

FOSTERING THE PUBLICATION OF SPATIAL  
ARCHAEOLOGICAL DATA:  
A DECENTRALIZED APPROACH  
THE *ARCHEOVIZ* WEB APPLICATION AND ITS PORTAL

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- 1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET
- 2 THE *ARCHEOVIZ* APP
- 3 THE *ARCHEOVIZ* PORTAL
- 4 USING *ARCHEOVIZ*
- 5 A FEDERATIVE AND DECENTRALIZED APPROACH
- 6 PERSPECTIVES

## └ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

### └ WHAT SECRET? SPATIAL DATA IN ARCHAEOLOGY

#### 1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

- What secret? Spatial data in archaeology
- A change with the so-called “Digital Revolution”?
- Related work and existing solutions
- The *archeoViz* answer

#### 2 THE *ARCHEOVIZ* APP

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#### 6 PERSPECTIVES

## FOSTERING THE PUBLICATION OF SPATIAL ARCHAEOLOGICAL DATA

└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ WHAT SECRET? SPATIAL DATA IN ARCHAEOLOGY

AN INTENSE AND LONG-STANDING RECORDING EFFORT

BUT A CONTRASTING NEGLECT

# FOSTERING THE PUBLICATION OF SPATIAL ARCHAEOLOGICAL DATA

└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ WHAT SECRET? SPATIAL DATA IN ARCHAEOLOGY

## AN INTENSE AND LONG-STANDING RECORDING EFFORT



Flinders PETRIE, Tell Hesi, 1891.

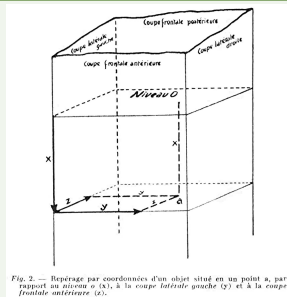


Fig. 2. — Repérage par coordonnées d'un objet situé en un point a, par rapport au niveau 0 (X), à la coupe latérale gauche (y) et à la coupe frontale antérieure (z).

LAPLACE AND MÉROC 1954. “Application des coordonnées cartésiennes à la fouille d'un gisement”, p. 67.

BUT A CONTRASTING NEGLECT

└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ WHAT SECRET? SPATIAL DATA IN ARCHAEOLOGY

## AN INTENSE AND LONG-STANDING RECORDING EFFORT

A long technological history:

- 1858-1880: William Pengelly excavation at Kents Cavern.
- 1890: Flinders Petrie excavating Tell el-Hesy.  
*PETRIE 1891. Tell El Hesy (Lachish)..*
- From 1947: Georges Laplace and Louis Méroc recorded spatial coordinates at Montmaurin.  
*LAPLACE AND MÉROC 1954. "Application des coordonnées cartésiennes à la fouille d'un gisement" ..*
- Late 1980's: Harold Dibble *et al.* started to use theodolites  
*DIBBLE 1987. "Measurement of Artifact Provenience with an Electronic Theodolite" ..*
- 2000's: GIS, remote sensing, drones, etc.

BUT A CONTRASTING NEGLECT

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Spatial data are:

- underused: (possibly some statistics and) some figures;
- kept in notebooks and, more recently, hard-drives, or lost;
- very little shared: data sharing in archaeology is an old problem

GARDIN 1955. "Problems of Documentation", *Diogenes*.

└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ A CHANGE WITH THE SO-CALLED “DIGITAL REVOLUTION”?

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└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ A CHANGE WITH THE SO-CALLED “DIGITAL REVOLUTION”?

### A CHANGING SITUATION? YES, BUT SLOWLY...

- Few spatial data sets in the main disciplinary and generic repositories of archaeological data.
  - disciplinary: *tDAR*, *ADS*, *OpenContext*, *OpenArkeo*;
  - generic: *Zenodo*, *Figshare*, *Github*, *OSF*, *Nakala*, etc.
- However, very few dataset are at site’s scale and/or include the “z” third spatial dimension.
- Even papers specialized in spatial data analysis rarely publish... spatial data.  
(Supporting material is limited to the programming code.)
- Better situation in the major generic scientific journals, which require authors to publish supporting data  
e.g.: *Nature*, *Science*, *PlosONE*.

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### └ RELATED WORK AND EXISTING SOLUTIONS

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└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ RELATED WORK AND EXISTING SOLUTIONS

EXISTING ARCHAEOLOGICAL VISUALIZATION SOFTWARE

EXISTING GEOGRAPHIC INFORMATION SYSTEMS

EXISTING ONLINE REPOSITORIES FOR ARCHEOLOGICAL SPATIAL DATA

└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ RELATED WORK AND EXISTING SOLUTIONS

## EXISTING ARCHAEOLOGICAL VISUALIZATION SOFTWARE

Lightweight software for archaeological spatial data visualization:

- Dataset-specific scripts or web applications:
- R Shiny application implementing specific statistical methods:
- R packages:

## EXISTING GEOGRAPHIC INFORMATION SYSTEMS

## EXISTING ONLINE REPOSITORIES FOR ARCHEOLOGICAL SPATIAL DATA

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Lightweight software for archaeological spatial data visualization:

- Dataset-specific scripts or web applications:
  - S. McPherron's R Shiny *Plot it* application (unpublished),
  - A. Sécher's *PyCoCu* python script.
- R Shiny application implementing specific statistical methods:
- R packages:

## EXISTING GEOGRAPHIC INFORMATION SYSTEMS

## EXISTING ONLINE REPOSITORIES FOR ARCHEOLOGICAL SPATIAL DATA

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Lightweight software for archaeological spatial data visualization:

- Dataset-specific scripts or web applications:
- R Shiny application implementing specific statistical methods:
  - COUILLET ET AL. 2022. “New Visual Analytics Tool and Spatial Statistics to Explore Archeological Data: The Case of the Paleolithic Sequence of La Roche-à-Pierrot, Saint-Césaire, France”.
- R packages:

## EXISTING GEOGRAPHIC INFORMATION SYSTEMS

## EXISTING ONLINE REPOSITORIES FOR ARCHEOLOGICAL SPATIAL DATA

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## EXISTING ARCHAEOLOGICAL VISUALIZATION SOFTWARE

Lightweight software for archaeological spatial data visualization:

- Dataset-specific scripts or web applications:
- R Shiny application implementing specific statistical methods:
- R packages:
  - *recexcavAAR* (no longer maintained)  
SCHMID AND SERBE 2017. *recexcavAAR: 3D Reconstruction of Archaeological Excavations*.
  - *SEAHORS*  
ROYER ET AL. 2023. "SEAHORS: Spatial Exploration of Archaeological Objects in R Shiny".  
(only does visualization but offers more advanced features than *archeoViz*)

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## EXISTING ARCHAEOLOGICAL VISUALIZATION SOFTWARE

### EXISTING GEOGRAPHIC INFORMATION SYSTEMS

*archeoViz* is a lightweight, complementary alternative to to more complex archaeological software, and the more demanding association of GIS software and export libraries:

- *ArchField*

SMITH, HOWLAND, AND LEVY 2015. “Digital Archaeology Field Recording in the 4th Dimension: ArchField C++ a 4D GIS for Digital Field Work”.

- *Aspectus*

VURPILOT, VERRIEZ, AND THIVET 2018. “Aspectus: A Flexible Collaboration Tool for Multimodal and Multiscalar 3D Data Exploitation”.

- *4D system*

ORTEGA-ALVARADO ET AL. 2022. “Integrated and Interactive 4D System for Archaeological Stratigraphy”.

- QGIS and the *Qgiszthreejs* plugin.



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## EXISTING ARCHAEOLOGICAL VISUALIZATION SOFTWARE

## EXISTING GEOGRAPHIC INFORMATION SYSTEMS

## EXISTING ONLINE REPOSITORIES FOR ARCHEOLOGICAL SPATIAL DATA

- *arkeoGIS*, <https://arkeogis.org>  
BERNARD 2019. “Ten Years of ArkeoGIS: Feedback on the Challenges and Benefits of Digitally Sharing Archeological Data”.  
No dataset with 3D data so far.
- *Field*, <https://field.dainst.org>  
No third dimension. Only 2 datasets so far.
- *PaleoCore*, <https://paleocore.org>  
Datasets are currently private.

## └ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

### └ THE *ARCHEOVIZ* ANSWER

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# FOSTERING THE PUBLICATION OF SPATIAL ARCHAEOLOGICAL DATA

└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ THE *ARCHEOVIZ* ANSWER

BARRIERS TO DATA AVAILABILITY

THE *ARCHEOVIZ* ANSWER

*ARCHEOVIZ* PRINCIPLES

↳ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

↳ THE *ARCHEOVIZ* ANSWER

## BARRIERS TO DATA AVAILABILITY

Lack of:

- 1 accessible and handy tools,
- 2 training in data management,
- 3 time to prepare data for publication,
- 4 recognition related to data publishing

SELHOFER AND GESER 2015. *D2.2 Second Report on Users' Needs*.

BERNARD 2019. "Ten Years of ArkeoGIS: Feedback on the Challenges and Benefits of Digitally Sharing Archeological Data".

THE *ARCHEOVIZ* ANSWER

*ARCHEOVIZ* PRINCIPLES

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└ THE *ARCHEOVIZ* ANSWER

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## THE *ARCHEOVIZ* ANSWER

- minimal and multilingual interface (viz. issue 1)
- simple data structure (viz. issues 2, 3)

make *archeoViz* handy to use and fast to deploy on the web,

- contributing to promote datasets as citable scientific outputs and, consequently, to promote data creators as well (viz. issue 4).

## *ARCHEOVIZ* PRINCIPLES

└ THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

└ THE *ARCHEOVIZ* ANSWER

## BARRIERS TO DATA AVAILABILITY

## THE *ARCHEOVIZ* ANSWER

## *ARCHEOVIZ* PRINCIPLES

- **An incentive to publish:** a workaround to archaeologists' reluctance to publish data: *archeoViz* as a tool to promote data sets, emphasizing *data reuse* as an incentive to *publish* data.
- **A decentralized approach:** *archeoViz* as the building block of a decentralized web edition network for archaeological data, made of as many *archeoViz* instances as there are datasets (instead of using a central repository).
- **A federative perspective:** using the *archeoViz portal* to gather the multiple *archeoViz* static instances and describes them with metadata aligned on standards and authorities.

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└ THE *ARCHEOVIZ* ANSWER

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## └ THE *ARCHEOVIZ* APP

### └ GENERAL FEATURES

- 1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET
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  - General features
  - The app interface
  - Highlights on notable features and use
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└ THE *ARCHEOVIZ* APP

└ GENERAL FEATURES

*ARCHEOVIZ*, IN A NUTSHELL

TARGETED USES

## └ THE ARCHEOVIZ APP

### └ GENERAL FEATURES

#### ARCHEOVIZ, IN A NUTSHELL

A web R Shiny application embedded in an R package  
“a decentralized mean for the editorialization of spatial data in archaeology”.

- “**spatial archaeological data**”: mainly individual objects located with set of coordinates (x, y, z) and represented as points;
- “**decentralized**”: based on multiple autonomous instances of the application and a portal to link them (vs a centralized platform);
- “**editorialization**”: offering views on a dataset (vs publishing the dataset)

#### TARGETED USES

## └ THE ARCHEOVIZ APP

### └ GENERAL FEATURES

#### ARCHEOVIZ, IN A NUTSHELL

#### TARGETED USES

- For everyone:
  - **make visible and communicate** on the web archaeological datasets; e.g.: a tool to present an ongoing excavation to the public; a way to generate a feedback to citizens and taxpayers.
- For archaeologists:
  - visual and statistical **exploration** of datasets;
  - a companion tool to a publication (as an interactive supplemental);
  - an **educational** resource;
  - an **incentive to publish** data (on third-party services: *OSF, Zenodo, Nakala, etc.*).

## └ THE *ARCHEOVIZ* APP

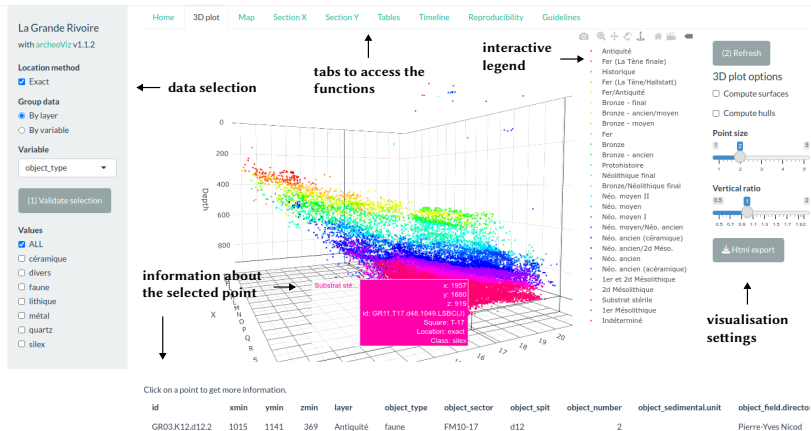
### └ THE APP INTERFACE

- 1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET
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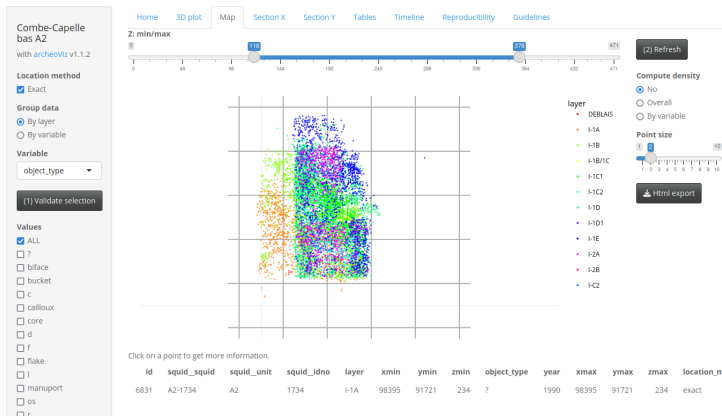
# FOSTERING THE PUBLICATION OF SPATIAL ARCHAEOLOGICAL DATA

## THE ARCHEOVIZ APP

## THE APP INTERFACE



## Demonstration: Combe Capelle A2



<https://analytics.huma-num.fr/archeoviz/combe-capelle-a2>

## └ THE *ARCHEOVIZ* APP

### └ HIGHLIGHTS ON NOTABLE FEATURES AND USE

#### 1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

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- General features
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## └ THE *ARCHEOVIZ* APP

### └ HIGHLIGHTS ON NOTABLE FEATURES AND USE

- *archeoViz* functionalities are simple.
- They are also flexible and can be adapted and used for many purposes.

- Representing spatial uncertainty
- Representing fabrics
- Representing shapes
- Linking *archeoViz* to data repositories and standard ontologies
- *archeoViz* use and reproducibility

## Display spatial uncertainty

The screenshot displays the archeoViz v1.1.0 application interface. The main view is a 3D perspective of an archaeological site with a grid floor and a vertical axis labeled 'profondeur' (depth) ranging from 0 to 1000. Data points are represented by colored rectangles and vertical error bars, indicating spatial uncertainty. The points are color-coded by category: A (red), B (yellow), C (green), D (blue), and E (purple).

**Left Panel (Controls):**

- Mode de localisation:
  - Exacte
  - Vague
  - Montrer les incertitudes
- Grouper les données:
  - Par couche
  - Par variable
- Variable:
  - object\_type
- 1) Valider la sélection
- Valeurs:
  - TOUTES
  - bone
  - lithic
  - pottery
  - shell

**Top Navigation:** Accueil, Données, Vue 3D, Plan, Section X, Section Y, Tableaux, Chronologie, Reproductibilité, Aide

**Right Panel (Options):**

- 2) Rafraîchir
- Options vue 3D:
  - Calculer les enveloppes
  - Montrer les remontages
- Taille des points:
  - Slider: 1 to 5 (set to 5)
- Ratio vertical:
  - Slider: 0.5 to 2 (set to 1)
- Exporter (html)

## Display fabrics (using the “show refits” feature)

The screenshot displays the Archeoviz application interface for a 3D plot. The main window shows a 3D plot of data points, with a grid on the ground plane. The plot is titled "Y".

**Left Panel (Filters and Controls):**

- Location: Shuidonggou 2
- Version: with archeoviz v1.1.2
- Location method:**  Exact
- Group data:**  By layer,  By variable
- Variable:** object\_type (dropdown)
- 
- Values:**  ALL,  bone,  lithic

**Top Navigation:** Home | 3D plot | Map | Section X | Section Y | Tables | Timeline | Reproducibility | Guidelines

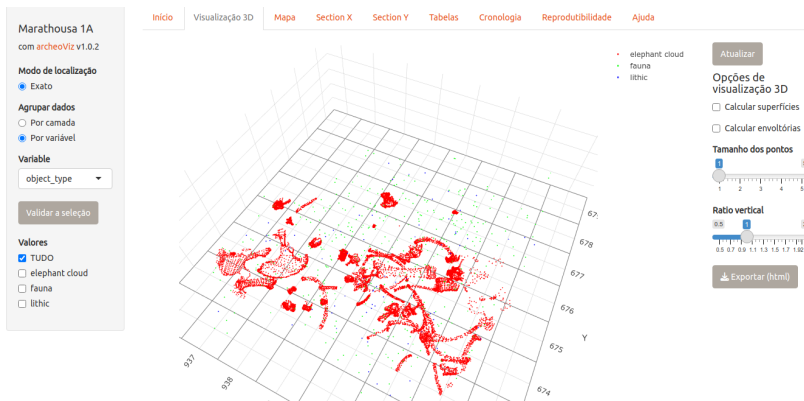
**Right Panel (Plot Options):**

- Compute surfaces
- Compute hulls
- Show refits
- Point size:** Slider from 1 to 5 (set to 1)
- Vertical ratio:** Slider from 0.5 to 2 (set to 1)
- 
- 

**Legend:**

- 3 (red)
- 2 (green)
- 1b (cyan)
- 1a (purple)

## Display shapes: e.g., elephant bones at Marathousa 1A



## └ THE *ARCHEOVIZ* APP

### └ HIGHLIGHTS ON NOTABLE FEATURES AND USE

#### REPRODUCIBILITY

*archeoViz* is, by definition, an interactive tool.

Consequently, ensuring the reproducibility of users' interactions with the app is challenging.

Nevertheless, the app includes features satisfying this requirement:

- 1 Dynamic generation of R code to launch the app with the parameters sets by the user when interacting with the app.
- 2 Export of the plots in self-contained HTML files. *E.g.*,
  - 3D plot of Le Flageolet
  - Map plot of Barger Gulch
- 3 If relevant, publication of the code to recode and reshape the published dataset into the *archeoViz* format:
  - publication of the code;
  - “Data editor” and “Data reprocessing code” metadata.

## └ THE *ARCHEOVIZ* APP

### └ HIGHLIGHTS ON NOTABLE FEATURES AND USE

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HOME
3D PLOT
MAP
SECTION X
SECTION Y
TABLES
TIMELINE
REPRODUCIBILITY
GUIDELINES

**Têsetice X09**  
with *archeoViz* v1.1.2

**Location method**

Fuzzy

**Group data**

By layer

By variable

**Variable**

object\_type ▾

(1) VALIDATE SELECTION

**Values**

ALL

?

burin

denticulated

double/multiple

fragment

lighter

notch

percussive tool

retouched

scraper

sickle

splintered piece

used

## Reproducibility

To reproduce your current settings, run *archeoViz* with the following R command (adjust the "objects.df" and "refits.df" parameters to your needs):

```

archeoViz(objects.df=data,
reverse.axis.values="xy", title="Têsetice X09",
lang="en", set.theme="sandstone", home.text=" ",
add.x.square.labels=08.4,
class.variable="object_type",
class.values=c("burin", "denticulated",
"double/multiple", "fragment", "lighter", "notch",
"percussive tool", "retouched"), square.size=100,
default.group="by.variable", location.mode="fuzzy",
map.z.val=c(20, 83), map.density="overall",
plot3d.ratio=1, plot3d.hulls=FALSE,
sectionX.x.val=c(3500, 4149),
sectionX.y.val=c(2700, 4500),
sectionY.x.val=c(3000, 5000),
sectionY.y.val=c(2951, 3788))

```

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## Linking points in *archeoViz* to records in repositories and to concepts in standard ontologies: e.g., to the *tDAR* Barger Gulch dataset



## Linking points in *archoViz* to records in repositories and to concepts in standard ontologies: e.g., to the *tDAR* Barger Gulch dataset

The screenshot shows the top navigation bar of the tDAR website. On the left is the tDAR logo with the text 'The Digital Archaeological Record' and 'A SERVICE OF DIGITAL ANTHROPOLOGY'. On the right, it says 'Welcome Back, Sébastien Plutniak' and has a search bar with a magnifying glass icon. Below the logo is a horizontal navigation menu with links: ABOUT, SEARCH, USING TDAR, UPLOAD, NEWS, SHA, SAA, GIVE, and MY ACCOUNT.

### Row number 14,044 of Barger Gulch Locality B database

**Dataset:** Barger Gulch Locality B database

**Description:** This database includes all field and laboratory data from the Barger Gulch Archaeological Project. It includes all field data from the excavation of Barger Gulch Locality B (5GA915), a Folsom site in Grand County, Colorado. It also includes mapping of surface artifacts and auger data. Laboratory analysis data for all lithic artifacts recovered from excavations are also included as are radiocarbon dates from excavations. These data will be published as a companion dataset to the book *Barger Gulch: A Folsom Campsite in the Rocky Mountains* (University of Arizona Press) by Todd Surovell. These data are available as both a Microsoft Access relational database and also with the same database broken down into flat csv files, each of which is a table from that database.

Field	Value
ID	15832
Catalog Number	LD489-1-32
Artifact Type	FK
Portion	PR
Mass	0.43
Length	12.01
Width	12.63
Thickness	2.85

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└ THE *ARCHEOVIZ* PORTAL

└ A PORTAL TO BIND THEM ALL

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- A portal to bind them all
- A focus on refitting data

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Homepage of an *archeoViz* specific instance on the portal.  
E.g., the Cassenade Paleolithic site

Home 3D plot Map Section X Section Y Tables Timeline Reproducibility Guidelines

Cassenade

with archeoViz v1.0.1

Location method  
 Exact

Group data  
 By layer  
 By variable

Variable  
 object\_type

Values  
 ALL  
 charcoal  
 coprolites  
 fauna  
 other  
 pottery  
 quartz  
 silex

Cassenade

Cassenade rock shelter located in [Saint-Martin-des-Corbières](#), in Dordogne (France). It was discovered in the early 1970s by Michel Besse during speleological surveys. Besse first excavated the site, followed by new investigations in 2012-2013 led by Emmanuel Docamps.

The data presented here relates to Layer 2, that was excavated using spits of 20cm to 50cm. Two assemblages were distinguished:

- The Upper assemblage
- The Lower assemblage

The data presented includes 2458 remains from Layer 2, mainly coprolites, faunal and lithic remains. Ratios between lithic and faunal remains can be displayed.

Metadata

Data source	Emmanuel Docamps
Data collection date	2013-2014

Homepage structure:

- Figure and short presentation
- Metadata
- Reference for citing this instance
- References of related publications and dataset

## THE ARCHEOVIZ PORTAL

## A PORTAL TO BIND THEM ALL

### Welcome to the *archeoViz* portal

#### Presentation

This portal gives access to **40** datasets visualised with the *archeoViz* application (also referenced in the **HAL** repository). They include **351,690** objects, and **10908** refitting relationships.

*archeoViz* is an application designed for archaeology. It allows to **visualise**, interactively **explore**, and quickly deploy and **communicate** on the web data about archaeological remains found during excavations and surveys.

It offers interactive **visualisations**, can generate and export **3D view**, **cross sections** and **maps** of the remains, can run basic **spatial statistics** methods (convex hull, regression surfaces, 2D kernel density estimation), and can display an excavation interactive **timeline**.

This app is distributed as an open source **R package**, with its code available on **github**.

*archeoViz* can be used locally on a personal computer or deployed on a server. It can be run statically with a specific dataset or dynamically by loading data through the interface, which is available in **German, English, French, Italian, and Portuguese**.

#### Use cases



- Click on a row of the table below to zoom the map to the location of a site.
- Use the "Search" field to search sites by name, period, and country.

Show  entries

Search:

Site name	Period coverage	Nr of objects	Nr of refitting relationships	Nr of refitting objets
<a href="#">Alltøndering</a>	Medieval, Merovingian	6889	0	0
<a href="#">Amaida 1, layer VII</a>	Middle Palaeolithic	1966	0	0
<a href="#">Barger Gulch</a>	Paleoindian, Folsom	17219	1082	1206
<a href="#">Barmose</a>	Mesolithic	473	0	0
<a href="#">B...</a>	P...	...	...	...


The *archeoViz portal* is intended to index *archeoViz* specific instance.

Welcome to the *archeoViz* portal

**Presentation**

The *archeoViz* portal is a web-based application that provides a central point of access to archaeological data and metadata. It is designed to facilitate the discovery and use of archaeological data and metadata across different platforms and systems.

**Use cases**



The map displays the following data:

Site name	Period coverage	no. of objects	no. of refitting relationships	no. of refitting objects
Abri de la Vache	18000-17000	1000	0	0
Abri de la Vache 2	18000-17000	1000	0	0
Abri de la Vache 3	18000-17000	1000	0	0
Abri de la Vache 4	18000-17000	1000	0	0
Abri de la Vache 5	18000-17000	1000	0	0
Abri de la Vache 6	18000-17000	1000	0	0
Abri de la Vache 7	18000-17000	1000	0	0
Abri de la Vache 8	18000-17000	1000	0	0
Abri de la Vache 9	18000-17000	1000	0	0
Abri de la Vache 10	18000-17000	1000	0	0

Currently, it indexes:

- 40 datasets, that include
- 351,690 objects (including 61,133 objects linked to their data repository),
- 10,908 refitting relationships.

- The portal is currently hosted on the *huma-num* servers:

<https://analytics.huma-num.fr/archeoviz/home>



## └ THE *ARCHEOVIZ* PORTAL

### └ A PORTAL TO BIND THEM ALL

The small team currently maintaining the *archeoViz* portal:



Anaïs VIGNOLES

PhD, Université Paris Nanterre



Sébastien PLUTNIAK

PhD, CNRS

## MAINTENANCE WORKFLOW

- Synchronization and versioning using a private *github* repository;
- bash script for fast and automatic deployment on the server.

## └ THE *ARCHEOVIZ* PORTAL

### └ A FOCUS ON REFITTING DATA

- 1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET
- 2 THE *ARCHEOVIZ* APP
- 3 THE *ARCHEOVIZ* PORTAL
  - A portal to bind them all
  - A focus on refitting data
- 4 USING *ARCHEOVIZ*
- 5 A FEDERATIVE AND DECENTRALIZED APPROACH
- 6 PERSPECTIVES

Chez Thuilet  
con *archeoViz* v1.0.2

Modalità di localizzazione  
 Esatta

Raggruppare i dati  
 Per strato  
 Per variabile

Variable  
object\_refits.set

Convalida selezione

Valori  
 TUTTE  
 1  
 5  
 6  
 7  
 8  
 9  
 10  
 11  
 12

Home Vista 3D Mappa Section X Section Y Tabelle Cronologia Riproducibilità Aiuto

Esce clic su un punto per visualizzare le informazioni

Aggiorna

Opzioni di visualizzazione 3D

Calcolare gli involuipi

Mostra i rassembiaggi

Dimensione dei punti  
1 2 3 4 5

Rapporto verticale  
0.5 1 2

Esportare (html)

#### WHY REFITTING?

Same reasoning that about spatial data.

Refitting relationships are:

- fundamental in archaeological study (the most certain archaeological knowledge that can be determined),
- time-consuming to determine,
- but rarely published and, consequently, reused.

Consequently, refitting data are highlighted in the *archoViz portal*.

## Datasets sorted by number of refitting relationships:

Site name	Period coverage	Nr of objects	Nr of refitting relationships	Nr of refitting objets
Le Bout des Vergnes	Middle Palaeolithic → Upper Palaeolithic, Châtelperronian, Aurignacian	17679	3740	4350
Champ-Parel 3	Upper Palaeolithic, Aurignacian	3746	2410	1770
Chauzeys	Middle Palaeolithic → Upper Palaeolithic, Châtelperronian, Aurignacian	15462	1846	2140
Barger Gulch	Paleoindian, Folsom	17219	1082	1206
Le Flageolet	Upper Palaeolithic, Gravettian	63992	725	2994
Les Bessinaudes	Middle Palaeolithic	6053	485	598
Chez Thulet	Upper Palaeolithic, Magdalenian	1523	454	480
Bilzingsleben	Lower Palaeolithic	2522	61	160
Grotte XVI	Middle Palaeolithic, Mousterian → Upper Palaeolithic, Châtelperronian	4545	60	196
Cassenade	Upper Palaeolithic, Châtelperronian	2466	26	76

Showing 1 to 10 of 36 entries

Previous 1 2 3 4 Next

- 1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET
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- 3 THE *ARCHEOVIZ* PORTAL
- 4 USING *ARCHEOVIZ*
- 5 A FEDERATIVE AND DECENTRALIZED APPROACH
- 6 PERSPECTIVES

## └ USING *ARCHEOVIZ*

### └ CHOOSE ONE OF THE 4 WAYS TO USE *ARCHEOVIZ*

1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

2 THE *ARCHEOVIZ* APP

3 THE *ARCHEOVIZ* PORTAL

4 USING *ARCHEOVIZ*

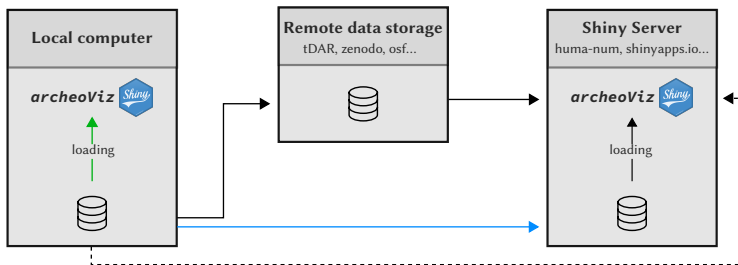
- Choose one of the 4 ways to use *archeoViz*
- Prepare your CSV file
- Get the application
- Learn more and contribute
- Use *archeoViz* for education in archaeology

5 A FEDERATIVE AND DECENTRALIZED APPROACH

6 PERSPECTIVES

└ USING *ARCHEOVIZ*

└ CHOOSE ONE OF THE 4 WAYS TO USE *ARCHEOVIZ*



4 use modes for *archeoViz*:

- local (green solid line),
- remote and dynamic (dashed line),
- remote, static, with data publication (black solid line),
- remote, static, without data publication (blue solid line).



## └ USING *ARCHEOVIZ*

### └ PREPARE YOUR CSV FILE

1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

2 THE *ARCHEOVIZ* APP

3 THE *ARCHEOVIZ* PORTAL

4 USING *ARCHEOVIZ*

- Choose one of the 4 ways to use *archeoViz*
- Prepare your CSV file
- Get the application
- Learn more and contribute
- Use *archeoViz* for education in archaeology

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6 PERSPECTIVES

└ USING *ARCHEOVIZ*

└ PREPARE YOUR CSV FILE

REQUIRED FIELDS

OPTIONAL FIELDS

## └ USING *ARCHEOVIZ*

### └ PREPARE YOUR CSV FILE

#### REQUIRED FIELDS

- *id*: unique identifier of the object;
- *xmin*: coordinate of the object on the X axis (in cm);
- *ymin*: coordinate of the object on the Y axis (in cm);
- *zmin*: coordinate of the object on the Z axis (depth value in cm);
- *layer*: identifier of the object's layer;
- *object\_type*: category of the object.

#### OPTIONAL FIELDS

#### REQUIRED FIELDS

#### OPTIONAL FIELDS

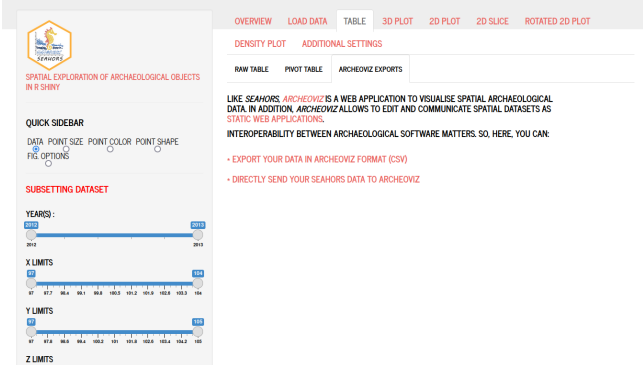
- *square\_x*: identifier of the square on the X axis;
- *square\_y*: identifier of the square on the Y axis;
- *year*: year when the object was excavated;
- *xmax*: when the X location of the object is included in a range of X coordinates;
- *yymax*: when the Y location of the object is included in a range of Y coordinates;
- *zmax*: when the Z location of the object is included in a range of Z coordinates;
- *object\_<edit>*: unlimited number of additional variables describing the object.

## File example

<b>id</b>	<b>square_x</b>	<b>square_y</b>	<b>xmin</b>	<b>xmax</b>	<b>ymin</b>	<b>ymax</b>	<b>zmin</b>	<b>layer</b>	<b>object_type</b>	<b>object_subtype</b>
1	A	1	51	55	61	65	10	1a	fauna	bos
2	B	2	152		140		30	2	lithic	blade

Mandatory fields are in bold.

Alternative option: use the *SEAHORS* application to generate an *archeoViz*-compatible file.



The screenshot displays the SEAHORS web application interface. On the left, there is a sidebar with the SEAHORS logo and the text "SPATIAL EXPLORATION OF ARCHAEOLOGICAL OBJECTS IN R SHINY". Below this is a "QUICK SIDEBAR" with controls for "DATA", "POINT SIZE", "POINT COLOR", and "POINT SHAPE". Further down is a "SUBSETTING DATASET" section with three sliders: "YEARS(S)" ranging from 2012 to 2013, "X LIMITS" ranging from 87 to 104, and "Y LIMITS" ranging from 87 to 100. On the right, there is a navigation menu with tabs for "OVERVIEW", "LOAD DATA", "TABLE", "3D PLOT", "2D PLOT", "2D SLICE", and "ROTATED 2D PLOT". Below the menu, there are sections for "DENSITY PLOT" and "ADDITIONAL SETTINGS". Under "ADDITIONAL SETTINGS", there are tabs for "RAW TABLE", "PIVOT TABLE", and "ARCHEOVIZ EXPORTS". A text block explains that SEAHORS uses ARCHEOVIZ and provides two export options: "EXPORT YOUR DATA IN ARCHEOVIZ FORMAT (CSV)" and "DIRECTLY SEND YOUR SEAHORS DATA TO ARCHEOVIZ".

<https://aurelienroyer.shinyapps.io/Seahors>

## └ USING *ARCHEOVIZ*

### └ GET THE APPLICATION

1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

2 THE *ARCHEOVIZ* APP

3 THE *ARCHEOVIZ* PORTAL

4 USING *ARCHEOVIZ*

- Choose one of the 4 ways to use *archeoViz*
- Prepare your CSV file
- **Get the application**
- Learn more and contribute
- Use *archeoViz* for education in archaeology

5 A FEDERATIVE AND DECENTRALIZED APPROACH

6 PERSPECTIVES

└ USING *ARCHEOVIZ*

└ GET THE APPLICATION

FOR REMOTE USE

FOR LOCAL USE



## └ USING *ARCHEOVIZ*

### └ GET THE APPLICATION

#### FOR REMOTE USE

- Generic demonstration instances (in multiple languages: en, de, fr, it, pt) are deployed on the *huma-num* servers:
  - <https://analytics.huma-num.fr/archeoviz/fr>
  - <https://analytics.huma-num.fr/archeoviz/en>
  - <https://analytics.huma-num.fr/archeoviz/pt> (Renata ARAUJO)
  - <https://analytics.huma-num.fr/archeoviz/it> (Sara GIARDINO)
  - <https://analytics.huma-num.fr/archeoviz/de> (Julian LAABS)

#### FOR LOCAL USE

└ USING *ARCHEOVIZ*

└ GET THE APPLICATION

FOR REMOTE USE

FOR LOCAL USE

- The R package in the CRAN repository:  
<https://cran.r-project.org/package=archoViz>
  - PLUTNIAK, Sébastien, Renata ARAUJO, Sara GIARDINO, Julian LAABS. 2023. *archoViz. Visualisation, Exploration, and Web Communication of Archaeological Excavation Data*, v1.2.1, doi: [10.5281/zenodo.7460193](https://doi.org/10.5281/zenodo.7460193).
- The code on *github*:  
<https://github.com/sebastien-plutniak/archoviz>

## └ USING *ARCHEOVIZ*

## └ LEARN MORE AND CONTRIBUTE

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3 THE *ARCHEOVIZ* PORTAL

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# FOSTERING THE PUBLICATION OF SPATIAL ARCHAEOLOGICAL DATA

└ USING *ARCHEOVIZ*

└ LEARN MORE AND CONTRIBUTE

DOCUMENTATION

PUBLICATIONS

STAY UP-TO-DATE AND ACCESS SUPPORT

└ USING *ARCHEOVIZ*

└ LEARN MORE AND CONTRIBUTE

## DOCUMENTATION

- Online documentation (README file on the github repository):  
<https://github.com/sebastien-plutniak/archeoviz>
- This documentation is also embedded in the app interface, in English and in French (tab “Guidelines” and “Aide”, respectively).
- PLUTNIAK, S. & A. Vignoles, “*L’application web / package archeoviz et son portail web. Une solution décentralisée d’éditorialisation de données archéologiques spatialisées*”, presentation at the *SITraDA – Systèmes d’information et traitements de données archéologiques* workshop.

## PUBLICATIONS

## STAY UP-TO-DATE AND ACCESS SUPPORT

└ USING *ARCHEOVIZ*

└ LEARN MORE AND CONTRIBUTE

## DOCUMENTATION

## PUBLICATIONS

- PLUTNIAK, S. 2023 (submitted). “*archeoViz: an R package for the Visualisation, Exploration, and Web Communication of Archaeological Spatial Data*”, *Journal of Open Source Software*.
- PLUTNIAK, S. 2023. “*Visualiser et explorer la distribution spatiale du mobilier archéologique: l’application archeoViz et son portail web*”, *Bulletin de la Société préhistorique française*, vol. 120(1), p. 70–74.

## STAY UP-TO-DATE AND ACCESS SUPPORT

└ USING *ARCHEOVIZ*

└ LEARN MORE AND CONTRIBUTE

DOCUMENTATION

PUBLICATIONS

STAY UP-TO-DATE AND ACCESS SUPPORT

- Visit <https://archeoviz.hypotheses.org>.
- Subscribe to the *archeoViz* mailing list:
  - <https://listes.services.cnrs.fr/wvs/info/archeoviz-users>.
  - Monthly newsletter.
  - A space for mutual support.

└ USING *ARCHEOVIZ*

└ LEARN MORE AND CONTRIBUTE

CONTRIBUTE TO THE APP DEVELOPMENT

CONTRIBUTE TO THE *ARCHEOVIZ* PORTAL



└ USING *ARCHEOVIZ*

└ LEARN MORE AND CONTRIBUTE

## CONTRIBUTE TO THE APP DEVELOPMENT

- Report bugs, submit enhancement requests: open an “issue” on <https://github.com/sebastien-plutniak/archeoviz/issues>.
- Contribute to the code: clone the *github* repository, write your code, and create pull requests.

## CONTRIBUTE TO THE *ARCHEOVIZ* PORTAL

└ USING *ARCHEOVIZ*

└ LEARN MORE AND CONTRIBUTE

## CONTRIBUTE TO THE APP DEVELOPMENT

## CONTRIBUTE TO THE *ARCHEOVIZ* PORTAL

- Prepare your dataset,
- test it online on a generic *archeoViz* instance
- deploy your *archeoViz* instance,
  - on the Shiny server of your choice:  
*shinyapps.io*, *Posit Connect*, *huma-num*, your institution's Shiny server, your own Shiny server (on AWS, etc.),
  - or write to [archeoviz-maintainers@services.cnrs.fr](mailto:archeoviz-maintainers@services.cnrs.fr) to deploy it on the *huma-num* server,
- write to [archeoviz-maintainers@services.cnrs.fr](mailto:archeoviz-maintainers@services.cnrs.fr) to index your instance on the portal.

## └ USING *ARCHEOVIZ*

### └ USE *ARCHEOVIZ* FOR EDUCATION IN ARCHAEOLOGY

1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

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- Prepare your CSV file
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- Use *archeoViz* for education in archaeology

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6 PERSPECTIVES

└ USING *ARCHEOVIZ*

└ USE *ARCHEOVIZ* FOR EDUCATION IN ARCHAEOLOGY

CONCEPTS

EXERCISES

## └ USING *ARCHEOVIZ*

### └ USE *ARCHEOVIZ* FOR EDUCATION IN ARCHAEOLOGY

#### CONCEPTS

*archeoViz* can be used to introduce students to multiple concepts:

- Archaeological field data recording
- Spatial analysis and statistics, post-excavation stratigraphic analysis
- Data description, data curation, data publication
- Metadata, data alignment, semantic web
- File formats (CSV, HTML, SVG)
- Open and reproducible science
- Scientific programming, computational archaeology

#### EXERCISES

#### CONCEPTS

#### EXERCISES

Teaching materials for classes in computational archaeology are available on the <https://archeoviz.hypotheses.org> webpage about:

- “Data preparation and tabular file formats”
- “Spatial data visualization and graphic outputs”
- “Data curation, description, and edition”
- “An introduction to the R language and reproducible science”

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## └ A FEDERATIVE AND DECENTRALIZED APPROACH

### └ A NETWORK OF *ARCHEOVIZ* STATIC INSTANCES

1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET

2 THE *ARCHEOVIZ* APP

3 THE *ARCHEOVIZ* PORTAL

4 USING *ARCHEOVIZ*

5 **A FEDERATIVE AND DECENTRALIZED APPROACH**

- A network of *archoViz* static instances
- Metadata and data alignment
- Referencing *archoViz* instances

6 PERSPECTIVES



↳ A FEDERATIVE AND DECENTRALIZED APPROACH

↳ A NETWORK OF *ARCHEOVIZ* STATIC INSTANCES

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<a href="#">Amaida 1, layer VII</a>	Middle Palaeolithic	1966	0	0
<a href="#">Barger Gulch</a>	Paleoindian, Folsom	17219	1082	1206
<a href="#">Barmose</a>	Mesolithic	473	0	0
<a href="#">Barrage</a>	Neolithic	1766	0	0

└ A FEDERATIVE AND DECENTRALIZED APPROACH

└ A NETWORK OF *ARCHEOVIZ* STATIC INSTANCES

## Notable examples

BILZINGSLEBEN

LE FLAGEOLET

LE POEYMAÛ

ALTENERDING

↳ A FEDERATIVE AND DECENTRALIZED APPROACH

↳ A NETWORK OF *ARCHEOVIZ* STATIC INSTANCES

## BILZINGSLEBEN

Bilzingsleben  
with *archeoViz* v1.2.1

Location method  
 Fuzzy

Group data  
 By layer  
 By variable

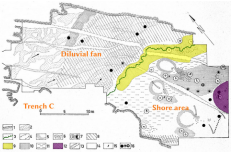
Variable  
object\_type

(!) Validate selection

Values  
 ALL  
 Antler  
 Brow tine  
 Burr  
 Burr pearl  
 Crown  
 Crown tine  
 Lower main beam  
 Main beam  
 Pedicle  
 Second tine  
 Tine  
 Trez tine  
 Upper main beam

Home 3D plot Map Section X Section Y Tables Timeline Reproducibility Guidelines

### Bilzingsleben



Bilzingsleben is an open air site located in [Bilzingsleben](#), Germany. The site was known since at least the 18th century, but was reexcavated by Dietrich Mania from 1969 to 1993. Lower Palaeolithic artifacts have been found together with hominid skeletal remains, enclosed in a travertine layer. Artifacts made of stone, bone, antlers, ivory, and calcined wood were found, and also bones from hunted animals, structures of dwelling, and hearths.

Several areas were distinguished:

- The "diluvial fan", a flood plain or made of travertine sands.
- The "shore facies", a terrace of loess-like deposit with clay on the top.
- A shore line separates the diluvial fan and the terrace (in green in the map above).
- The "pavement" is a part of the terrace paved with close small objects (< 10cm), mostly stones and bones, and interpreted by Mania as a human-made feature (in purple in the map above).

LE FLAGEOLET

LE POEYMAÛ

ALTENERDING

└ A FEDERATIVE AND DECENTRALIZED APPROACH

└ A NETWORK OF *ARCHEOVIZ* STATIC INSTANCES

## BILZINGSLEBEN

**Bilzingsleben**, lower Paleolithic site, Germany.

- Data 1<sup>st</sup> publication: 2000;
- Data raw format: digital;
- Highlights:
  - Linking between the *archeoViz* instance and the database published in 2000 in *Internet Archaeology*;
  - Publication of the reprocessing R code and reprocessed database (doi: [10.5281/zenodo.8003444](https://doi.org/10.5281/zenodo.8003444)).

## LE FLAGEOLET

## LE POEYMAÛ

## ALTENERDING

└ A FEDERATIVE AND DECENTRALIZED APPROACH

└ A NETWORK OF *ARCHEOVIZ* STATIC INSTANCES

## BILZINGSLEBEN

The screenshot shows a Zenodo record page. At the top, there is a blue header with the Zenodo logo, a search bar, and navigation links for 'Upload' and 'Communities'. The user profile 'sebastien.plutniak@posteo.net' is visible in the top right. The record title is 'Reprocessing script and data for the Bilzingsleben antlers dataset to visualise it with the archeoViz web application', dated June 4, 2023. The data collector is listed as 'Plutniak, Sébastien'. The record includes a list of files: 'bilzingsleben-data.csv', 'bilzingsleben.csv', 'bilzingsleben-refits.csv', 'bilzingsleben-timeline.csv', and 'bilzingsleben-timeline-map.jpg'. A 'Communities' section lists 'Archaeology - History, Philosophy, and Sociology of Archaeology'. Statistics show 29 views and 209 downloads. The record is indexed in OpenAIRE. The publication date is June 4, 2023.

zenodo Search Upload Communities sebastien.plutniak@posteo.net

June 4, 2023 Set as default Open Access Edit New version

### Reprocessing script and data for the Bilzingsleben antlers dataset to visualise it with the archeoViz web application

Plutniak, Sébastien

Data collector(s)

Vollbrecht, Jürgen

This file was created to be used for visualisation with the [archeoViz application](#).

This record includes:

- Reprocessed data from: Vollbrecht, Jürgen. 2000. "The antler finds at Bilzingsleben, excavations 1969-1993", *Internet Archaeology*, 8. DOI: 10.11141/ia.8.1
- and an R script with the code used to the reprocess this dataset.

In the resulting files,

- bilzingsleben-data.csv**: partially reprocessed Vollbrecht's data.
- bilzingsleben.csv**: output file of the reprocessing the objects (antlers) are associated with the ranges of coordinates of the square they were found, links to their record in Vollbrecht's database are included.
- bilzingsleben-refits.csv**: refitting data are reformated in a convenient format.
- bilzingsleben-timeline.csv**: the year the squares were excavated were deduced using Vollbrecht 2000 and recoded. This made it possible to generate:
- bilzingsleben-timeline-map.jpg**: a map of the site giving the year the squares were excavated and the labels arbitrary attributed for the archeoViz visualisation.

Communities

Archaeology - History, Philosophy, and Sociology of Archaeology Remove

29 views 209 downloads [See more details...](#)

Indexed in

OpenAIRE

Publication date: June 4, 2023

Preview

LE FLAGEOLET

LE POEYMAÜ

ALTENERDING

└ A FEDERATIVE AND DECENTRALIZED APPROACH

└ A NETWORK OF *ARCHEOVIZ* STATIC INSTANCES

## BILZINGSLEBEN

## LE FLAGEOLET

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Vue 3D
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Reproductibilité
Aide

**Le Flageolet**  
avec *archeoViz* v1.2.1

**Mode de localisation**

Exacte

**Grouper les données**

Par couche

Par variable

**Variable**

objet\_type

**Valeurs**

TOUTES

brisquet

bordin

bordin ?

bordin bec ?

bordin cassé ?

bordin cassé ?

bordin de noailles

bordin de noailles atypique

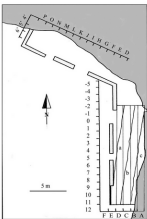
bordin de noailles cassé ?

bordin dièdre

bordin dièdre ?

bordin dièdre multiple

### Le Flageolet



Le site du Flageolet se situe à Biézac, en Dordogne (France). Suite à sa découverte en 1966, il a été fouillé durant 18 campagnes (1967-1993).

La stratigraphie est divisée en :

- couches 1-3: Gravettien récent.
- couche 7: Gravettien ancien.
- couches 8-11: couches Aurignaciennes.
- couche 12: stérile.

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## LE FLAGEOLET

**Le Flageolet**, Paleolithic site, France

- **Data 1<sup>st</sup> publication:** unpublished;
- **Data raw format:** archived notebooks;
- **Highlight:** 65,000 objects (larger dataset in the portal so far).

## LE POEYMAÜ

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## LE POEYMAÜ

### Le Poeymaü

avec *archeoviz* v1.2.1

#### Mode de localisation

- Exacte
- Vague
- Montrer les incertitudes

#### Grouper les données

- Par couche
- Par variable

#### Variable

object\_type

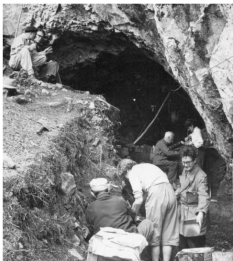
1) Valider la sélection

#### Valeurs

- TOUTES
- ?
- céramique
- charbon
- coquille
- faune
- galet
- galet décoré
- industrie osseuse
- limite de foyer
- lithique
- lithique non silex
- lithique non taillé
- lithique taillé

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### Le Poeymaü



La *grotte du Poeymaü* s'ouvre à 500 mètres d'altitude sur les flancs de la colline du Poeymaü, à Arudy. Le site est découverte en 1922 et, en 1948, des fouilles sont lancées par Georges Laplace, sous la forme d'un sondage puis d'une tranchée. Une première publication paraît en 1953 - G. Laplace y expose la stratigraphie en 8 niveaux, du Magdalénien à l'époque gallo-romaine. Il y définit le « Arudyen », un faciès mésolithique propre aux Pyrénées occidentales.

## ALTENERDING



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LE FLAGEOLET

LE POEYMAÜ

**Le Poeymaü**, Mesolithic site, France

- **Data 1<sup>st</sup> publication:** unpublished;
- **Data raw format:** archived notebooks;
- **Manually digitalized:** 15,000 objects, data enrichment, semantic alignment (work in progress).
- **Data publication:** forthcoming.

ALTENERDING

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BILZINGSLEBEN

LE FLAGEOLET

LE POEYMAÜ

ALTENERDING

Altenerding  
with *archeoviz* v1.2.1

Location method  
 Exact

Group data  
 By layer  
 By variable

Variable  
object\_type

(1) Validate selection

Values  
 ALL  
 grave  
 grave.goods  
 misc.  
 pearls  
 weapons

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## Altenerding



source doi: 10.1108/09690400610651268

The Altenerding Merovingian necropolis is an open air site located in [Altenerding](#), Germany. It was discovered by accident in 1965, during the construction of a new housing area, and excavated during four campaigns between 1965 and 1973. This necropolis was used from the second half of the 5th to the last third of the 7th century. With 1521 of originally 2200 to 2300 documented burials, it is the largest Merovingian cemetery in southern Germany.

Walter Sage published a monograph about the site in 1984. In 1998, Andrej Pleterski digitalised the data and published it online as an Access data-base, in Slovenian language.

The data set presented here includes 1348 burials and 2620 objects (weapons, pearls, and other types of objects) represented by points. In addition, burial goods are documented as a variable of the burials ('object\_burial.goods'), as well as the presence of terra sigillata (for these variables the points representing objects -and not burials- have 'NA' values). Information about the skeletal remains are also given (gender, age

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ALTENERDING

**Altenerding**, medieval cemetery, Germany

- Data 1<sup>st</sup> publication: 1998;
- Data raw format: digital;
- Highlight: translated from Slovenian into English.
- Data republication: forthcoming.

## └ A FEDERATIVE AND DECENTRALIZED APPROACH

### └ METADATA AND DATA ALIGNMENT

- 1 THE MOST JEALOUSLY KEPT ARCHAEOLOGICAL SECRET
- 2 THE *ARCHEOVIZ* APP
- 3 THE *ARCHEOVIZ* PORTAL
- 4 USING *ARCHEOVIZ*
- 5 **A FEDERATIVE AND DECENTRALIZED APPROACH**
  - A network of *archoViz* static instances
  - **Metadata and data alignment**
  - Referencing *archoViz* instances
- 6 PERSPECTIVES

# FOSTERING THE PUBLICATION OF SPATIAL ARCHAEOLOGICAL DATA

└ A FEDERATIVE AND DECENTRALIZED APPROACH

└ METADATA AND DATA ALIGNMENT

METADATA

METADATA ALIGNMENT

### METADATA

- Site name
- Number of objects, refitting relationships, objects included in refitting sets
- Location: latitude & longitude, country, municipality
- Chronology covered by the dataset
- Excavation dates
- Excavators names
- Data creators names
- Data editor names
- Data reprocessing workflow reference
- Data publication year
- Data reference
- Data license
- Publication date of the *archoViz* instance
- HAL identifier of the *archoViz* instance

### METADATA ALIGNMENT

### METADATA

### METADATA ALIGNMENT

- Geographic data:
  - *Geonames*
  - (and *OpenStreet map*)
- Chronological periods: *PACTOLS*
- Personal names (for excavation leaders, data creators, data editors):
  - *ORCID*
  - *VIAF*

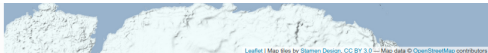
# FOSTERING THE PUBLICATION OF SPATIAL ARCHAEOLOGICAL DATA

## LA FEDERATIVE AND DECENTRALIZED APPROACH

## LMETADATA AND DATA ALIGNMENT

This app is distributed as an open source **R package**, with its code available on [github](#).

archeoViz can be used locally on a personal computer or deployed on a server. It can be run statically with a specific dataset or dynamically by loading data through the interface, which is available in **German, English, French, Italian, and Portuguese**.



- Click on a row of the table below to zoom the map to the location of a site.
- Use the "Search" field to search sites by name, period, and country.

Show  entries

Search:

Site name	Period coverage	Nr of objects	Nr of refitting relationships	Nr of refitting objets
<a href="#">Altenerding</a>	Medieval, Merovingian	6889	0	0
<a href="#">Arnalda 1, layer VII</a>	Middle Palaeolithic	1966	0	0
<a href="#">Barger Gulch</a>	Paleoindian, Folsom	17219	1082	1206
<a href="#">Barmose</a>	Mesolithic	473	0	0
<a href="#">Bastos</a>	Palaeolithic	1799	0	0
<a href="#">Bilzingsleben</a>	Lower Palaeolithic	2439	61	160
<a href="#">Cassnade</a>	Upper Palaeolithic, Châtelperronian	2466	26	76
<a href="#">Champ-Pareil 3</a>	Upper Palaeolithic, Aurignacian	3746	2410	1770
<a href="#">Chauzeys</a>	Middle Palaeolithic → Upper Palaeolithic, Châtelperronian, Aurignacian	15462	1846	2140
<a href="#">Chez Thuillet</a>	Upper Palaeolithic, Magdalenian	1523	454	480

Showing 1 to 10 of 40 entries

Previous  2 3 4 Next

[Download the full table](#)

### Use it!

Do you want your site here?

- Prepare your data.
- check it [here](#).

### References

- Papers:
  - Pliutniak, Sébastien, 2023, "Visualiser et explorer la distribution spatiale du mobilier archéologique : l'application archeoViz et son portail web", *Bulletin de la Société préhistorique française*, 120(1), p. 70-74.
  - Pliutniak, Sébastien, 2023, "archeoViz: an R package for the Visualisation, Exploration, and Web Communication of Archaeological



## └ A FEDERATIVE AND DECENTRALIZED APPROACH

### └ REFERENCING *ARCHEOVIZ* INSTANCES

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#### REFERENCING WORKFLOW

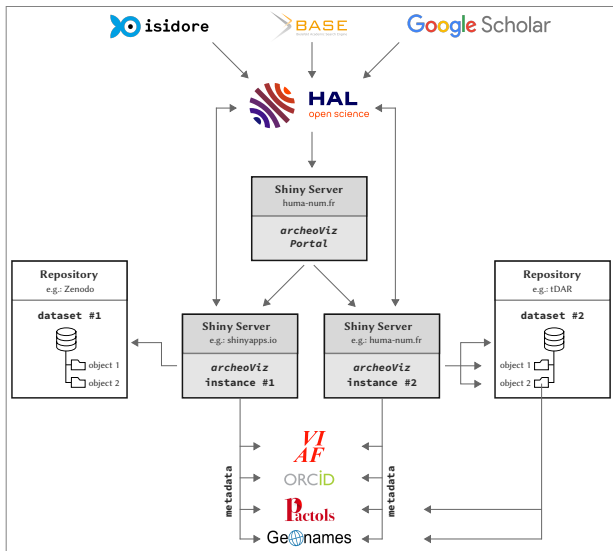
For each *archeoViz* static instance, a record is created in the **HAL.science** repository, making it possible

- to cite this static instance:
  - *archeoViz* platform maintainers, Anaïs Vignoles. 2023. *Online data visualisation of: Le Flageolet (Upper Palaeolithic, Gravettian), using the archeoViz web application*, [hal-04049675](#).
- the percolation of the reference in other scientific documentation systems:
  - *Google Scholar*,
  - *Base* (Bielefeld Academic Search Engine),
  - *Isidore* (generates a “handle” unique identifier) – work in progress.

# FOSTERING THE PUBLICATION OF SPATIAL ARCHAEOLOGICAL DATA

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## PERSPECTIVES

- Continue the development of the application with new features:
  - A formatting tool to create CSV files at the *archoViz* format.
  - Further develop the interoperability of *archoViz* with
    - documentation systems (*tDAR*, *OpenContext*, etc.) and
    - software: *archo10*, *SPARTAAS*, *archofrag*, etc.
- Increase the number of use-cases and index them in the *portal*:
  - through publications
  - using archives material
  - by promoting the *archoViz* approach to archeological institutions.
- Animate the users community through the mailing-list and the <https://archoviz.hypotheses.org> website.

Thank you for your attention,  
and get in touch if you have data sets!

[archeoviz-maintainers@services.cnrs.fr](mailto:archeoviz-maintainers@services.cnrs.fr)

<https://analytics.huma-num.fr/archeoviz/home>