**SHARE — PUBLISH — STORE — PRESERVE**



*Methodologies, Tools and Challenges*

*for 3D Use in Social Sciences and Humanities*

From 25th to 27th of February 2019

CNRS-MAP laboratory, Marseille, France.

Are you working in a field of Social Sciences and Humanities (at PhD level and beyond - post-doc, researchers, engineers...) and have used 3D in your research, are planning to use it or want to investigate how 3D can help you?

Following the 1st workshop “Digital 3D Objects in Arts and Humanities: Challenges of Creation, Interoperability and Preservation” held in 2016, the [3D Consortium for Humanities](https://shs3d.hypotheses.org/) on behalf of CNRS/[Huma-Num](https://www.huma-num.fr/), together with [Inria](http://www.parthenos-project.eu/consortium/inria) and [CNR](http://www.parthenos-project.eu/consortium/cnr-consiglio-nazionale-delle-ricerche), with the support of [CNRS-MAP/CNR-ISTI International Joint Lab](http://www.map-isti-jointlab.cnrs.fr/), are organizing a [2nd workshop](http://www.parthenos-project.eu/parthenos-white-paper-digital-3d-objects-in-art-and-humanities-published) about 3D objects within the scope of [PARTHENOS](http://www.parthenos-project.eu) Work Package 4 on standardization. Around some selected tools which will be demonstrated, we expect to generate discussion on defining and/or refining standards, and to raise future challenges for the use of 3D in Social Sciences and Humanities.

**This workshop aims at promoting 3D best practices in Social Sciences and Humanities and will address the following topics:**

* Reality-based 3D annotation: an integrated workflow for creating semantically-enriched 3D representations from simple photographs;
* 3D Visualization: interactive visualization tools and methodologies, the quest between local and web-based tools, data sharing and cooperative visual analysis;
* Documentation and Long-Term Archiving: life cycle, best practice organization and archiving tool presentation (aLTAG3D) for 3D data;
* Production of documentation(s) and/ or publication(s): record best workflows alongside best practices, with the help of the PARTHENOS *Standardization Survival Kit*.

Since this workshop requires at least basic knowledge in 3D data and places are limited, we will select attendees. So if you are interested in participating, please send us your **CV and a half-page letter of application** explaining why you should attend this workshop. To fully benefit from the workshop, the participants are also expected to bring their laptop, data/datasets, to work on them and produce a text on their experience that will be published within PARTHENOS.

**Further information:** [**https://shs3d.hypotheses.org/?page\_id=3978**](https://shs3d.hypotheses.org/?page_id=3978)

* No registration fee
* Registration deadline (CV and letter of application): **15th January 2019**
* Notification:  **18th January 2019**
* Contact: [parthenos-3d-ws@huma-num.fr](mailto:parthenos-3d-ws@huma-num.fr)

We should be able to give financial support to a few participants (contributing to travel and/or accommodation expenses). If you need some financial support, please add an explicit request in your letter.

**PROGRAM**

**Day 1 (25/02/2019)**

* **09.00-10.00: Registration**
* **10.00-10.30: Introduction**

Speakers: L. de Luca (CNRS-MAP), X. Granier (IOGS – 3D-SHS consortium), A. Joffres (CNRS/Huma-Num), R. Scopigno (CNR-ISTI), C. Riondet (Inria, PARTHENOS)

Goals of the Master Classes, presentation of 3D Consortium, Huma-Num, Parthenos and CNRS/CNR MAP-ISTI joint lab

* **10.30-11.00: Publish — PARTHENOS, Standards and Research Best Practices: the Standardization Survival Kit (**[**SSK**](http://ssk.huma-num.fr)**)**

Speaker: Charles Riondet (PARTHENOS, Inria)

The goal of the Standardization Survival Kit (SSK), developed within the PARTHENOS project, is to accompany researchers in order to stabilize knowledge on standards and good research practices, giving access to them in a meaningful way, by the mediation of research scenarios. A research scenario is a (digital) workflow practiced by researchers, that can be repeatedly applied to a task that will help to gain material or insights in view of a research question. These scenarios are at the core of the SSK, as they embed resources with contextual information and relevant examples on standardized processes and methods in a research context. The SSK is an open tool where users are able to publish new scenarios or adapt existing ones. These scenarios can be seen as a living memory of what should be the best research practices in a given community, made accessible and re-usable for other researchers.

*11.00-11.15: Coffee break*

* **11.15-12.30: Fast-Forward**

Speakers: participants

Overview of participants’ experiences, and expectations/challenges (about 5 slides per participant)

*12.30-14.00: LUNCH BREAK*

* **14.00-15.00: Collect & Share —** [**Aïoli**](http://www.aioli.cloud/)**: a Reality-based 3D Annotation Platform**

Speakers: Livio de Luca (CNRS-MAP-3D-SHS consortium)

Archaeologists, architects, engineers, materials specialists, teachers, curators and restorers of cultural property, contribute to the daily knowledge and conservation of heritage artefacts. The management of multi-dimensional and multi-format data introduces new challenges, in particular the development of relevant analysis and interpretation methods, the sharing and correlation of heterogeneous data among several actors and contexts, and the centralised archiving of documentation results. Despite their different approaches and tools for observation, description and analysis, the actors of cultural heritage documentation all have a common interest and central focus: the heritage object, the physical one, whether it is a site, a building, a sculpture, a painting, a work of art, or an archaeological fragment. This is the starting point of Aïoli, a reality-based 3D annotation platform, which allows a multidisciplinary community to build semantically-enriched 3D descriptions of heritage artefacts from simple images and spatialized annotations coupled with additional resources. Developed by the CNRS-MAP Lab, this platform introduces an innovative framework for the comprehensive, large-scale collaborative documentation of cultural heritage by integrating state-of-the-art technological components (fully automatic image-based 3D reconstruction, 2D-3D spreading and correlation of semantic annotations, multi-layered analysis of qualitative and quantitative attributes, ...) within a cloud infrastructure accessible via web interfaces from PCs, tablets and smartphones online and onsite.

*15.00-15.15: Coffee break*

* **15.15-17.30: Collect & Share — Hands on Aïoli (training session)**

Supervisors: Adeline Manuel (CNRS-MAP), Anas Alaoui (CNRS-MAP)

By merging the presentation of features with the manipulation of real data, this training session allows participants to discover the aïoli platform, its potential uses, as well as the basic commands to collect, process, analyse, structure and share data.

**Day 2 (26/02/2019)**

* **9.00-9.30: Visualize —** [**OpenSpace 3D**](http://www.openspace3d.com/) **for Onboard Visualization**

Speaker: Bastien Bourineau (OpenSpace 3D)

OpenSpace3D is an open platform with a large range of uses. From a simple 3D model visualization to an advanced Augmented Reality or Virtual Reality application, OpenSpace3D will help you to study, evaluate, share and present to any public your work and concepts.

* **9.30-10.00: Visualize — Applications Scenarios for CST3D Viewer**

Speakers: Bastien Bourineau (OpenSpace 3D), Valentin Grimaud (CNRS, Lara-3D-SHS consortium)

This time we will focus on the model viewer template in OpenSpace3D that makes it possible to add visualization tools to your 3D models.

*10.00-10.15: Coffee break*

* **10.15-10.45: Visualize & Publish — From Local Visualizers to Web Publishing & Viz of 3D Data**

Speaker: Roberto Scopigno (CNR-ISTI)

This presentation will review the recent technical evolution, from local visualization tools to remote visualization, the latter approach now operating inside standard Web browsers. The progress achieved (since the introduction of WebGL) means that efficient solutions nowadays exist to easily publish 3D models on the Web and to visualize them without the need for plugins or specific applications. Finally, we will introduce the specific needs of the CH domain with respect to 3D (Web) viewers.

* **10.45-11.15: Visualize & Publish — Introduction of** [**3DHOP**](http://3dhop.net/)

Speaker: Marco Potenziani (CNR-ISTI)

Nowadays 3D data are becoming more and more a key digital media. Since their accessibility is fundamental, 3D Web publishing is experiencing rapid and chaotic growth. Nevertheless the resulting panorama, despite the variety of approaches, reveals several shortcomings and “missing links”: unsolved issues, uncovered users, neglected fields…

3DHOP (3D Heritage Online Presenter) is a software solution aimed at filling these empty spots. Developed by CNR as a publishing framework for the interactive visualization of complex 3D datasets online, it has been expressly designed for simplifying the creation of Web3D contents specifically addressed to the CH domain.

The presentation will give a brief overview of 3DHOP, introducing its main features (performing data handling, declarative-like scene setup, advanced transmedia integration, etc.) and characterizing tools (lighting, measurement, sections, hotspots, etc.) of this framework, and motivating the design choices that have led to them.

* **11.15-12.00: Visualize & Publish — 3DHOP Applications**

Speaker: Marco Potenziani (CNR-ISTI)

A number of applications (both developed by CNR and by third-parties) will be presented and demonstrated. The aim is to show a quite complete set of use cases (different in complexity and application context), representative of the many different types of use and of web-based resources that can be designed and implemented using 3DHOP.

*12.00-13.30: LUNCH BREAK*

* **13.30-15.00: Visualize & Publish — 3DHOP (training session)**

Supervisor: Marco Potenziani (CNR-ISTI)

Starting from the simplest use of 3DHOP, and through the progressive adding of high-level presentation features, several examples of use of 3DHOP will be presented with a practical hands-on approach. This training session will allow participants to test the publishing framework on their own datasets, discovering the potential uses of 3DHOP, as well as the best practices for building an effective Web3D presentation.

*15.00-15.15: Coffee break*

* **15.15-15.45:** **Visualize, Publish & Store —** [**Visual Media Service**](https://ariadne1.isti.cnr.it/)

Speakers: Marco Potenziani (CNR-ISTI), Roberto Scopigno (CNR-ISTI)

Visual Media Service offers a very easy solution for publishing online different visual media (high-resolution 2D images, RTI, 3D models) and for visualizing them under a common framework.

Developed by CNR as a service-oriented platform for assisting the deployment of Web presentations pivoted on complex visual media assets, the Visual Media Service is based on the 3DHOP and Relight technologies.

The presentation will introduce the design and the functionalities of the service, underlying its specific advantages (simplicity of use, performing multiresolution schemes to enable efficient data transfer on the internet and responsive and high-quality visualization, assisted presentation customization, etc.).

* **15.45-16.15: Visualize, Publish & Store — Visual Media Service (training session)**

Supervisors: Marco Potenziani (CNR-ISTI), Roberto Scopigno (CNR-ISTI)

From the uploading of a single content to the customization of the final presentation. Some examples of use of the Visual Media Service will be presented, as well as a practical hands-on session. Finally, participants will also learn how to use this service-oriented platform in order to rapidly master use of the 3DHOP framework.

*16.15-16.30: Coffee break*

* **16.30-17.30: Publish & Store — the** [**MEMORIA Project**](http://memoria.gamsau.archi.fr/projet/objectives.php?lang=en)

Speaker: Iwona Dudek (CNRS-MAP)

Knowledge management systems are today part of many research protocols where they act as powerful means to share, use, organize and maintain knowledge and information. They remain however tricky to apply in the specific context of heritage science where workflows include a long tail of subjective human decisions, of non-explicit research protocols, of poorly formalised pieces of knowledge, of undocumented, non-reproducible, intuitive interpretations, etc. Yet the heritage science community has witnessed over the past decades the emergence of huge quantities of digital outputs, either following massive digitization efforts, or as a result of the growing capacity of actors to produce digital-born material. How can this move be supported in terms of reproducibility, reusability and cross-examination of results if research protocols remain non-formalised one-shot efforts?

The presentation will introduce a research program MEMORIA, aimed at experimenting a practical solution for the formalization and intersubjective description of research workflows. This initiative is based on the idea that, beyond metadata describing outputs themselves, the scientific community concerned is awaiting means to ensure their verifiability, reproducibility and comparability.

**Day 3 (27/02/2019)**

* **09.00-09.30: Store and Preserve — Life Cycle of 3D Data for HSS &** [**aLTAG 3D**](http://altag3d.huma-num.fr/)Speakers: Sarah Tournon-Valiente (CNRS-Archéovision), Valentin Grimaud (LARA, CNRS)

Under the supervision of the French national infrastructure for digital humanities (Huma-Num), the 3D Consortium has defined a life cycle of 3D data from creation up to archiving. We have formalized the different steps of the data life cycle. The first step consists in collecting data produced by capture devices (laser scanners, digital cameras, etc.). These data are denominated A0. The second step consists in processing the data (cleaning, meshing…) to create the initial models V0. Finally, new modelling can be added to include new hypotheses for the restitution. This step can be iterated creating V1n versions up to the V2 that is the final version. A supplementary step may be added when valorisation is considered. All the versions from A0, V0 up to V2 are candidates for archiving. We have formalized this process with a sequential graph that introduces a new metadata schema dedicated to the long-term archiving of 3D models for HSS. We have also created a software aLTAG 3D, that leverages the usual complexity of documentation to create metadata and of checking that the 3D files are suitable for archiving. It creates an archive that can be pushed to the CINES – the French national infrastructure for high-performance computing, and for long-term digital preservation.

* **09.30-10.30: Store and Preserve — aLTAG 3D (training session)**

Supervisors: Sarah Tournon-Valiente (CNRS-Archéovision), Valentin Grimaud (LARA, CNRS)

After the presentation of the life cycle of 3D data as defined by the 3D Humanities Consortium, we will now discover how to set aLTAG 3D in production in order to archive 3D contents. This includes how to use the software, and how to manage data efficiently.

*10.30-10.45: Coffee break*

* **10.45-12.30: Publish — Creation of Standard Scenarios for the SSK (training session)**

Supervisor: Charles Riondet (PARTHENOS, Inria)

In small groups, participants will develop standard scenarios based on case studies extracted from their experience and from the experience of the speakers, and document them via the SSK platform.

*12.30-14.00: LUNCH BREAK*

* **14.00-15.00: Publish — Restitution of Standard Scenarios (training session)**

Supervisor: Charles Riondet (PARTHENOS, Inria)

Restitution of standard scenarios produced by participants.

* **15.00-15.30: Conclusion**

*15.30-15.45: Coffee break*

* **15.45-17.00: Visit of MAP**