

SunoikisisDC Digital Approaches to Cultural Heritage

Spring 2022 - Session 9

Archaeology, VR and other Gaming Technologies

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INTRODUCTION TO VR, AR, AND IMMERSIVE ENVIRONMENTS

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Universitat Jaume I



OUTLINE

- ◆ Definitions and main differences
- ◆ Uses and benefits
- ◆ Pros and cons
- ◆ A thought

DEFINING CONCEPTS

MET Museum - "Digital Reconstruction of the Northwest Palace, Nimrud, Assyria"

3D WALKTHROUGH

- ❖ Virtual reality (**VR**)
- ❖ Augmented reality (**AR**)
- ❖ Mixed reality (**MR**)
- ❖ **360º**
- ❖ Video games

VR

- ❖ Virtual
- ❖ Computer generated simulation
- ❖ Completely “fake”
- ❖ Full immersive experience
- ❖ Environment, “hands-on” and walkthroughs
- ❖ Headset or cardboard viewer



AR

- ❖ Augmented
- ❖ Overlaid visual information
- ❖ Virtual elements in a physical space
- ❖ Hybrid immersion
- ❖ *In situ* experience
- ❖ Any device



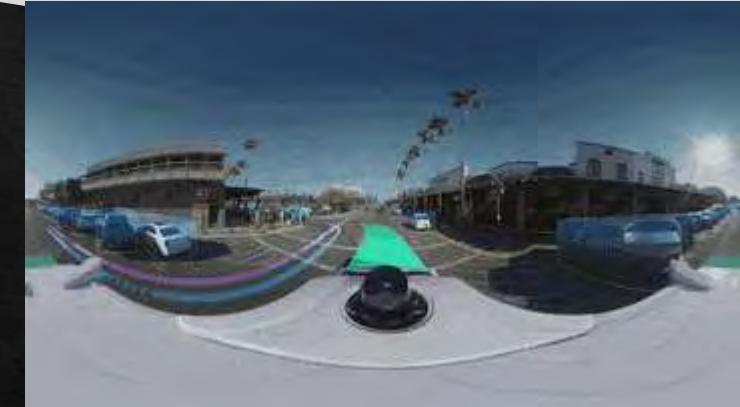
MR

- ❖ Mixed
- ❖ Combination of VR and AR
- ❖ Physical world
- ❖ Interaction with virtual elements
- ❖ Different headset



360°

- ❖ Video
- ❖ All directions at the same time
- ❖ Multiple or uni-directional camera
- ❖ Motion-aligning software



VIDEO GAMES

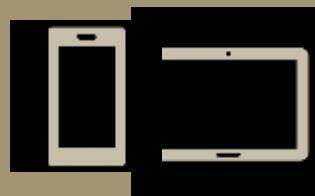
- ❖ **Electronic** game
- ❖ Multiple devices and platforms
- ❖ Display (?)
- ❖ Controllers
- ❖ User-environment interaction



VR

AR

MR



MAIN DIFFERENCES

USES AND BENEFITS

Playstation - "Surgeon Simulator ER"

VR SIMULATOR



- ❖ Simulators
- ❖ Sports, medical, mental health...
- ❖ Tourism
- ❖ Museums
- ❖ Education
- ❖ Research

VIRTUAL ARCHAEOLOGY

- ❖ Brings **past to life**
- ❖ **Preservation:** severely damaged, endangered, non-existent heritage
- ❖ Recreation: “**original**” artifacts and structures
- ❖ Research: enhancement and **new data**
- ❖ **And so on:** catalogs, walkthroughs, “universal” education, mapping...



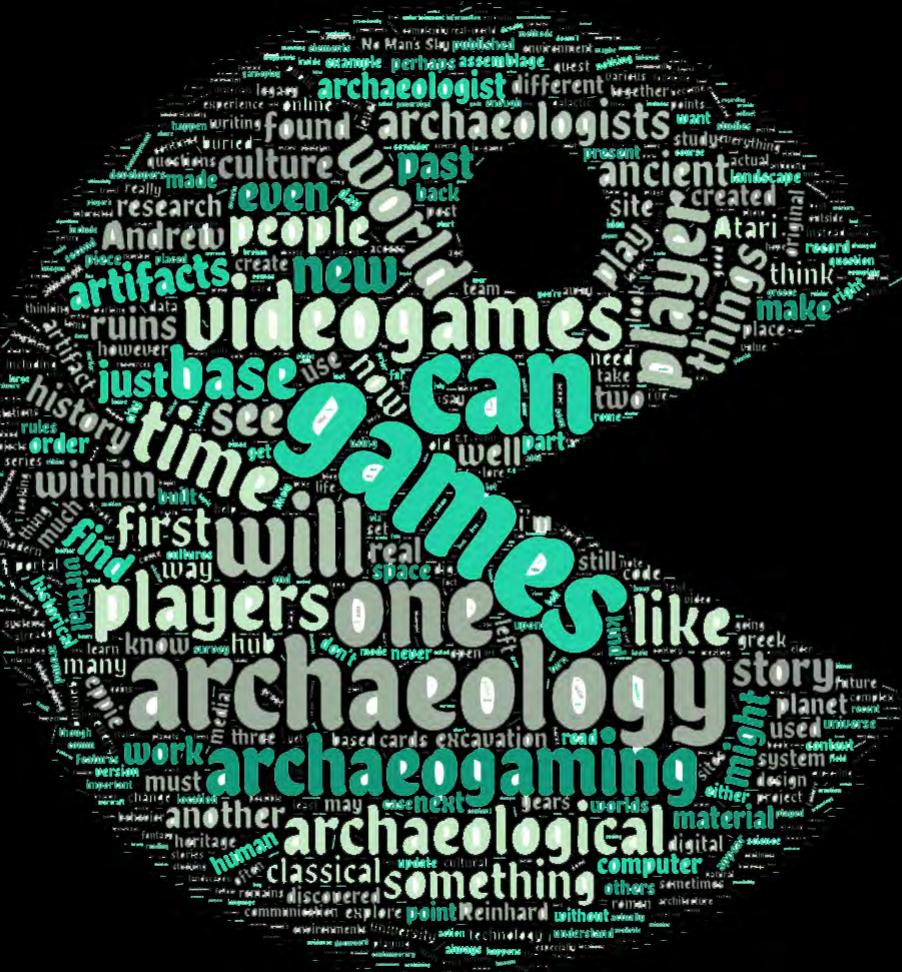


CONS AND FINAL THOUGHTS

- ❖ Emulates **simulates** past
- ❖ Creator's interpretation
- ❖ Users and developers' limitations
- ❖ **Why** using virtual technology?

THANK YOU!

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How to be a Video Game Archaeologist

Dr. Andrew Reinhard
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the Ancient World
New York University
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(RECEPTION)

I'm doing archaeology!



I'm doing archaeology!



Tomb Raider's Lara Croft



Heaven's Vault's Aliya Elasra

I'm doing archaeology!



HEAVEN'S — آسمان کا سرکار — VAULT

Heaven's Vault

2

A vibrant illustration of a female Arcanologist with blue hair and a purple top hat, holding a glowing orange orb. She is surrounded by floating blue symbols and a purple energy field.

Arcanologist

Battlecry: Draw a Secret
from your deck.

2

3

Escaped the Temple



Reward!

Reno Jackson unlocked!





Hearthstone



Archaeology



Archaeology

To recover artifacts, you need to collect artifact fragments. Fragments are found in digsites visible on your map. When you reach a dig site, use the Survey ability. Your survey tool will indicate the approximate direction and distance to the cache of fragments. You can collect fragments three times in a dig site before you need to move to a new digsite. Once you have enough fragments, you can solve an artifact to learn a little more about Azeroth's past. Happy hunting!

Archaeology Map Location Markers





World of Warcraft

i

Archaeology

X

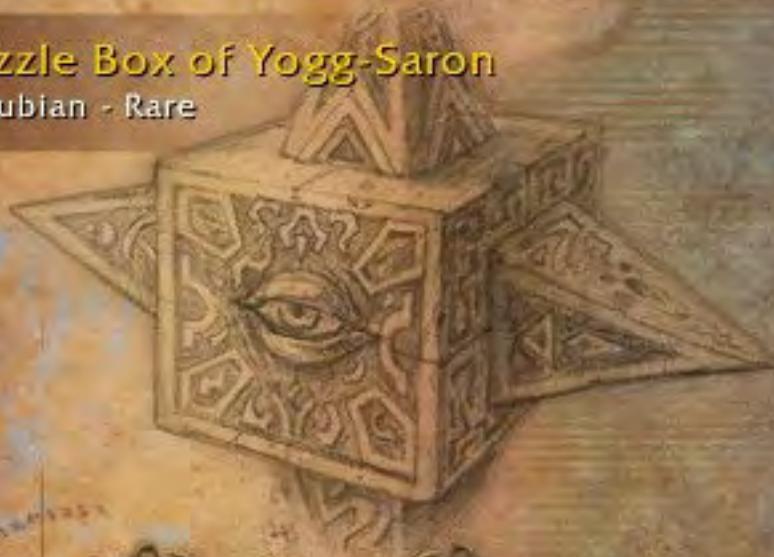
525/525

Nerubian



Puzzle Box of Yogg-Saron

Nerubian - Rare



History

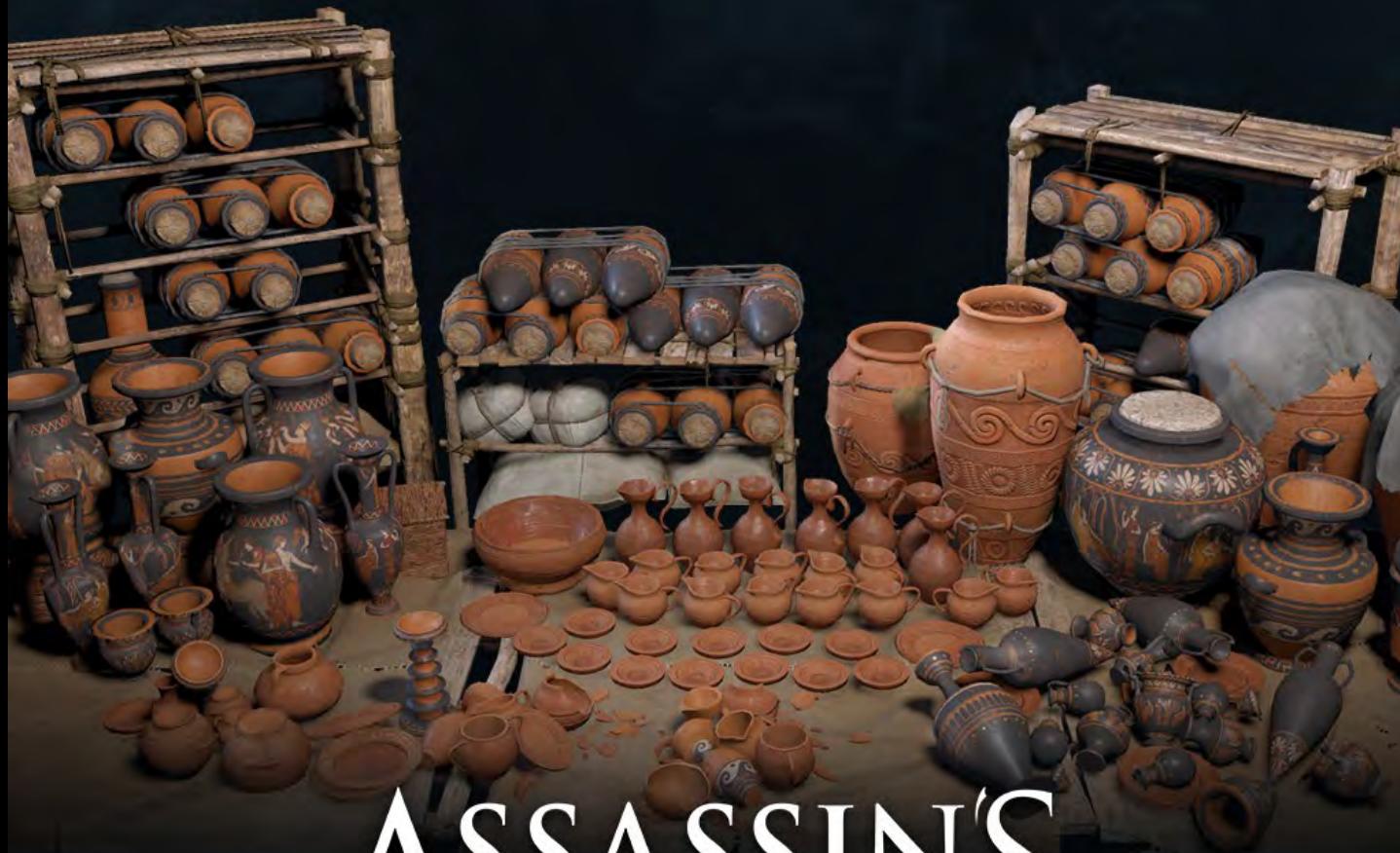
Each of the fragments of this artifact emits a nonsense whisper that blends into a maddening susurrus as you accumulate more objects. You hope that you know what you're doing.

139 (+36 Fragments) / 140

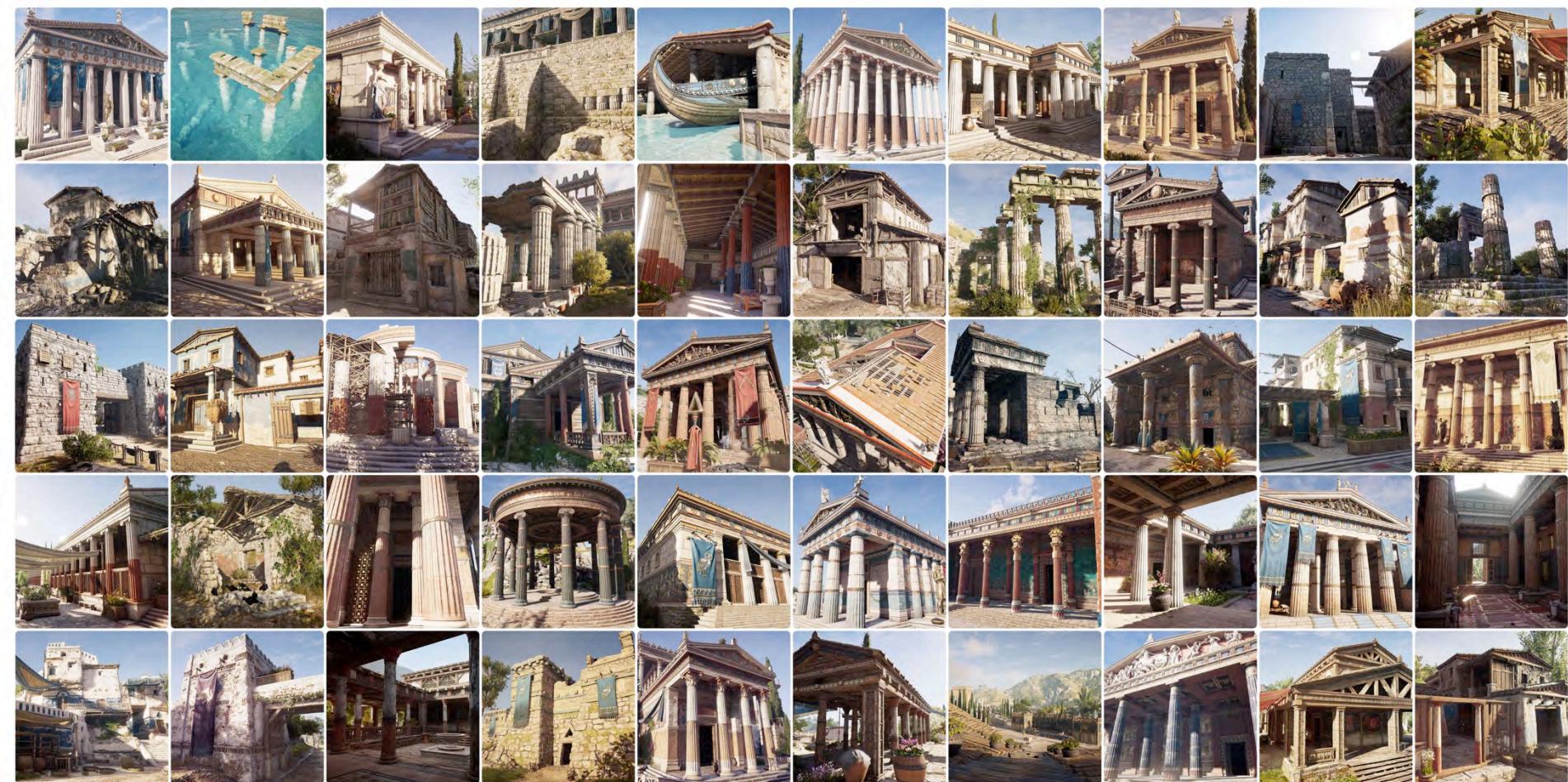


Solve

(RECONSTRUCTION)



ASSASSIN'S CREED® ODYSSEY



Dominic G-Despatis

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ASSASSIN'S
CREED
ODYSSEY

UBISOFT



(ARTIFACTS)



FIFA



Assassin's Creed Unity



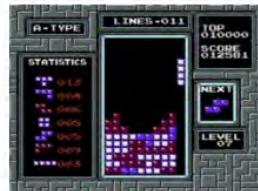
Elder Scrolls V: Skyrim VR

(APPLICATION)

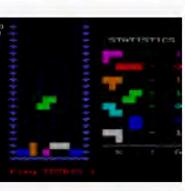
The Video Game Soda Machine Project



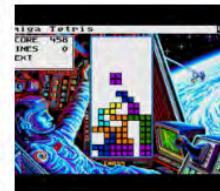
Project by Jess Morrisette, Marshall University
vgsmproject.com

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Tetris - Wikipedia
en.wikipedia.org



Tetris - Wikipedia
en.wikipedia.org



Tetris - Wikipedia
en.wikipedia.org



Tetris tips from a seven-time world ...
polygon.com



Tetris (Game) - Giant Bomb
giantbomb.com



Best/worst version of Tetris? | NeoGAF
neogaf.com



Tetris Ultimate - New DLC Modes ...
blog.ubi.com



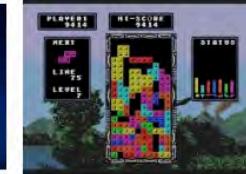
Tetris - Wikipedia
en.wikipedia.org



Retro Tetris Lives on in My Basement ...
tetris.com



My First Steam Refund Request Is Tetris
kotaku.com



Tetris / Sega / Mega Drive / Unreleas...
segadoes.com



Tetris Review - IGN
ign.com



First Versions: Tetris
firstversions.com



Tetris Gameplay Routine ...
tetris.com



Tetris (NES) - Video Game Music ...
vgmpf.com



Tetris Effect Physical Edition and Pre ...
twinfinite.net



Neko Random: My Tetris 99 (Nintendo ...
linkrandom.blogspot.com



Tetris (BPS) - StrategyWiki, the ...
strategywiki.org



Nintendo's 99-player Tetris is savaging ...
theguardian.com



Tetris Ultimate and other video games ...
onmsft.com



Tetris Games
oldgames7.com



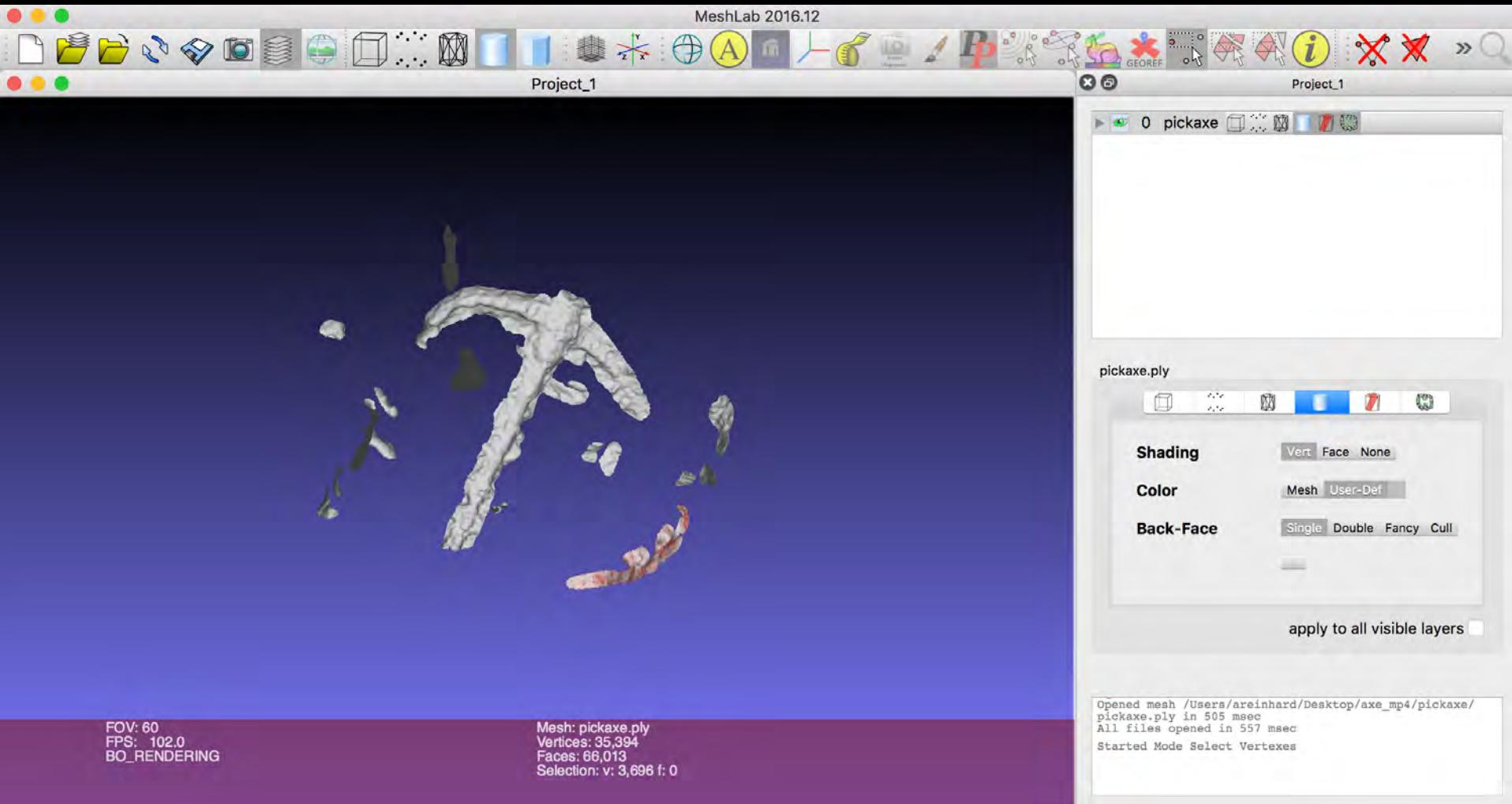
Gamasutra - Alexey Paj...
gamasutra.com



Classic puzzler battle royale ...
telegraph.co.uk

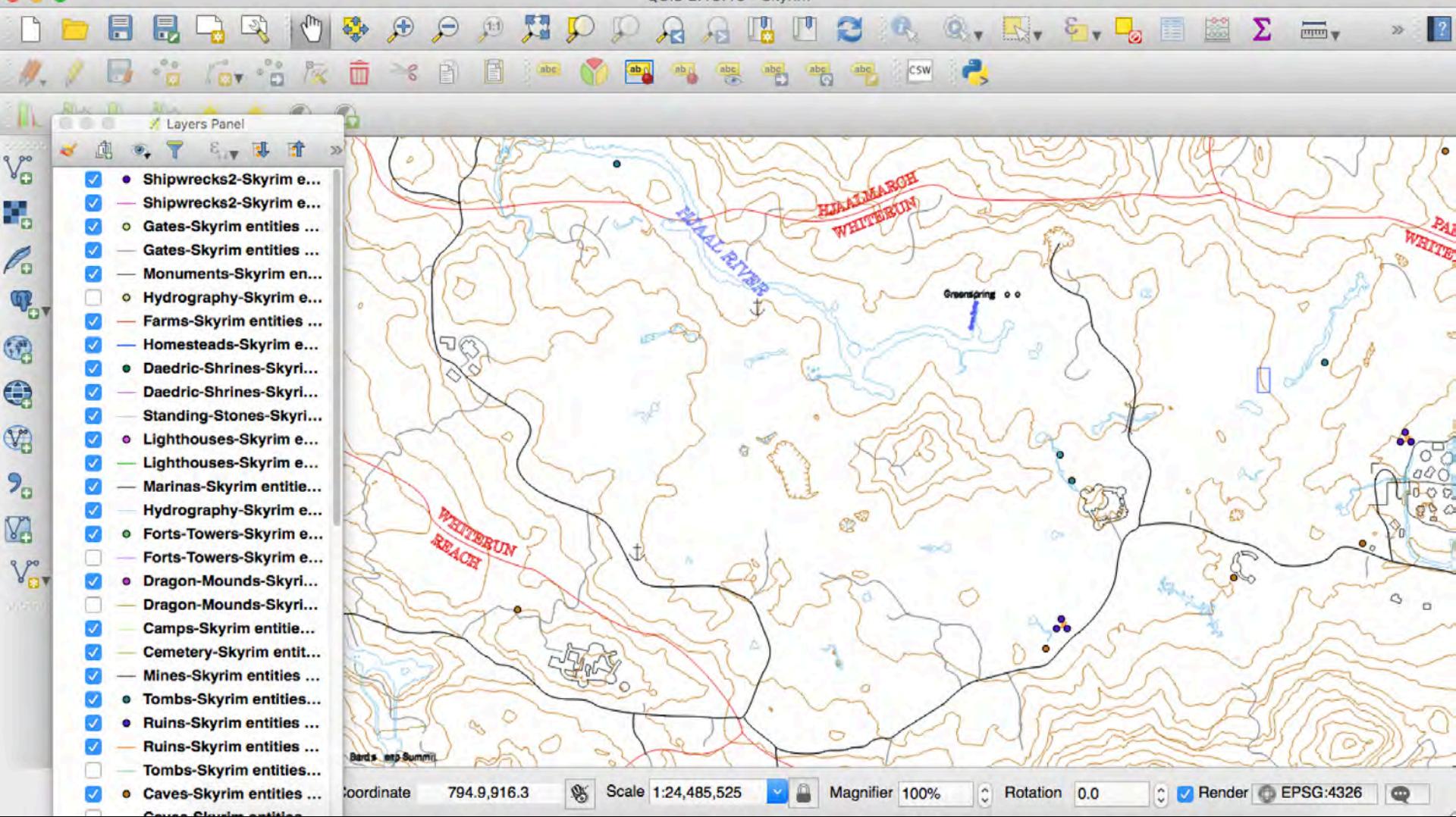


Warped Factor ...
warpedfactor.com

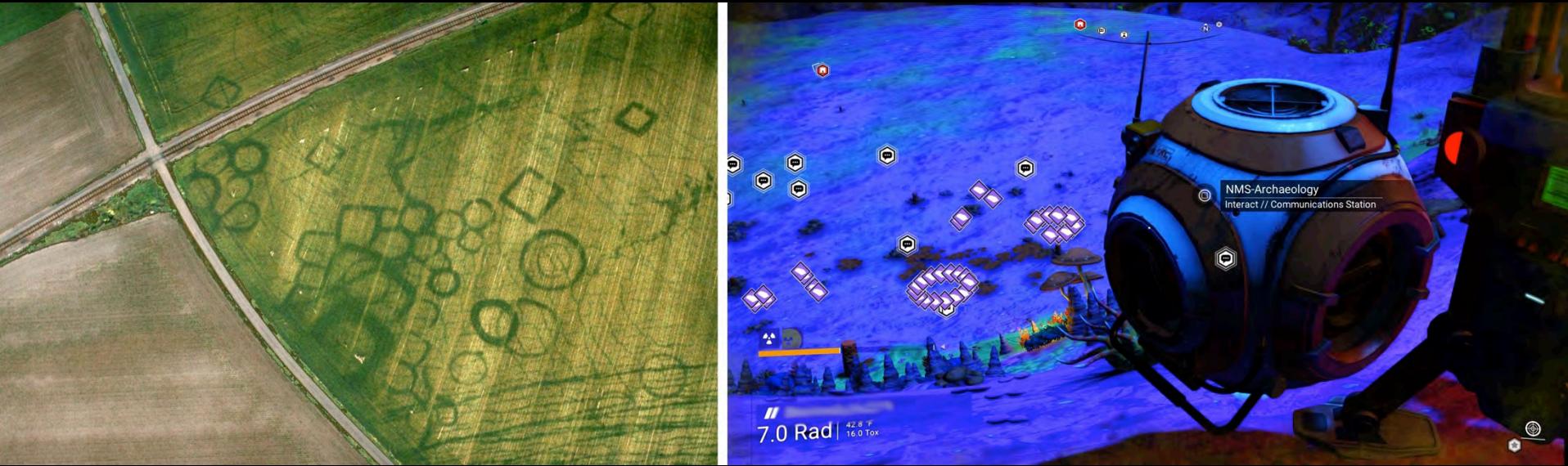


Elder Scrolls V: Skyrim

QGIS 2.18.15 - Skyrim

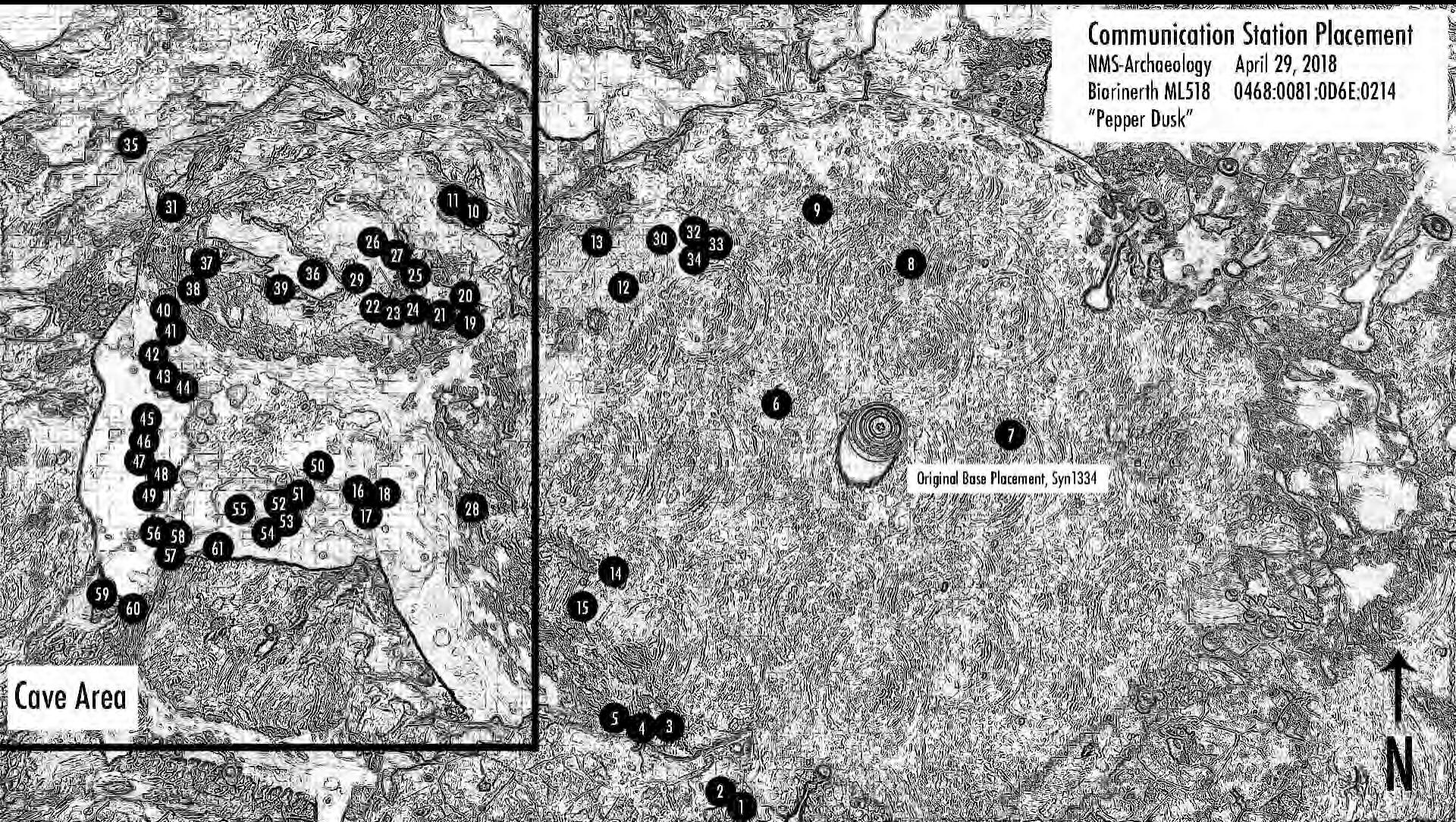


Topographic map of Skyrim in QGIS



Remote sensing IRL and in No Man's Sky

Communication Station Placement
NMS-Archaeology April 29, 2018
Biorinerth ML518 0468:0081:0D6E:0214
"Pepper Dusk"



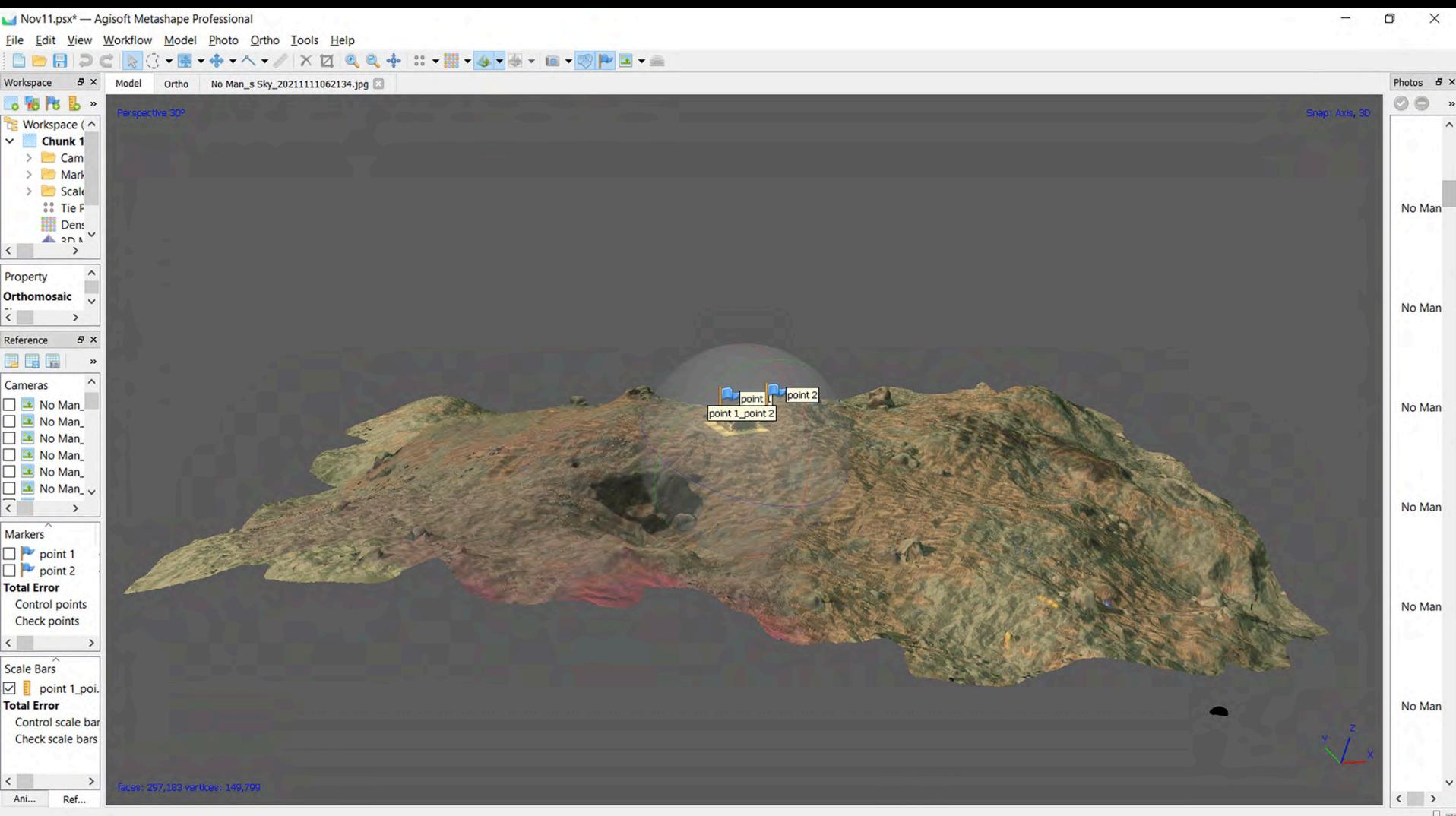
State plan of the Cave of Forgotten Dreams, No Man's Sky



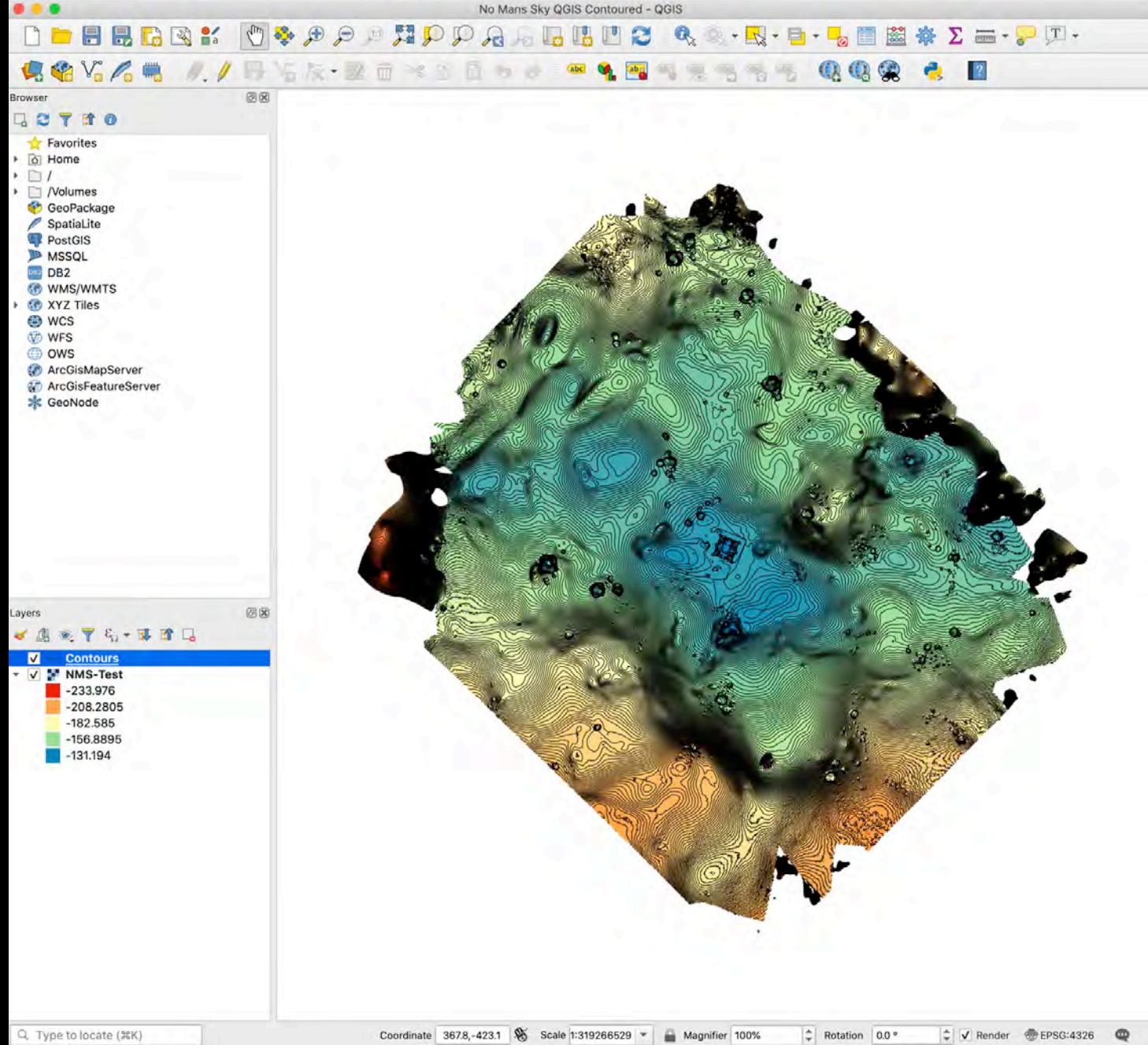
Grid of player-built communication stations, No Man's Sky



Drone photo, No Man's Sky



Terrain mesh, No Man's Sky, realized in Agisoft Pro



Contour lines generated via pointcloud, No Man's Sky



VR archaeology excavation simulator, University of Illinois, Chicago



VR environment for excavation training, University of Illinois, Chicago

הזרמה של שחורי מבנים היסטוריים
(אנימציה/איור/רישום)



ראזרם

אפשר מקום להשתראה
לאו-חולכים | פוחת פוחדים

Augmented reality heritage app proof of concept



Pokemon Go at Stonehenge





Thank You!

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