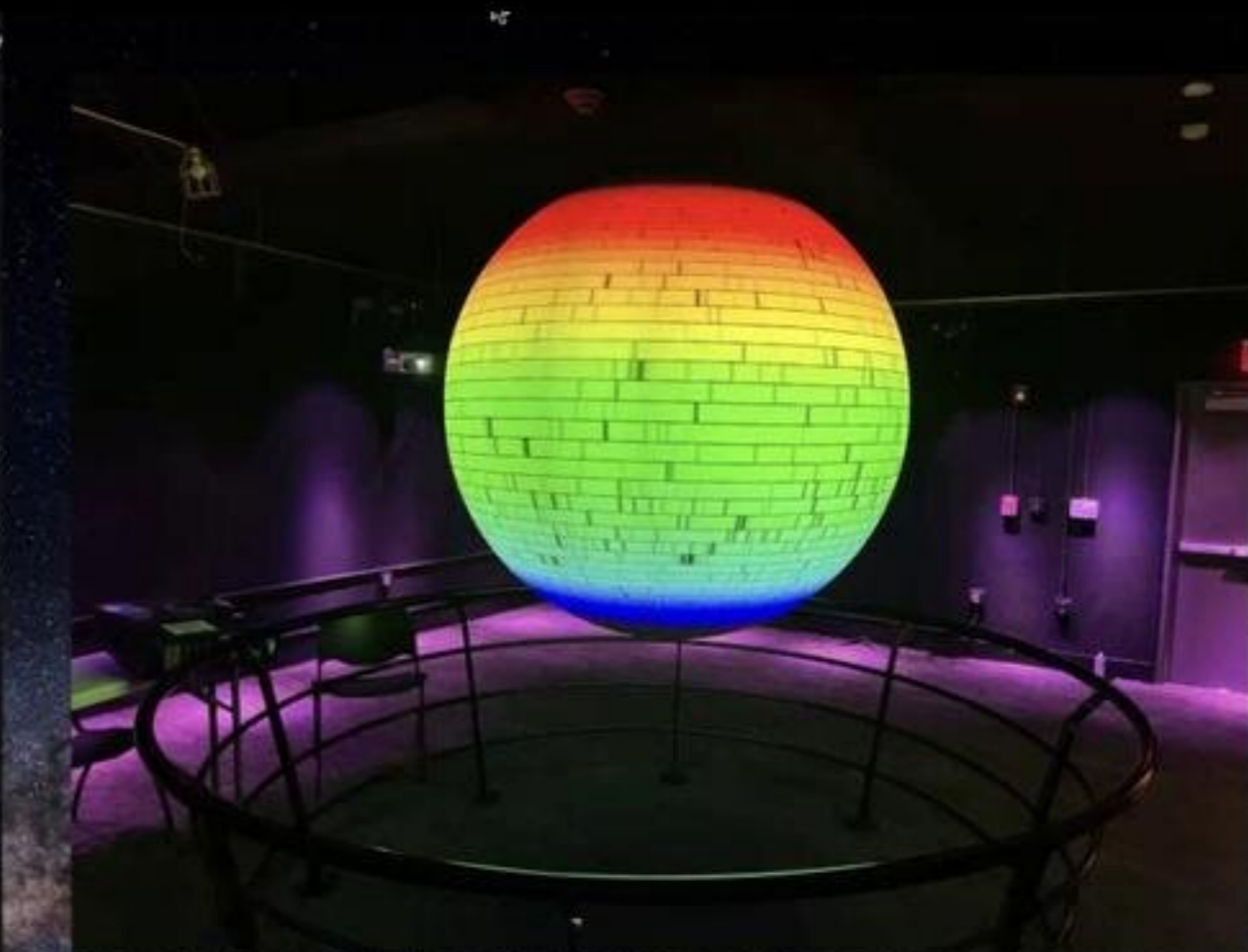


Ron Proctor, M.Ed.



- 20 year planetarium career.
- M.Ed. (Curriculum and Instruction) and B.I.S. (Physics, Communication & Telecommunications) at Weber State University in Ogden, Utah
- Favorite dinosaur: Gallus gallus domesticus





McMath-Pierce Solar Telescope / Windows on the Universe Center



Mayall 4 Meter Telescope





Demonstration:

- Developing Solutions with ChatGPT
- Reading-in CSV Data
- Visualizing Data Points with Geometry Nodes
- Simple Material
- Render to 360° x 180° Equirectangular



NSF | NOIR Lab | AURA

Demonstration:

- Developing Solutions with ChatGPT
- Reading-in CSV Data
- Visualizing Data Points with Geometry Nodes
- Simple Material
- Render to 360° x 180° Equirectangular



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NOAA- File Ed

1

2

3

4

5

6

Screenshot 2024-0...30.06 PM 2024-0...23.31 AM

Screenshot 2024-0...25.01 AM

Screenshot 2024-0...29.15 PM

Screenshot 2024-0...34.49 PM

Screenshot 2024-0...33.18 PM

Screenshot 2024-0...33.52 PM

Screenshot 2024-0...40.24 PM

Screenshot 2024-0...34.38 PM

Screenshot

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Screenshot 2024-0...30.06 PM 2024-0...23.31 AM

Screenshot 2024-0...25.01 AM

Screenshot 2024-0...29.15 PM

Screenshot 2024-0...34.49 PM

Screenshot 2024-0...33.18 PM

Screenshot 2024-0...33.52 PM

Screenshot 2024-0...46.24 PM

Screenshot 2024-0...34.38 PM

Screenshot

```
DESI_14deg_slice.csv
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```

NOAA- File Ed

1

2

3

4

5

6

Screenshot 2024-0...30.06 PM

Screenshot 2024-0...23.31 AM

Screenshot 2024-0...25.01 AM

Screenshot 2024-0...29.15 PM

Screenshot 2024-0...34.49 PM

Screenshot 2024-0...33.18 PM

Screenshot 2024-0...33.52 PM

Screenshot 2024-0...46.24 PM

Screenshot 2024-0...34.38 PM

Screenshot



PRESS RELEASES

PHOTO RELEASE: 12 March 2024 — noirlab2406
**Ghostly Stellar
Tendrils Captured in
Largest DECam
Image Ever Released**

Come visit our observatories!

ANNOUNCEMENTS

4 April 2024 — rubinann24005

22 March 2024 — ann24010

20 March 2024 — rubinann24004




Demonstration:

- Developing Solutions with ChatGPT
- Reading-in CSV Data
- Visualizing Data Points with Geometry Nodes
- Simple Material
- Render to 360° x 180° Equirectangular

6



  **Resources, Questions & Discussion** 

- NOIRLab Media Repository: noirlab.edu
- Blender: blender.org
- Blender Python API: docs.blender.org/api/current
- ChatGPT: chat.openai.com
- ronald.proctor@noirlab.edu

Discovering Our Universe Together 7

Press **esc** to exit full screen



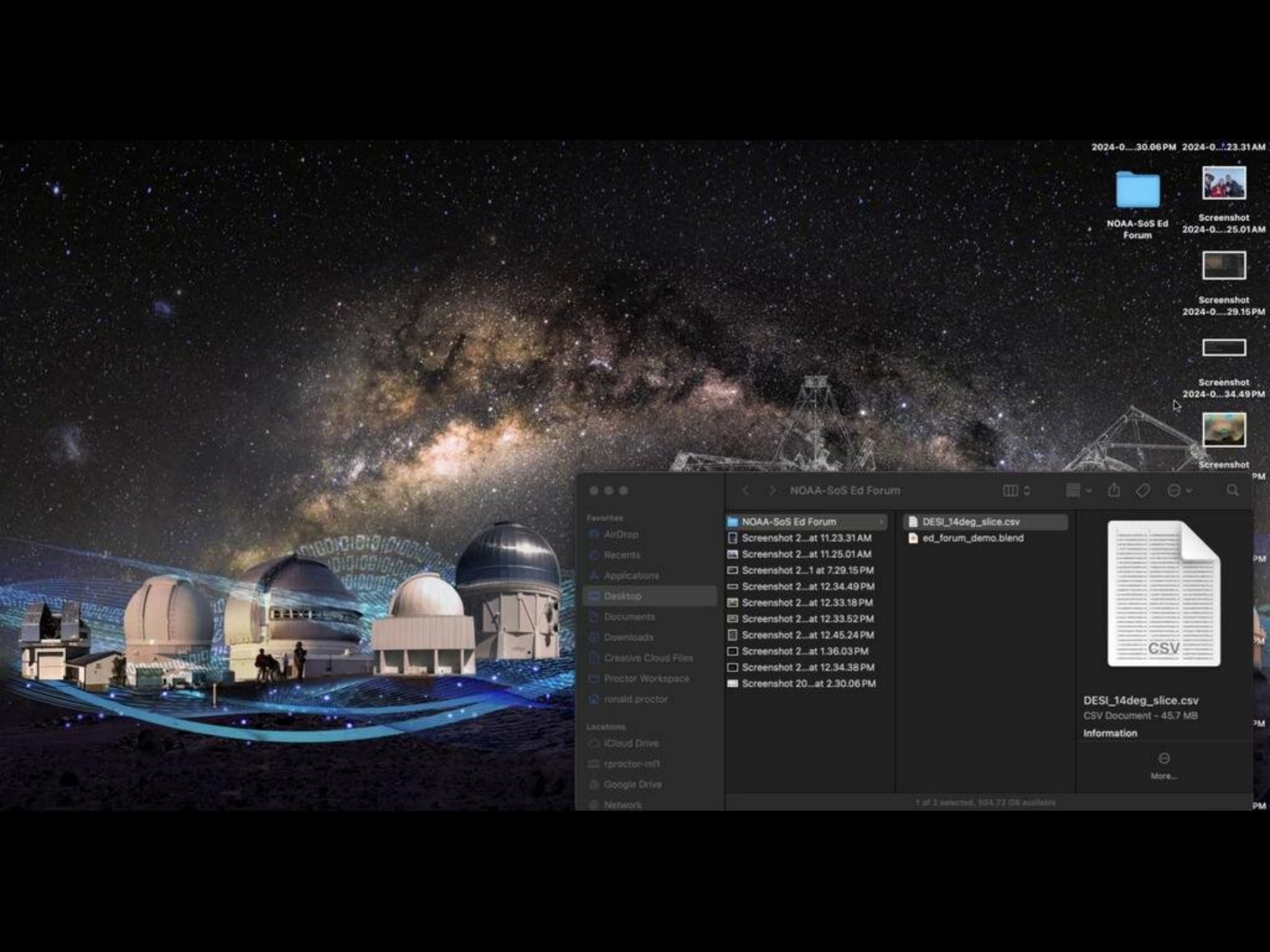
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- ronald.proctor@noirlab.edu

Discovering Our Universe Together



2024-0...30.06 PM 2024-0...23.31 AM



NOAA-SoS Ed Forum



Screenshot 2024-0...25.01 AM



Screenshot 2024-0...29.15 PM



Screenshot 2024-0...34.49 PM



Screenshot

NOAA-SoS Ed Forum

- NOAA-SoS Ed Forum
 - Screenshot 2...at 11.23.31 AM
 - Screenshot 2...at 11.25.01 AM
 - Screenshot 2...1 at 7.29.15 PM
 - Screenshot 2...at 12.34.49 PM
 - Screenshot 2...at 12.33.18 PM
 - Screenshot 2...at 12.33.52 PM
 - Screenshot 2...at 12.45.24 PM
 - Screenshot 2...at 1.36.03 PM
 - Screenshot 2...at 12.34.38 PM
 - Screenshot 20...at 2.30.06 PM
- DESI_14deg_slice.csv
- ed_forum_demo.blend

DESI_14deg_slice.csv
CSV Document - 45.7 MB

Information

More...

1 of 2 selected, 504.72 GB available

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Resources, Questions & Discussion



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