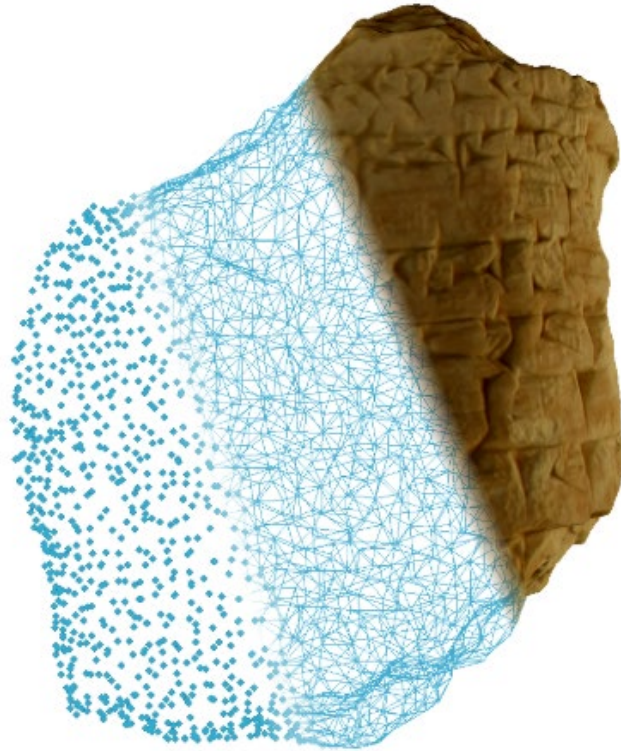


Collaborating with young citizen scientists to design a virtual reconstruction interface



Dr Sandra Woolley (Computer Science)
Dr Kat Mycock (Partnership Officer FNS)

Outline

Cuneiform tablets

Virtually reconstructing cuneiform tablets

Co-creating a virtual reconstruction interface

Measurable impacts

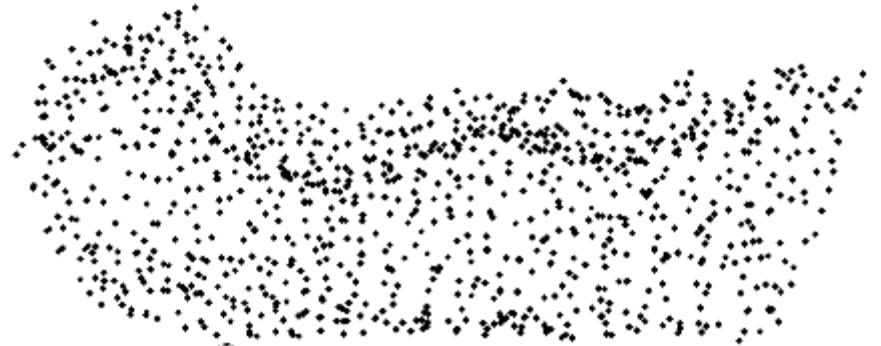
Cuneiform Tablets

- Early writing impressed on handheld clay “tablets”. **The original portable information technology.**
- Began as “pictograms” 5,000 years and remained in use for 3,000 years.
- The writing records ownership of land and cattle. Some tablets contain maps, letters, poetry, **stories**, astronomy and **mathematics**.
- Many thousands of tablets have been excavated. Most are fragmented.

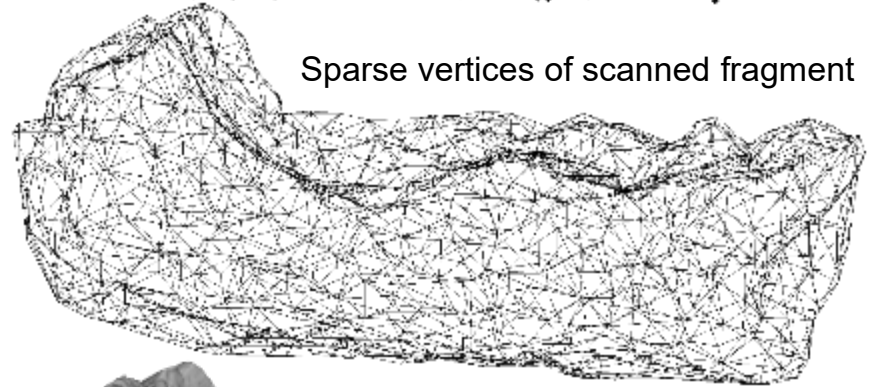


3D Models of Cuneiform Tablets

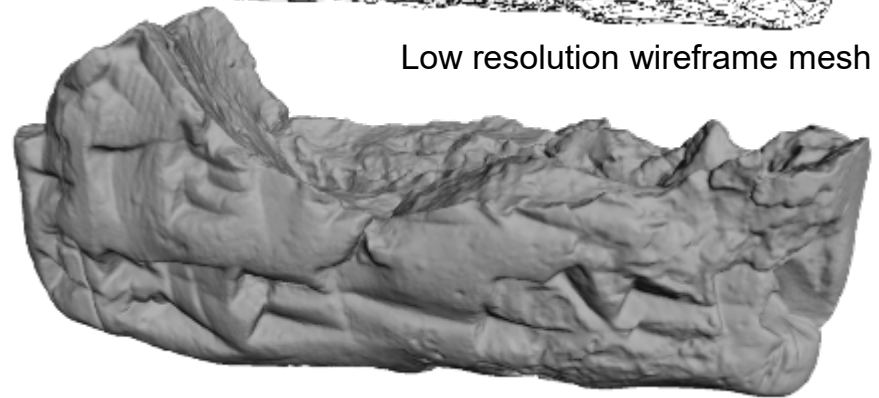
- 3D scanners build 3D models by creating sets of points called **vertices**.
- Connected together, these points form a **mesh of triangles**.
- Shading the triangles according to colour of the object and the lighting is called **rendering**.
- We can make virtual objects look real by wrapping them in pixels from photographs of the original object.



Sparse vertices of scanned fragment



Low resolution wireframe mesh



High resolution solid mesh

THE CONVERSATION

Academic rigour, journalistic flair

Arts + Culture Business + Economy Cities Education Environment + Energy Health + Medicine Politics + Society Science + Technology



Virtual archaeology: how we achieved the first long-distance reconstruction of a cultural artefact

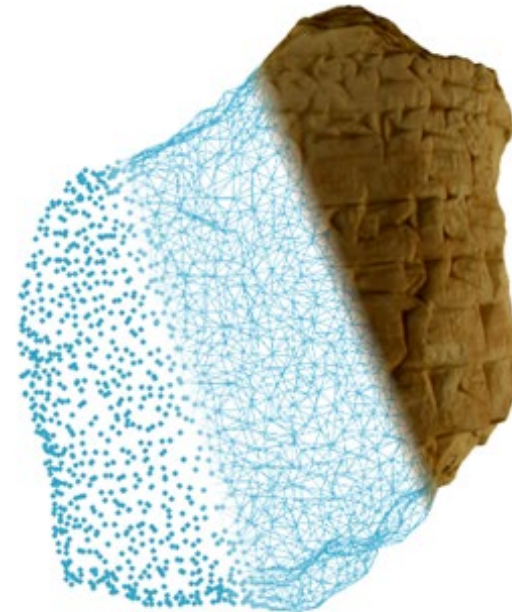
February 28, 2018 11:50am GMT

The Virtual Cuneiform Tablet Reconstruction Project

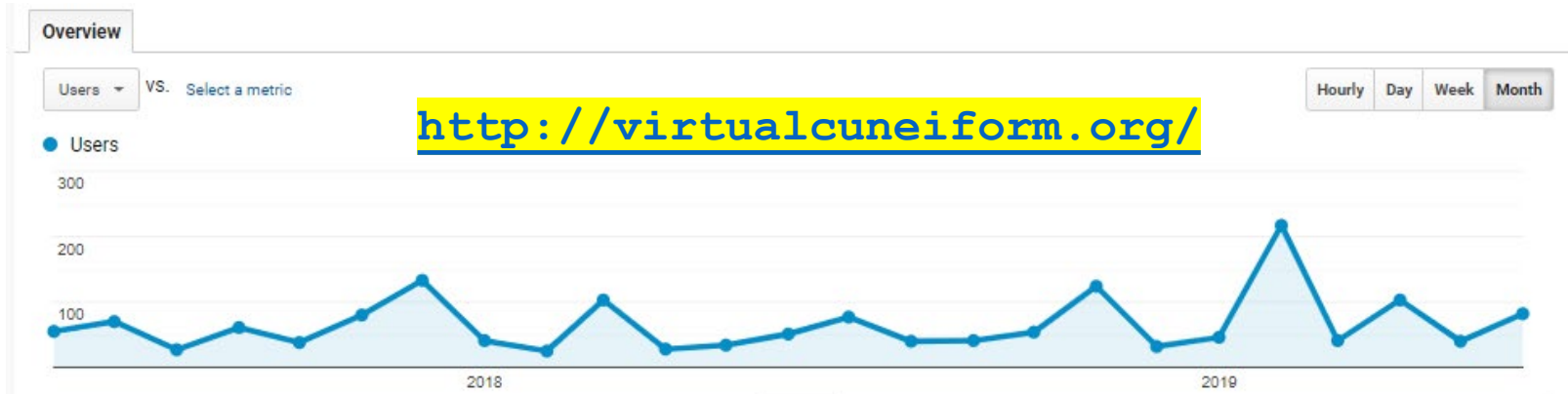
- 3D Acquisition and Virtual Reconstruction

The Virtual Cuneiform Tablet Reconstruction (VCTR) Project is an international collaboration inspired by the ambition to support virtual access to cuneiform artefacts and to reconstruct cuneiform tablets by joining virtual fragments together. The project aims to support and resource low-cost and easy-to-use 3D acquisition systems, advance automated virtual reconstruction algorithms, evolve a collaborative reconstruction environment and facilitate interactive on-line 3D archiving.

- [About the Virtual Cuneiform Tablet Reconstruction Project](#)
- [3D Acquisition](#)
- [Collaborative Environment](#)
- [Automated Reconstruction](#)
- [3D Gallery](#)
- [3D Interaction Example](#)
- [For Schools](#)
- [Publications and Media](#)
- [News](#): *"Virtual Archaeology: How we Achieved the First Long-distance Reconstruction of a Cultural Artefact"*
- [People](#)
- [Contact](#)



Website & Conversation Views



Google Analytics Home

Users

82

↑1,540%

Sessions

90

↑1,700%

Bounce Rate

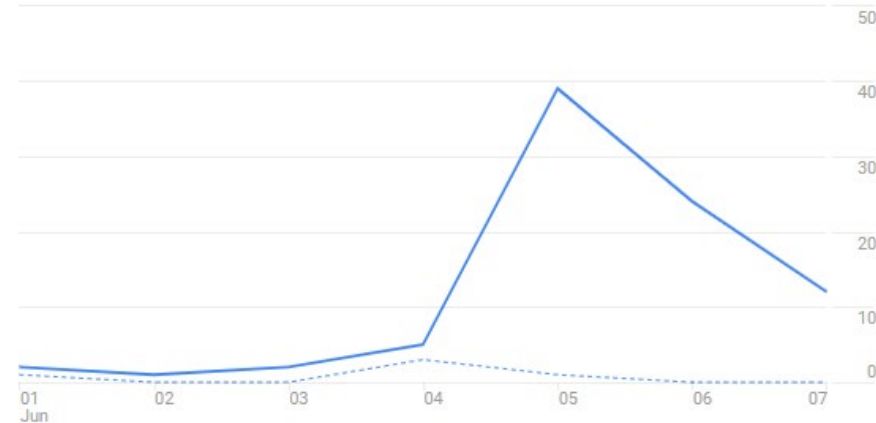
43.33%

↓45.8%

Session Duration

1m 54s

↑1,265.3%



Country	Users	% Users
1. United Kingdom	440	28.95%
2. United States	438	28.82%
3. Germany	143	9.41%
4. Brazil	103	6.78%
5. Italy	40	2.63%
6. Canada	35	2.30%
7. France	22	1.45%
8. China	21	1.38%
9. Spain	20	1.32%
10. Georgia	18	1.18%

ANALYSIS February 28, 2018

Virtual archaeology: how we achieved the first long-distance reconstruction of a cultural artefact

6,272

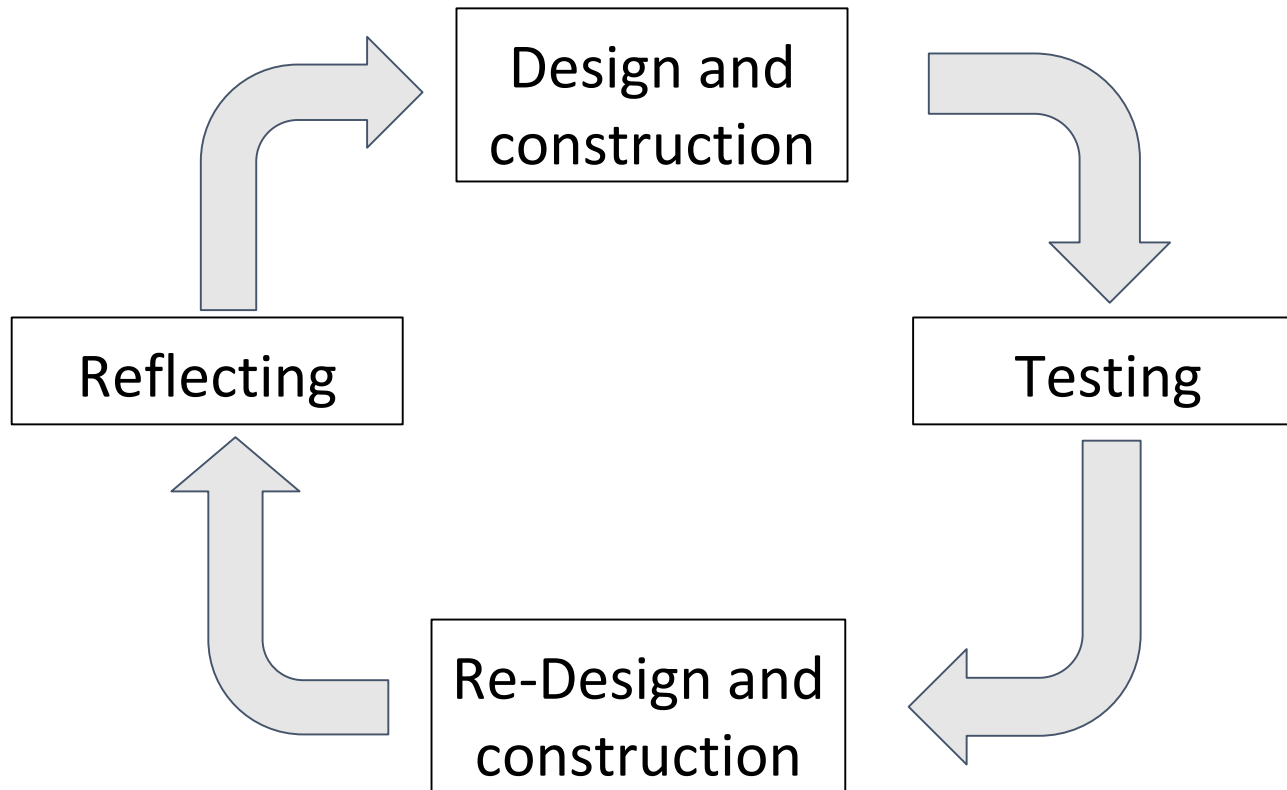
16



Co-designing a Virtual Reconstruction Interface



- Computer science day organised at Kingsmead School, by Keele student, Ashley Farmer, studying Computing in Education module.
- We ran a 45 minute workshop for year 8 students (19 - 30 in each, total 147), alongside other sessions run by Keele students.
- The young people tested the existing web interface and providing feedback, before making their own design suggestions.



Some suggestions made

More examples to solve (e.g. more tablets, animal skulls)

Loading bar

Buttons to be clearer

Explanation about how animations work

Limit cursor movement to inside the box

To look inside objects

Make it easier to manipulate tablets

Design buttons - change colour and annotate

Different levels of difficulty

Improve in zoom/out

Translation of each tablet

Hint button

Nearly there feedback

Ability to turn auto-solve on and off

Turn into a time-travelling story

Controls - Auto-clicks when close to solving, keyboard control.

Measurable Impacts



Kingsmead @KingsmeadOnline · Feb 6

Year 8 attended Computer Science taster sessions today delivered by students and lecturers from Keele University. They were given an insight into programming, artificial intelligence and game design, amongst other things, ahead of choosing their options later in the year.



1 2 7

Raising profile of computer science in the school and amongst individuals.

New knowledge, understandings and skills.

Changing perceptions about how computer science can be applied to real world problems.

Improvement in design of online interface.

New 3D Interface for International Cuneiform Library


cdli

CUNEIFORM
DIGITAL LIBRARY INITIATIVE

A joint project of the University of California, Los Angeles, the
University of Oxford, and the Max Planck Institute for the History of
Science, Berlin


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QUICK SEARCH
Publication
Collection no.
Provenience
Period
Transliteration
CDLI no.

FULL SEARCH >>



NEWS IN THE CDLI


- The National Museum of Iran Cuneiform Collection joins CDLI
- CDLI selected to participate in Google's 2018 Summer of Code program
- "cdli tablet" joins the Android family
- CDLI website encrypted to ensure user privacy
- CDLI core update
- In support of CDLI transliterations
- Machine assisted translation of cuneiform texts
- CDLI data up for download
- CDLI User Survey
- CDLI Year-end notes, 2015
- Detroit Institute of Arts—Cuneiform too!

[News archive >>](#)

RELATED PROJECTS

- Mesopotamian Royal Inscriptions
- Mesopotamian Seals
- Nimrud NW Palace
- Machine Translation and Automated Analysis of Cuneiform Languages (MTAAC)
- Oracc: website; github
- ePSD
- Electronic Text Corpus of Sumerian Literature
- Database of Neo-Sumerian Texts
- The Ancient World Online
- KeiBi online
- Electronic Tools and Ancient Near Eastern Archives
- Hethitologie Portal Mainz
- CultureMATH

[More >>](#)



[More >>](#)

Summary

In this project, working with young people to test and evaluate the web interface led to many thoughtful suggestions that improved design making it more user friendly for all users.

<http://virtualcuneiform.org/>