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

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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, computes basic spatial analysis methods, and displays excavation timelines. This application is designed as the building block of a decentralised web edition network for archaeological data. It can also be used as an educational resource to introduce learners to spatial analysis, data formats, reproducible workflow, open science, and computational archaeology.

Supported languages: 🇬🇧  🇫🇷  🇩🇪  🇮🇹  🇪🇸  🇺🇸  🇵🇹

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

2  Load it in archeoViz
   ※ an open-source Shiny application / R package
   ※ 3D and 2D dynamic visualisation
   ※ basic spatial statistics (convex hull, 3D regression)
   ※ export to SVG and HTML (interactive) format
   ※ export to third-party web applications (Seriograph, archeofrag, etc.)

3  Publish your Dataset Online (optional)
   ※ on 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:  ※ your research team
     e.g. shinyapps.io, Posit connect, etc.  ※ your paper / report (as supplemental)
   ※ your own server  ※ the archaeological community
   ※ your institution server  ※ local people, the general audience

5  Reference your Instance in the archeoViz Portal
   ※ make your archaeological site and dataset
   ※ rich metadata aligned on standards (geonames, Viaf, PACTOLS, Wikidata, etc.)
   ※ cite your instance; benefit from its propagation in scholarly repositories:
     BASE, Google scholar, HAL, etc.

Try archeoViz now, with the Madjedbebe site, Australia:
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 351,890 objects, and 10998 retifling relationships.

archeoViz is an application designed for archaeology. It allows to visualise, interactively explore, and quickly deploy and communicate 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.

<table>
<thead>
<tr>
<th>Site name</th>
<th>Period coverage</th>
<th>Nr of objects</th>
<th>Nr of refitling relationships</th>
<th>Nr of refitling objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternding</td>
<td>Medieval, Merovingian</td>
<td>6889</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Arnalda I, layer VII</td>
<td>Middle Palaeolithic</td>
<td>1996</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Burger Gulch</td>
<td>Paleoindian, Folsom</td>
<td>17219</td>
<td>1082</td>
<td>1296</td>
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<tr>
<td>Birnrose</td>
<td>Mesolithic</td>
<td>473</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) the instances of the *archeoViz* application, 2) the data repositories, 3) third-party applications. 4) indexing and documentation systems.

- **Grey boxes**: online applications (*archeoViz*, *archeoViz portal*, SEAHORS, etc).
- **White boxes**: repositories for datasets & programming code (e.g. Zenodo)
- **Logos**: documentation systems (*HAL*, Google Scholar, Base, Viaf, etc.).
- **Dashed arrows**: transfer of archaeological data.
- **Solid arrows**: references (metadata).

References

