Fostering Field Data Sharing through Web Visualisation: the archeoViz Decentralised Way

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archeoViz is an R Shiny application for the visualisation, interactive exploration, and web communication of archaeological spatial data. It generates interactive 3D plots, 2D cross sections and 2D maps of archaeological objects and their refitting relationships. It can run basic spatial statistics methods, export data to online applications to apply other methods, and display an interactive timeline of an excavation. This application is designed as the building block of a decentralised web edition network for archaeological data. It is also an educational resource to introduce learners to spatial analysis, data formats, reproducible workflows, open science & FAIR principles, and computational archaeology.

Supported languages: 🇬🇧 🇫🇷 🇩🇪 🇮🇹 🇪🇸 🇫🇮 🇨🇿

1 Get Intra-site Spatial Data
※ from a total station ※ from fieldwork archives

2 Load your Data in archeoViz
※ an open-source Shiny application / R package
※ 3D and 2D interactive visualisation
※ simple spatial statistics (density, convex hull, 3D regression)
※ export to SVG and interactive HTML formats
※ send to third-party web applications (Seriograph, archeofrag, AMADO, etc.)

3 Publish your Dataset Online (optional)
※ on your institution repository or a non-profit repository: e.g. Zenodo, OSF, etc.
※ use the simple and sustainable CSV table format

4 Deploy your archeoViz Instance Online

On:
※ a public Shiny server: e.g. shinyapps.io, Posit connect, etc.
※ your own server
※ your institution’s server

For:
※ your research team ※ your paper / report (as supplemental)
※ the archaeological community ※ local people, the general audience

5 Reference your Instance in the archeoViz Portal
※ improve the discoverability of your instance, dataset, and archaeological site
※ rich metadata aligned on standards (geonames, Viaf, PACTOLS, Wikidata, etc.)
※ archeoViz instances are citable items, referenced in BASE, Google scholar, HAL

Code & doc on Github: 📖 Visit the blog: 📖 Subscribe to the newsletter: 📖
Try archeoViz now, with the Madjedbebe site, Australia:
The archeoViz portal

Presentation
This portal gives access to archeological datasets edited online using instances of the archeoViz application. Each instance can be cited and is referenced in the HAL repository.

archeoViz is designed for spatialized data in archeology generated during excavations and surveys. It allows to visualise a dataset, interactively explore it, and quickly deploy and communicate it on the web.

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), export data to other online applications, and display the timeline of an excavation.

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, Romanian, and Portuguese.

Use cases
53 datasets 459,693 objects 12,431 refitting relationships

- Click on a row of the table to zoom the map to the dataset’s location.
- Use the slider to filter the datasets by site altitude.
- Use the “Search” field to search sites by site name, chronological period, country, and remain type.

Filter the table by altitude (m):

<table>
<thead>
<tr>
<th>Site name</th>
<th>Openness</th>
<th>Period coverage</th>
<th>Nr of objects</th>
<th>Nr of refitting relationships</th>
<th>Nr of refitting objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altendorf</td>
<td>8888</td>
<td>Merovingian</td>
<td>6889</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Amouda 1, layer VII</td>
<td>8888</td>
<td>Middle Pefedilith</td>
<td>1964</td>
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<td>0</td>
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<tr>
<td>Loutraki, Archaic</td>
<td>8888</td>
<td>Early Chosenian - Late Chosenian</td>
<td>404</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Have a look at the archeoViz Portal:
Dataflow and Dissemination Strategy

This figure summarises the relationships between: 1) archeoViz instances, 2) the archeoViz Portal, 3) data repositories, 4) third-party applications, 5) academic search engines and repositories.

- **Grey boxes**: online applications (archeoViz, archeoViz portal, SEAHORS, etc)
- **White boxes**: repositories for datasets & programming code (e.g. Zenodo)
- **Logos**: search engines and standards (HAL, OpenArchaeo, BASE, Viaf, etc.)
- **Dashed arrows**: transfer of archaeological data.
- **Solid arrows**: references (metadata)

**References**

