



Platform Digitale Infrastructuur
Social Sciences & Humanities



Maastricht University

Interfaces for 3D Scholarly Editions

A New Paradigm for Three-Dimensional Scholarship

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What are 3D Scholarly Editions?

- Papadopoulos, C., & Schreibman, S. (2019). Towards 3D Scholarly Editions: The Battle of Mount Street Bridge. Digital Humanities Quarterly, 13(1). <http://www.digitalhumanities.org/dhq/vol/13/1/000415/000415.html>
- Schreibman, S., & Papadopoulos, C. (2019). Textuality in 3D: three-dimensional (re)constructions as digital scholarly editions. International Journal of Digital Humanities, 1(2), 221-233. <https://doi.org/10.1007/s42803-019-00024-6>



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What are 3D Scholarly Editions?

The screenshot shows the Van Gogh Museum's 'The Letters' project page. It features a search bar, navigation tabs for 'by period', 'by correspondent', 'by place', and 'with sketches', and a 'Search' section with 'keyword or number(s)', 'Advanced search', and 'Search results'. The main content area displays letter 163, dated February 1881, addressed to Theodorus van Gogh and Anna van Gogh-Carventus in Brussels. It includes a facsimile of the original handwritten letter and a translation of the text. The translation begins with 'Dear Pa and Ma, I received your letter and was glad to have it, for I had already been looking forward to it, especially because of Pa's indisposition.' and continues with a discussion of the artist's work and health.

Vincent van Gogh – The Letters

The screenshot shows the 'Letters 1916-1923' website, which is a digital archive of letters from James Joseph Walsh to John Quinn. The page features a search bar and a navigation menu. The main content area displays a letter dated 29 June 1923, from James Joseph Walsh to John Quinn. It includes a facsimile of the original handwritten letter and a transcription of the text. The transcription begins with 'Dear John, I have just received your letter of the 27th inst. and am glad to hear from you. I am sorry to hear of your illness, but I hope you will soon be well again.' and continues with a discussion of the artist's work and health.

Letters 1916-23

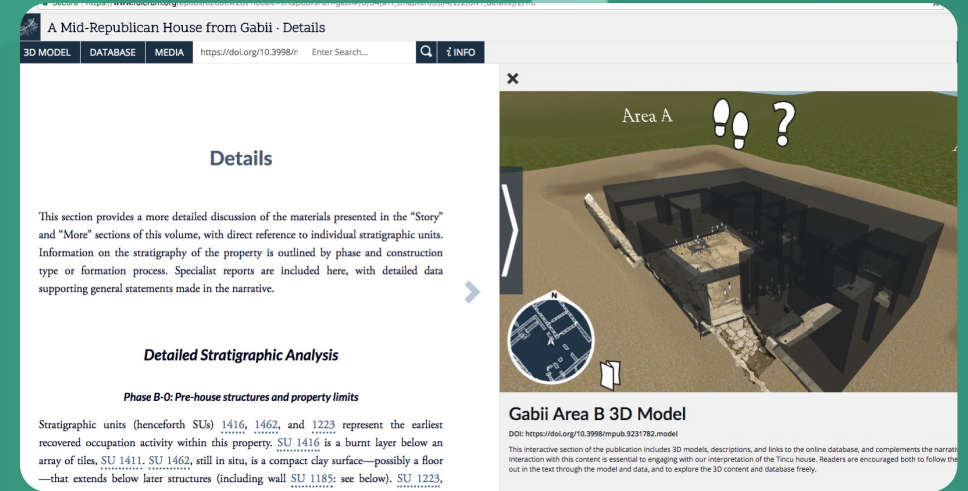
The screenshot shows the 'A Friendship in Letters' website, which is a digital archive of letters from George Yeats to Thomas MacGreevy. The page features a search bar and a navigation menu. The main content area displays a letter dated June 1922, from George Yeats to Thomas MacGreevy. It includes a facsimile of the original handwritten letter and a transcription of the text. The transcription begins with 'Dear Mr. Thomas MacGreevy, It is some time since I have heard from you, and I am sorry to hear of your illness, but I hope you will soon be well again.' and continues with a discussion of the artist's work and health.

Thomas MacGreevy and George Yeats – A Friendship in Letters

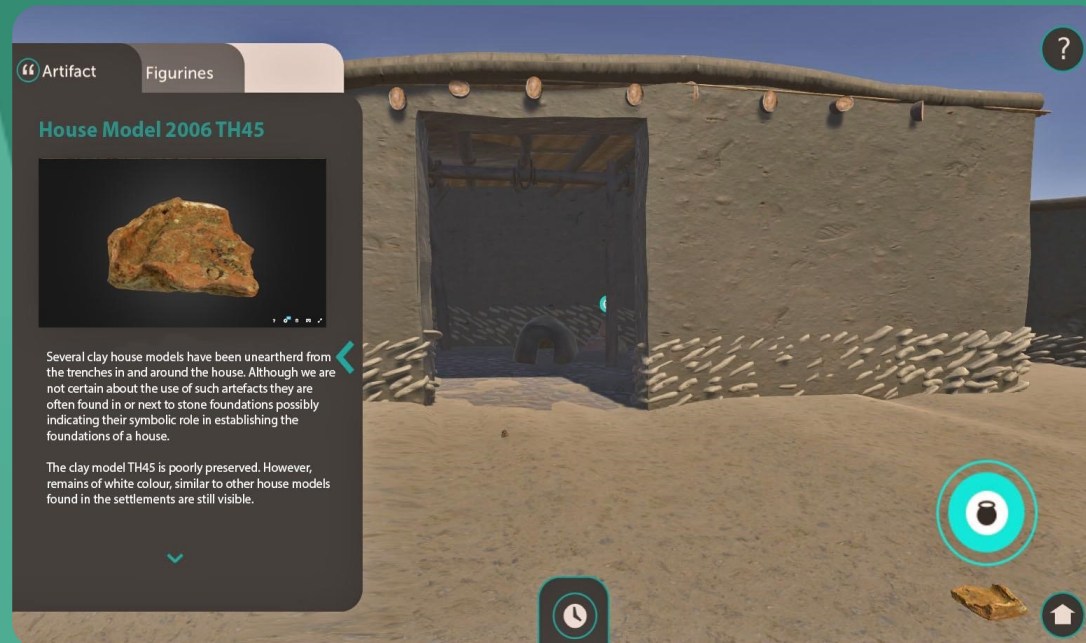
What are 3D Scholarly Editions?



Hadrian's Villa, Virtual World Heritage Laboratory



Gabii Project – Michigan University Press



Early 3D Scholarly Edition Prototype for House 1, Koutroulou Magoula, Greece



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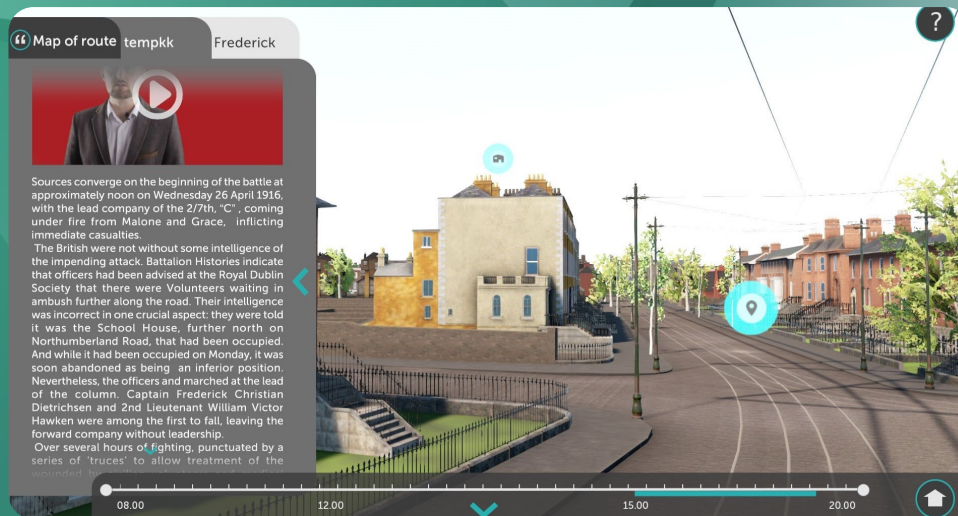
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What are 3D Scholarly Editions?



Early 3D Scholarly Edition Prototypes
for the Battle of Mount Street Bridge



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3D Scholarly Editions: A Tentative Definition

- *Knowledge sites that provide a framework for 3D scholarship and the communication of the results, speculations, and thesis of and around that scholarship.*
- *They provide contextualisation and annotation about the 3D models and the objects/worlds they represent.*
- *This scholarship is presented within a single spatio-temporal environment that is immersive, multivariant, and multisensorial.*



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What's out there?



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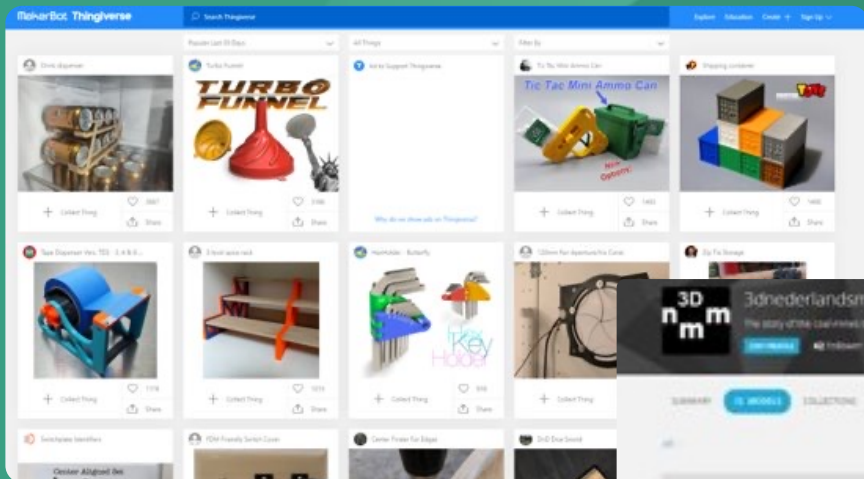


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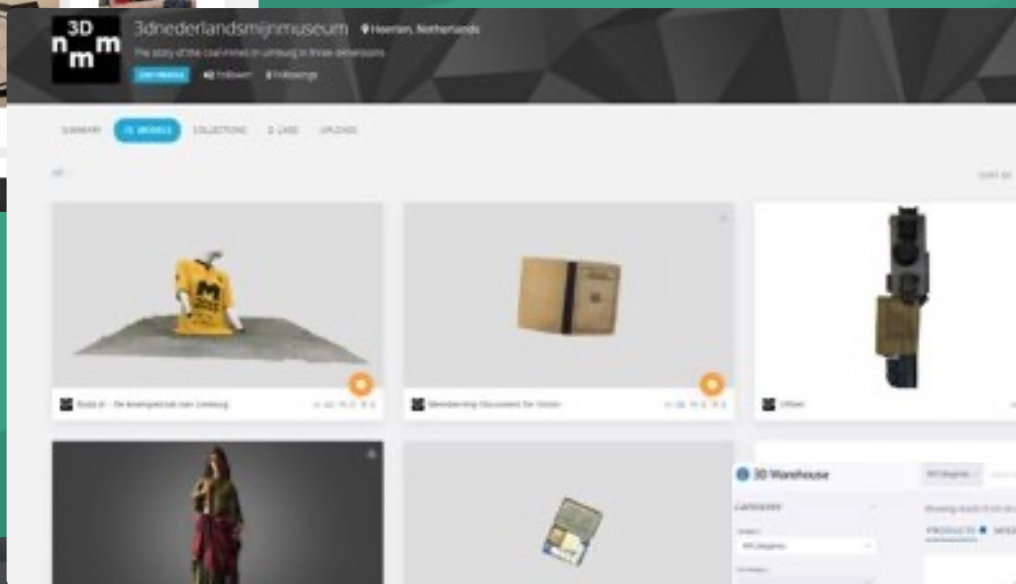


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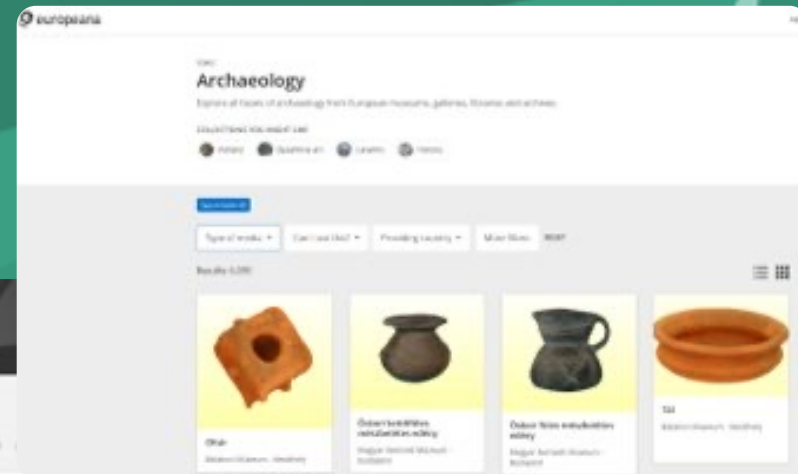




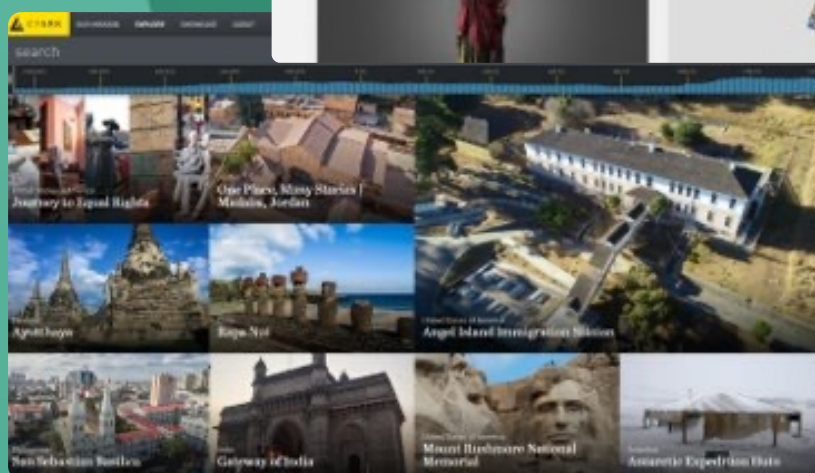
Thingiverse



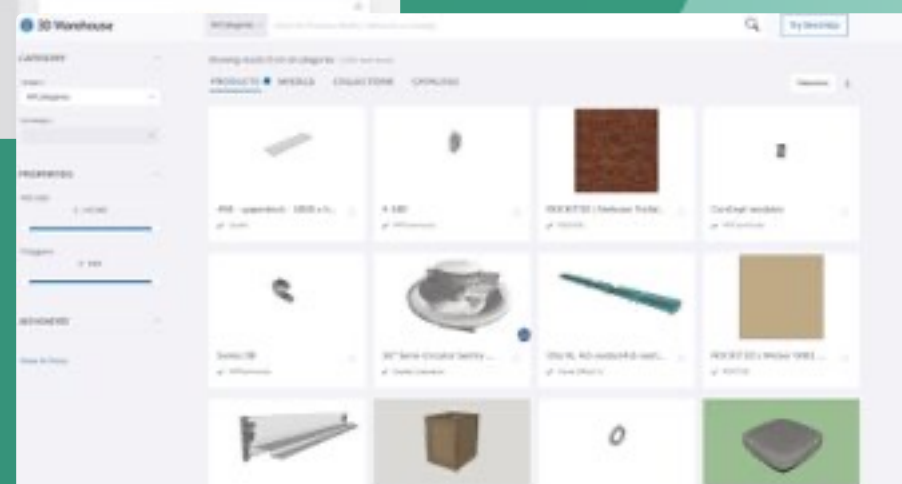
Sketchfab



Europeana



Cyark



3D Warehouse



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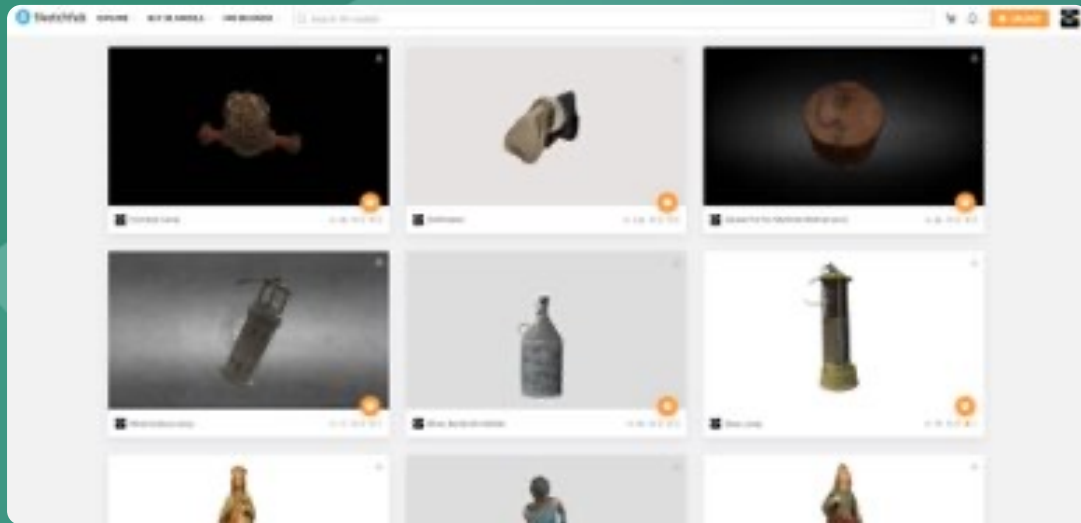


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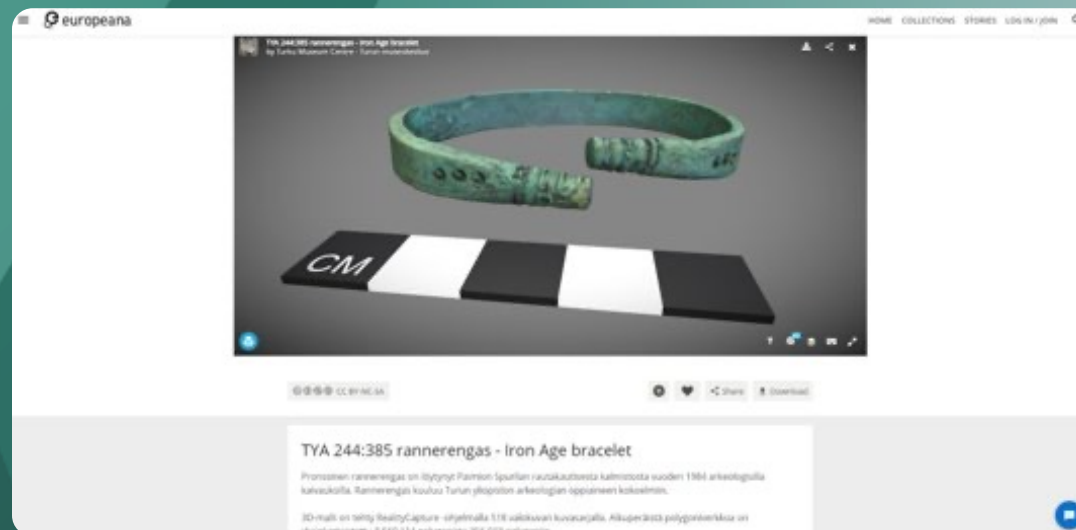


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Sketchfab



Sketchfab
viewer
embedded in
Europeana



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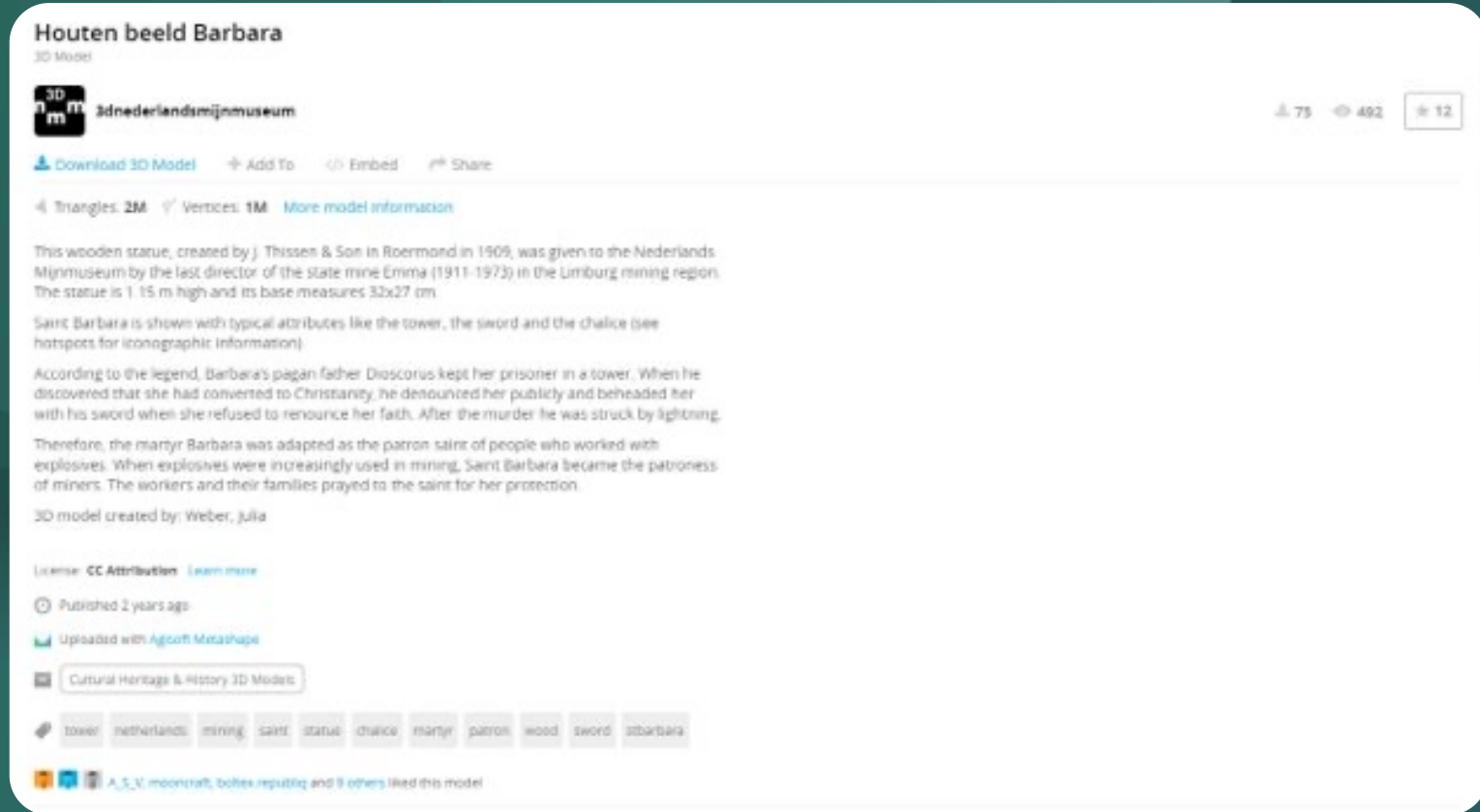


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<https://sketchfab.com/>

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Sketchfab – Object Level



<https://sketchfab.com/3d-models/houten-beeld-barbara-528207c10a7441baba4cbb300d2cf3f0>



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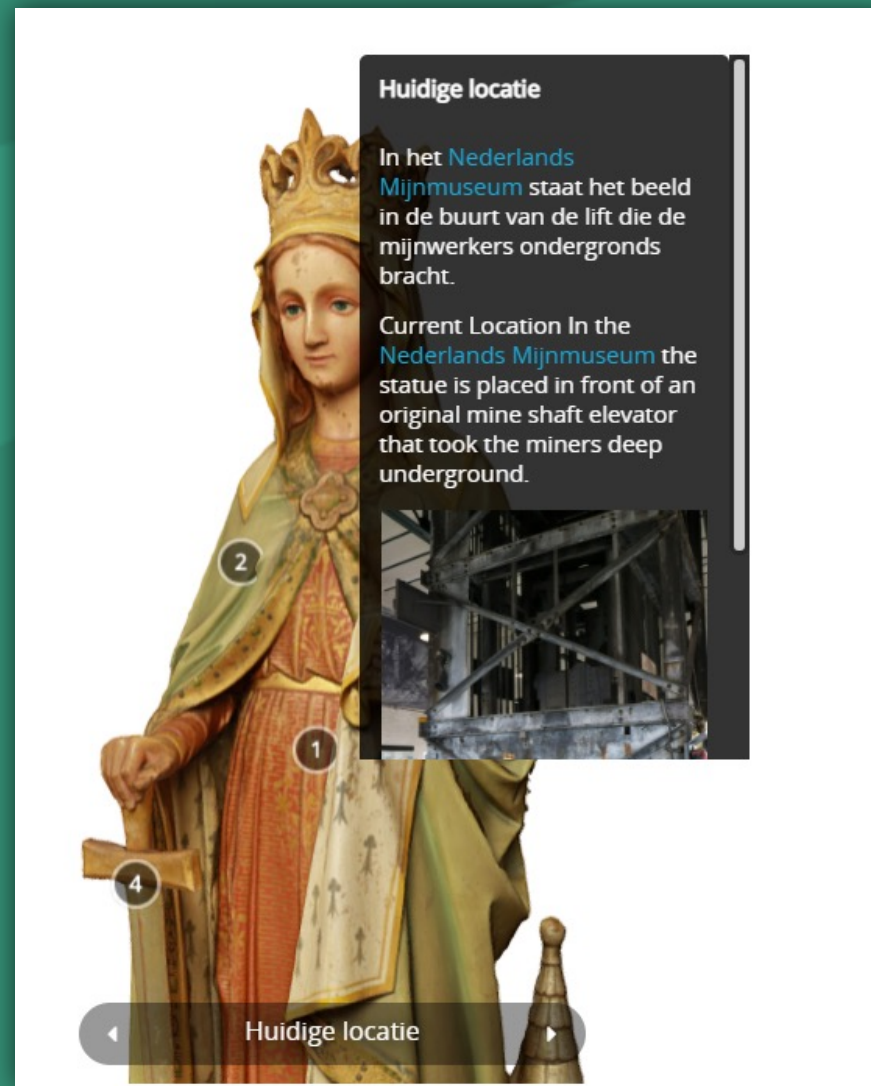


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Sketchfab – Object Level – Annotations

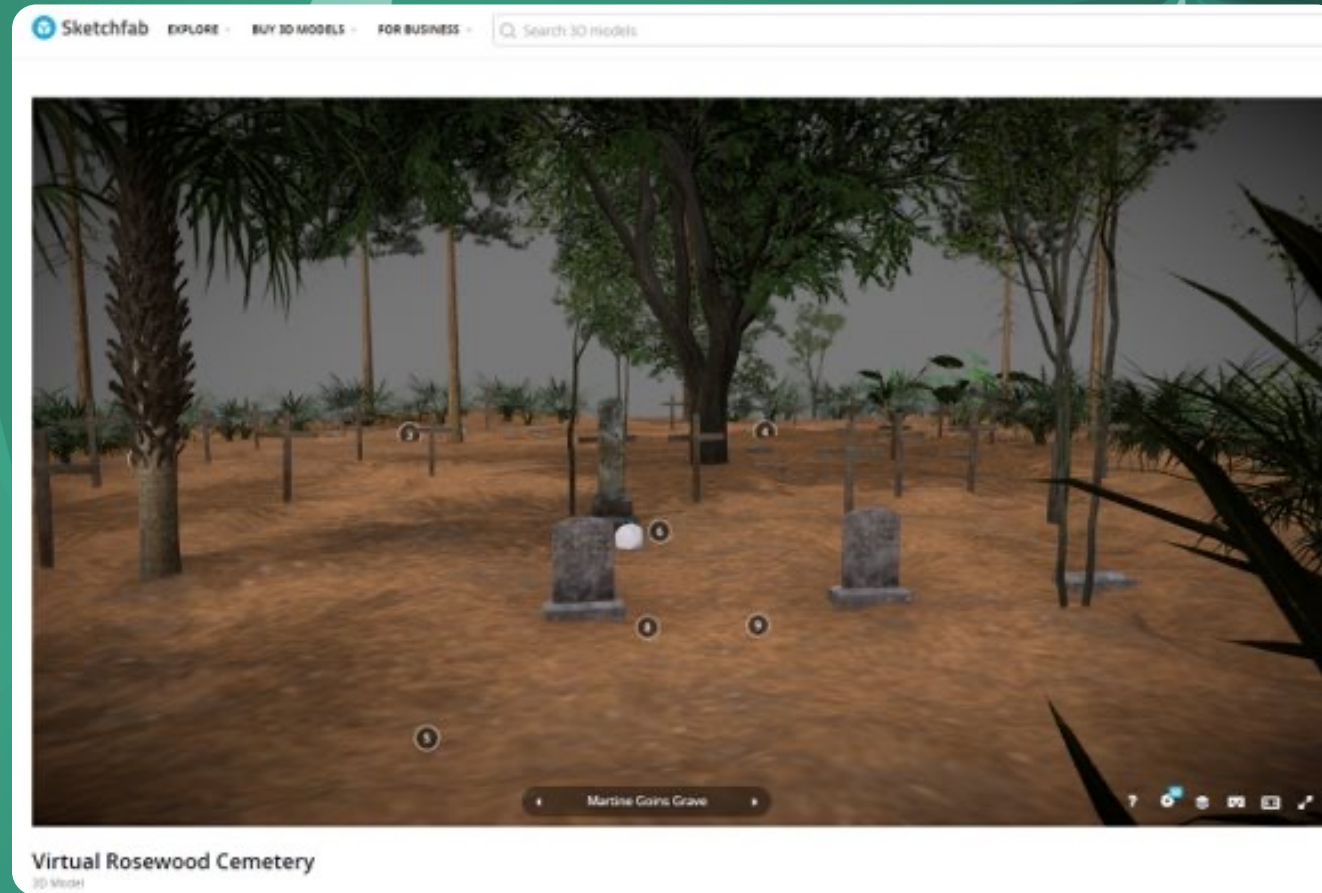


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Sketchfab



"I chose to share the model via Sketchfab, because the site allows anyone with a relatively robust internet connection to access the content via a website or app for Android or iOS devices. As such, it is available to a far wider range of people than publishing the information via a static webpage or downloadable program to run on your local computer."

Furthermore, Sketchfab allows visitors to explore the content in a variety of formats, including a webpage, virtual reality goggles, or an augmented reality experience."



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<https://sketchfab.com/3d-models/virtual-rosewood-cemetery-3cbb80a2442042818b2759281e9985e8>
González-Tennant, E. 2021. Tech Memo—Building the Virtual Rosewood Cemetery, The SHA Newsletter, 54(1): 18-19

Features of (some) existing Online 3D Viewers

Feature	Smithsonian Voyager	ATON	3DHOP	Kompakkt	Virtual Interiors
Zoom	✓	✓	✓	✓	✓
Rotation	✓	✓	✓	✓	✓
Walk around/through the 3D model	✓	✓	✗	✗	✓
Add, Remove or move parts of the 3D model	✗	✗	✗	✗	✓
Wireframe view	✓	✗	✗	✗	✓
Texture View	✓	✓	✓	✓	✓
Take Screenshot	✓	✓	✓	✗	✗
Annotation of text	✓	✓	✓	✓	✓
Annotation of image	✓	✓	✓	✓	✓
Change field of view	✓	✓	✓	✗	✓
Measure the 3D model	✓	✓	✓	✗	✗

Feature	Smithsonian Voyager	ATON	3DHOP	Kompakkt	Virtual Interiors
Download of the 3D model	✓	✗	✗	✗	✗
Timeline	✗	✓	✗	✗	✗
DOI (digital object identifier)	✓	✗	✗	✓	✓
Dynamic Lighting	✓	✓	✓	✗	✓
Cut-through sections	✓	✗	✓	✗	✗
Export the cut-through profile	✗	✗	✗	✗	✗
Layers for enhanced visibility and inspection	✗	✓	✓	✗	✓
Toggle alternate hypothesis	✗	✗	✗	✗	✓
Certainty Index	✗	✗	✗	✗	✓



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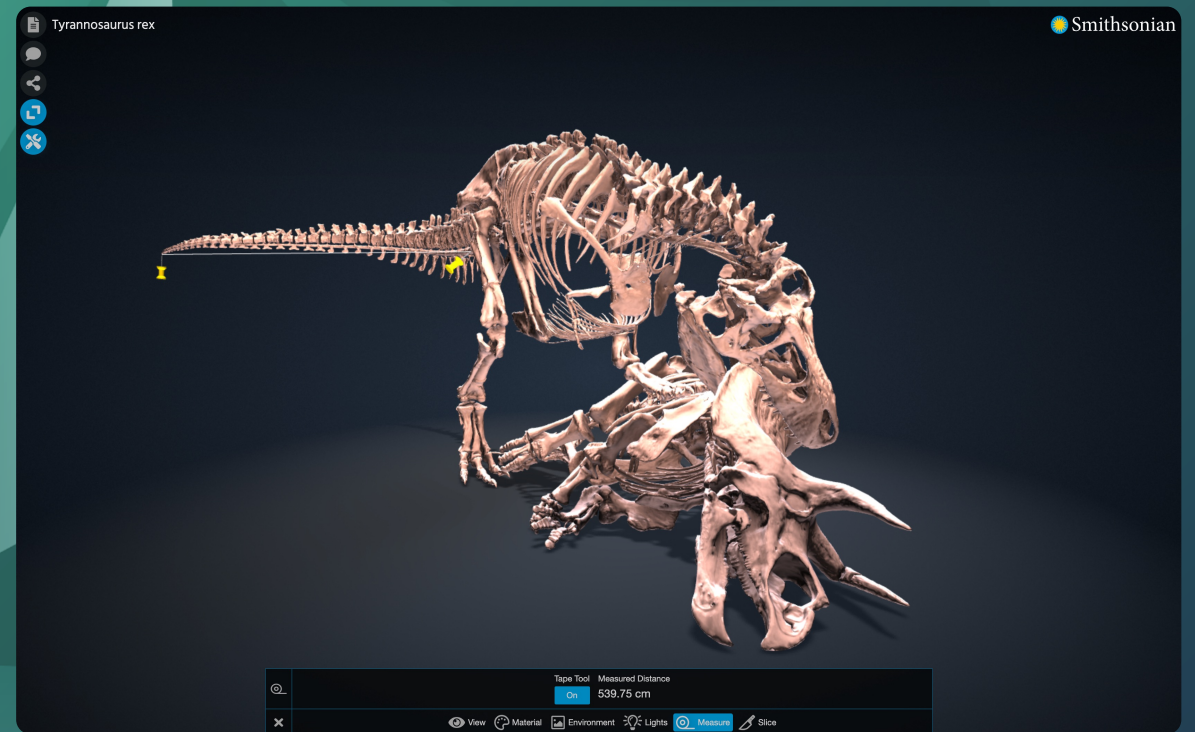


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Voyager



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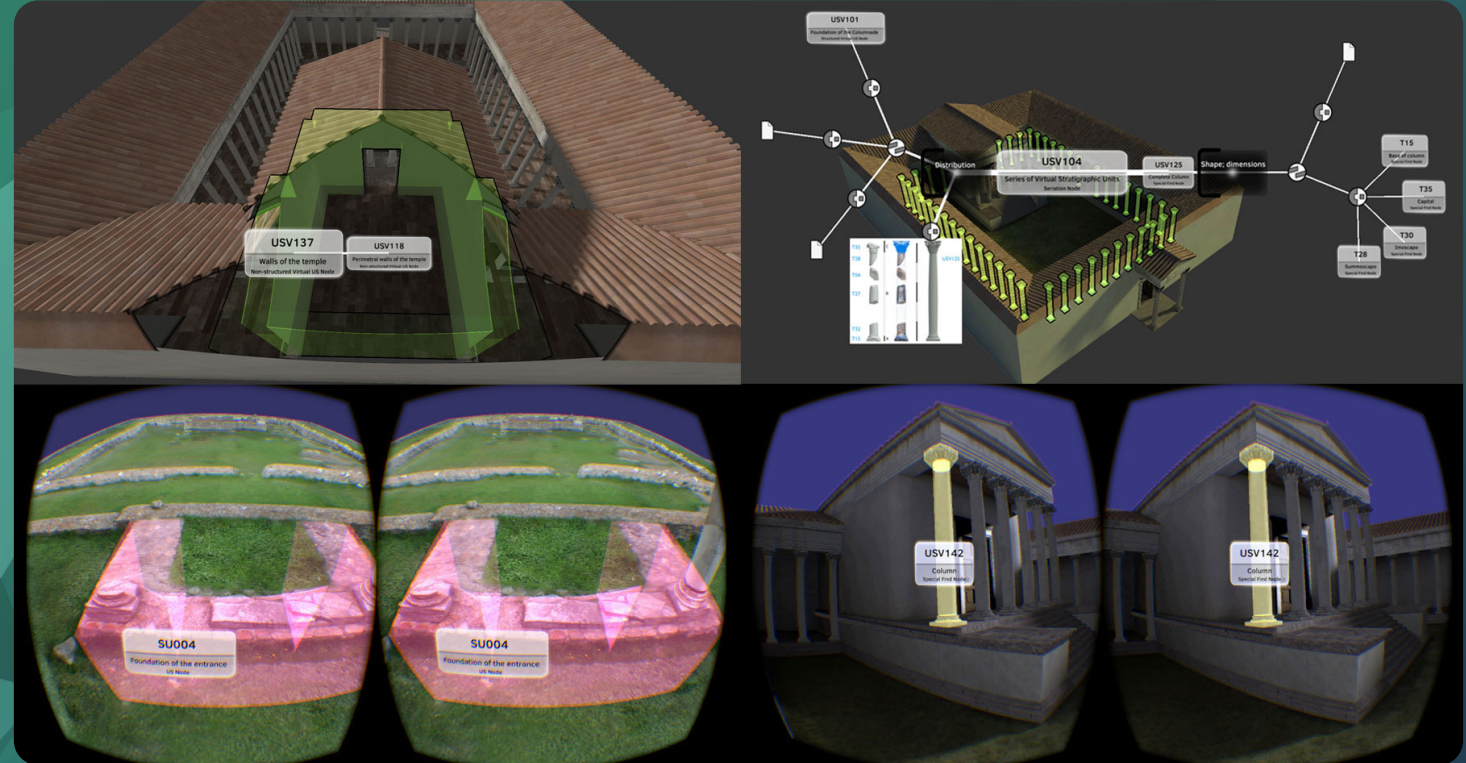


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<https://3d.si.edu/>

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ATON



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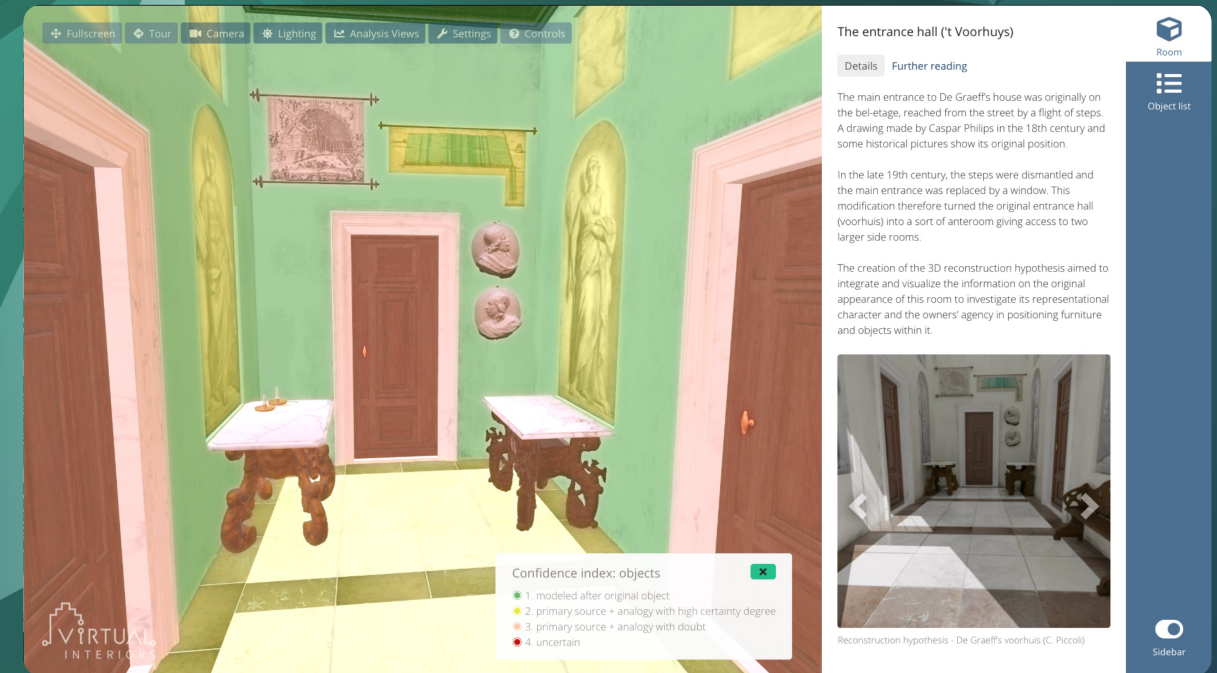
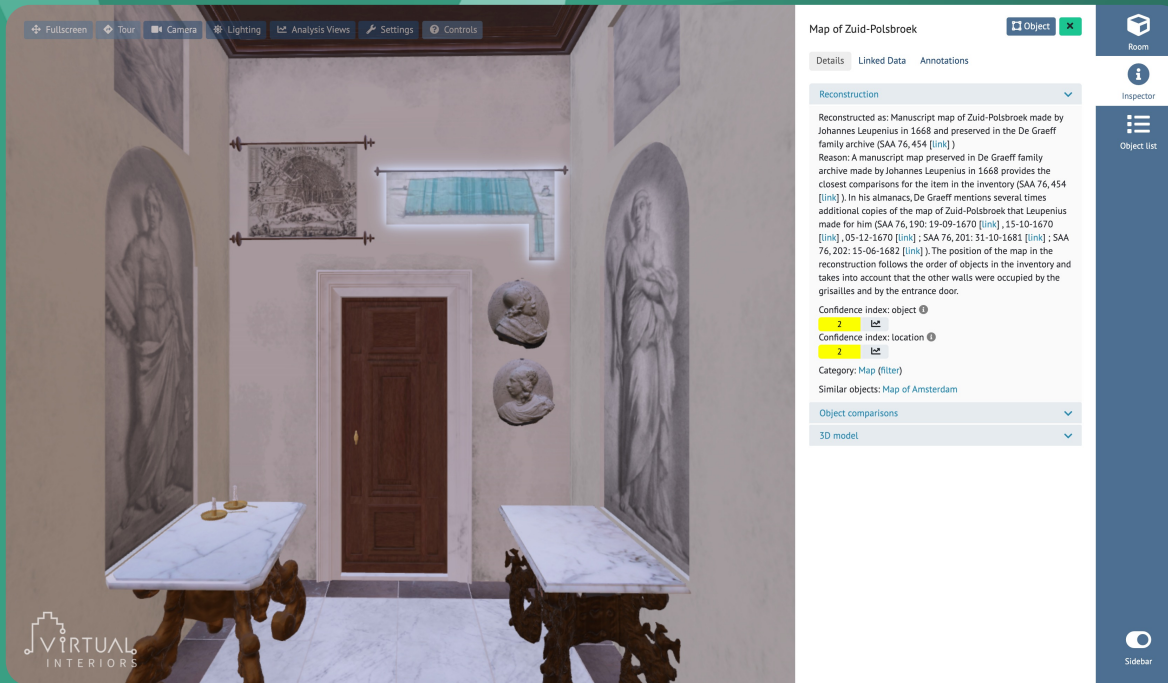


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<http://osiris.itabc.cnr.it/aton/>

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Virtual Interiors



Huurdeman, H. & Piccoli, C. (2021). 3D Reconstructions as Research Hubs: Geospatial Interfaces for Real-Time Data Exploration of Seventeenth-Century Amsterdam Domestic Interiors: . Open Archaeology, 7(1), 314-336. <https://doi.org/10.1515/opar-2020-0142>



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<https://www.virtualinteriorsproject.nl/>

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Gathering requirements for the Editions



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Gathering Requirements: A User-Centered Design Approach

Target End-Users

- 3D Content Creators (museums, researchers, non-profit, private sector)
- Humanities and Social Science Researcher
- Public (from school children to adults)

Methods

- Environment scan
- Surveys
- Focus Groups with different target end-users
- Multi-stage evaluations of a working prototype



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Survey – Purpose and Methodology

Objectives

- Gather requirements from diverse community of researchers who make and deploy 3D models from the heritage sector

Format

- 47 questions
 - Respondent demographic
 - Ideal features (future)
 - Project-specific (past)



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What Scholars Want: Survey Results



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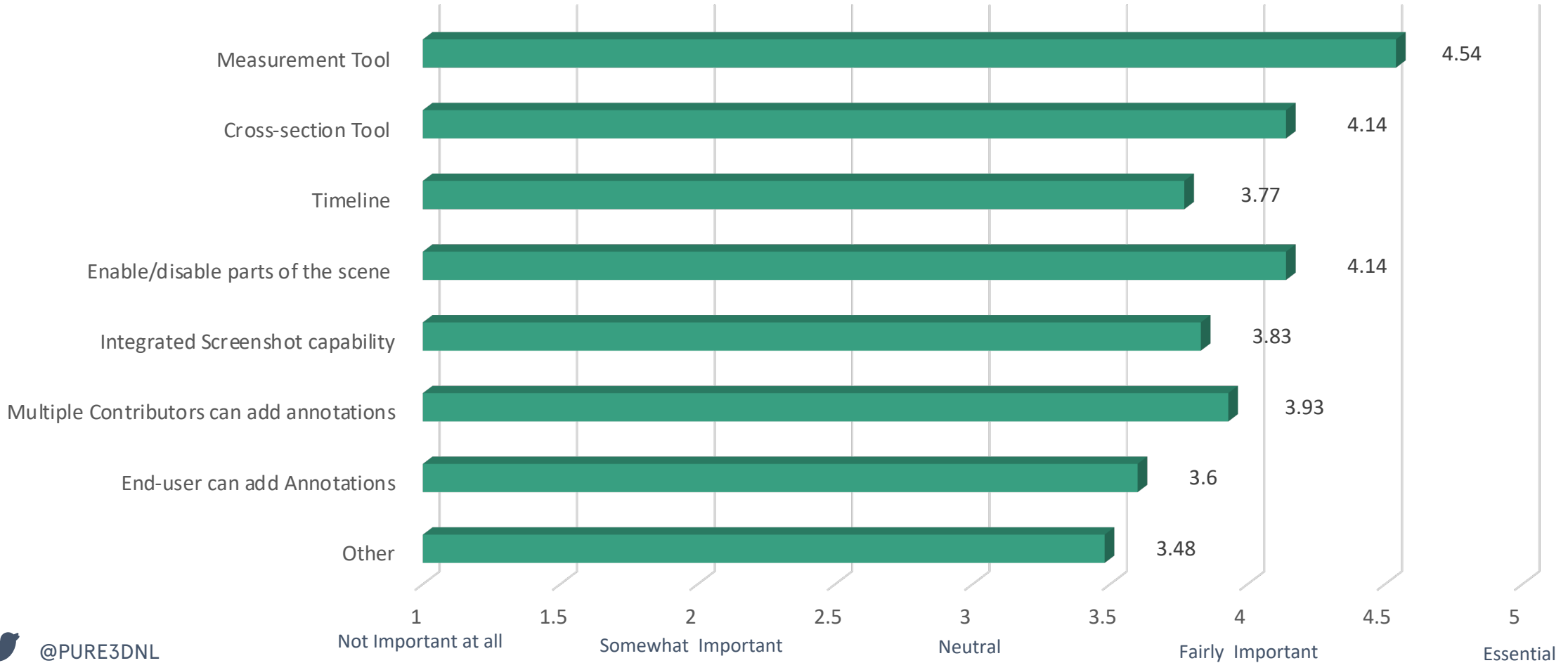
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Interface Features

Mean values for Question 6: The 3D web viewer should support the following features...



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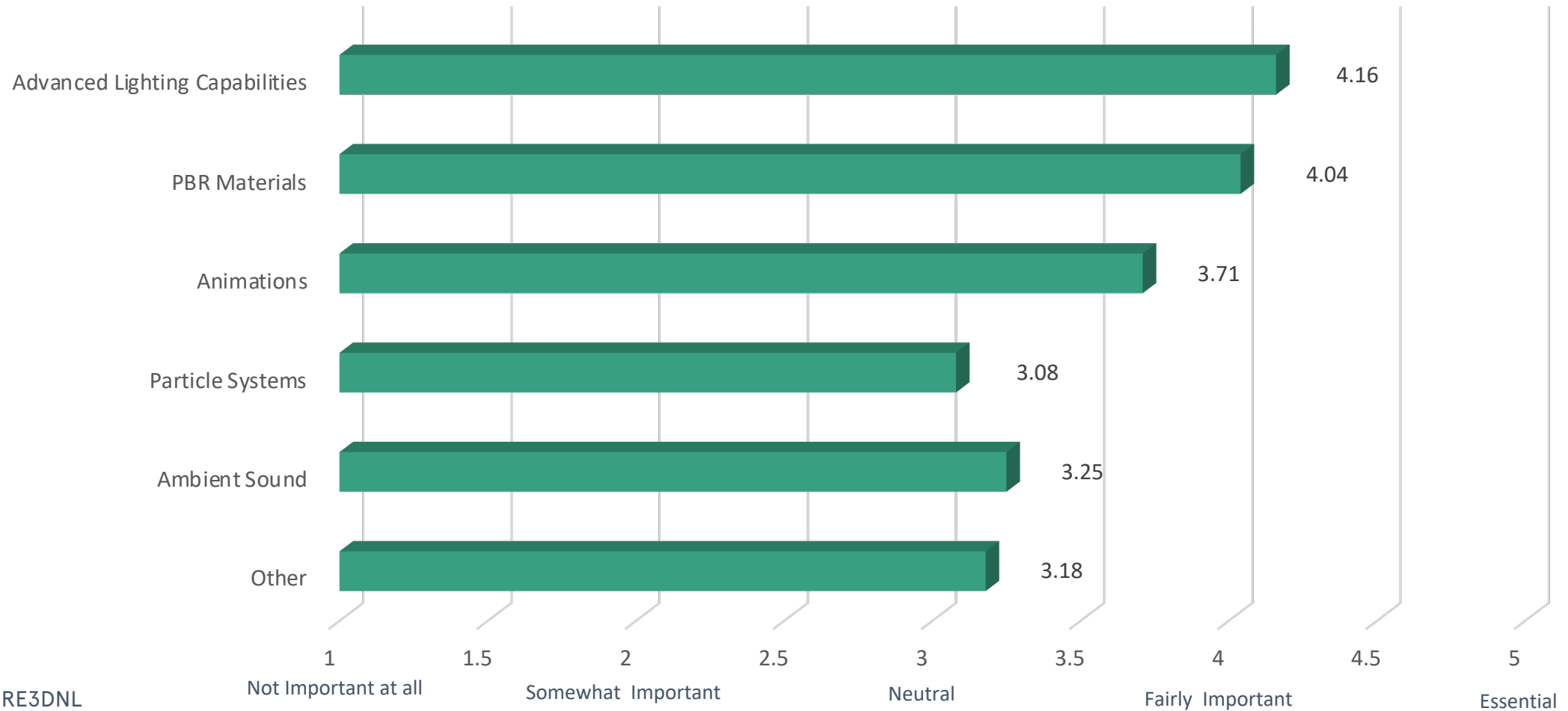
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Multi-Sensory Features

Mean values for Question 7: The 3D web viewer should be able to handle...



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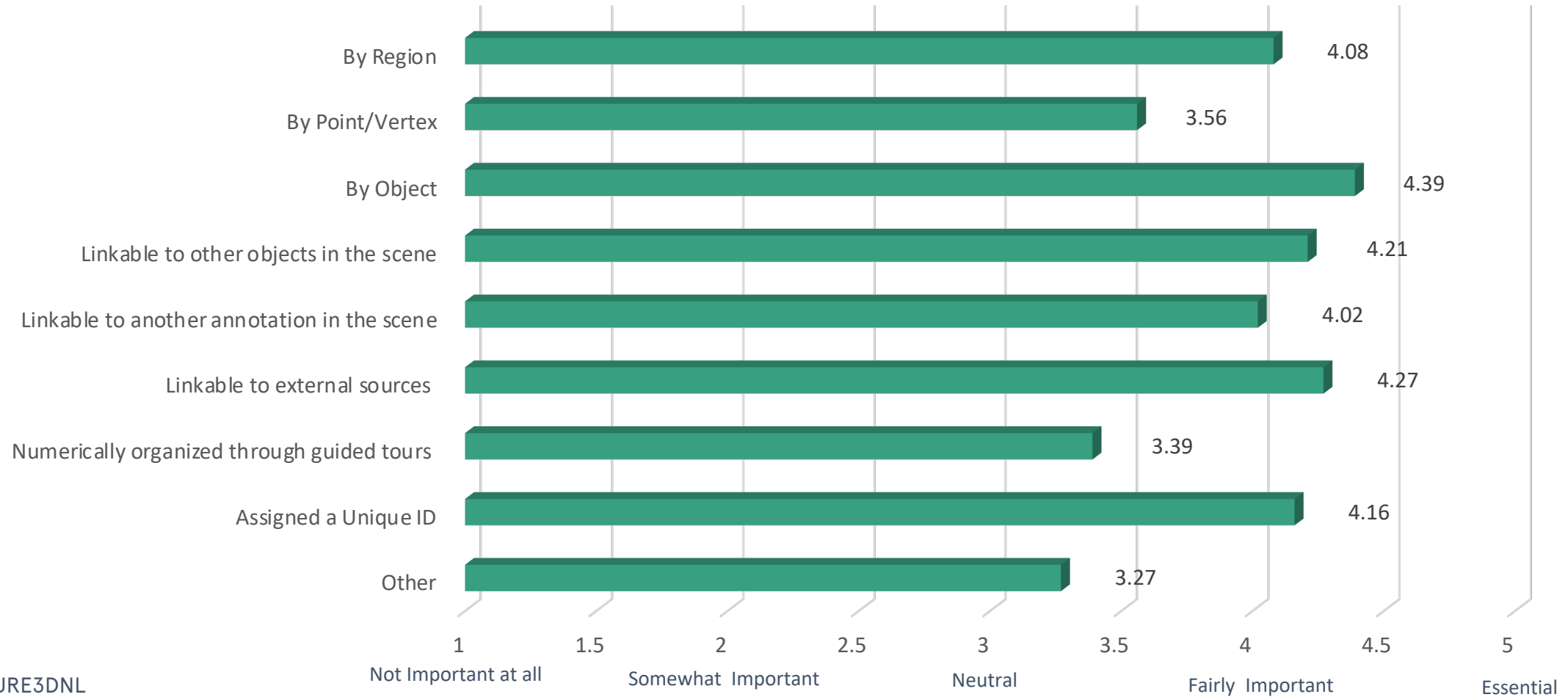
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Annotation Features

Mean values for Question 8: Annotations within the 3D web viewer should be...



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Why an addition (as opposed to an interface)

3D Interface

- Convention view-only modes
- Little to no contextualizing information
- Limited metadata
- Focus of the model is on technical characteristics of the model, not the real object it is representing

3D Edition

- Interactive, discoverable
- Linked with internal and external contextualizing narratives and information
- Robust metadata and paradata standards
- The model itself can be configured by the end-user to produce new knowledge



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