

Workshop Announcement

**CAA2004**

*Grass*

*Qcad*

*Gimp*

*Weka*

*Salstat*

*Dbdesigner*

**Open-Source and Freeware  
Applications**

**to the Archaeological Research**

*Povray*

*OpenSceneGraph*

13th April, 2004

14:00 – 18:00

*XML*

*VR Works* PIN (Servizi Didattici e Scientifici per l'università di Firenze)

Piazza Ciardi 25 - 59100 Prato - AULA II

[www.caa2004.org](http://www.caa2004.org)

*PanoTools*

*etc*

Organised by: Luigi Calori, Sorin Hermon, Franco Niccolucci and Sofia Pescarin

# Open-Source and Freeware Applications to the Archaeological Research

Luigi Calori, Sorin Hermon, Franco Niccolucci and Sofia Pescarin

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**Workshop's Goals.** The workshop intends at discussing the use or development of open-source solutions to archaeological research questions, through the presentation of open-source and freeware software and interfaces developed for various uses and easily adaptable to the archaeological research. The workshop will present possible ICT applications to the archaeological research, along all its pipeline, from data acquisition, through data investigation and ending up with data divulgation. Case-studies for each step along the archaeological research will be presented, followed by a description of the open-source solution and its applicability degree.

**Thematic issues.** The subjects that will be discussed in the workshop regard various Open source and Freeware solutions to archaeological problems in all stages of a common archaeological research:

<b>Data Acquisition</b>	<b>Data Retrieving, Classification and Archiving</b>	<b>Investigation and Interpretation</b>	<b>Statistical analysis and data mining</b>	<b>Divulgation and Publication</b>
GPS	Image processing (incl. aerial, sat. photos)	Modelling	Statistic packages	WebGIS
PDA	CAD	Landscape reconstruction		E-Publishing
Total Laser Station	GIS	Terrain Generation		Visualization
Laser Scanner	Databases	Landscape reconstruction		3D Virtual Reality
	Remote Sensing			

# Program

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*Luigi Calori (CINECA – IT) and Sorin Hermon (Dept. of Archaeology, Ben-Gurion University Beer-Sheva, Israel)*

## **Introduction and State of the Art**

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*Niccolucci F. (PIN. Servizi Didattici e Scientifici per l'università di Firenze - IT)*

## **Managing structured and unstructured information.**

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*Hermon S., (Dept. of Archaeology, Ben-Gurion University Beer-Sheva, Israel)*

## **OS statistical packages for archaeologists**

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*Markus Neteler – ITC of Trento - IT*

## **WebGIS**

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*Morgotti M. (Univ. di Modena), Calori L. (CINECA Supercomputer Center, Bologna, IT ),  
Pescarin S. (CNR ITABC, Rome, IT)*

## **A System useful to present 3d Terrain Models On The Web. The case of Delta del Po project**

The diffusion of the new GPU-based graphic card, and the constant increasing of CPU power, due to the recent hardware evolution, has allowed most of home PC to perform 3d high-quality graphics. At the same time the always greater distribution of broadband connection has improved the quality of Web-technologies. The need for 3d-web technology solutions was born as consequence of the meeting of these two trends.

In this thesis, developed in co-operation with the CINECA, a study was made to analyse the possibilities of creating a web-based 3d application.

This was done through three parts.

First a survey of the products for the visual simulation, web-based and stand-alone, open-source and closed-source, was made to find out all (or almost all) the possible ways to go.

In the second part an analysis was made to determine which were the requisites that such an application needed to have, and which of them was present in the surveyed solutions and distributions, also keeping in mind the integration with the modelling software used in the CINECA projects.

In the end, a solution among the other was chosen (OpenSceneGraph), and an ActiveX control was developed and integrated into a web page, allowing the user to navigate remote terrain database in a Microsoft Internet Explorer session.

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*Gietl Rupert (Universitaet Wien / A), Bezzi Luca, Bezzi Alessandro, Francisci Denis (Università di Padova / IT)*

## **Open Source Software for the Archaeological Research**

Presentation of some open source software usable in archaeology for documentation, elaboration data, research and spreading information. The following software will be explained: grass (GIS), stereo (stereoscopic reconstruction), Qcad (Computer Aided Drawn), Gimp (elaboration of photos), R, Weka, Salstat (statistical analysis), Dbdesigner (database), Blender and Povray (3D graphic).

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*Mark Bell – ArchWeb, UK*

## **A (Slightly) sceptical look at open source software**

Open source software has been proposed as a solution to many problems. Here I will look at what open source software is and how it could help archaeologists produce more useful and long lasting software. I will discuss the software life cycle and how archaeologists can get a critical mass of people together to produce better software.

The use of open source software must be accompanied by the use of open standards, such as XML. The disadvantages of open source projects will also be discussed.

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*Czyzewski - Nicolaus Copernicus University Institute of Archaeology Laboratory of Computer Methods Toru, Poland*

## **Panoramic OpenSource and shareware tools in Archaeology.**

Most of us are well familiar with the QTVR standard of quasi-3D tour and official tool for this - “VR Works” software. We know their pros and cons. But few of us know that “VR Works” or even QTVR can be replaced by other solutions.

Several open source and shareware tools, based on different engines, give us the possibility of creating 360 degree panoramic photos, working with different kind of spheres and creating virtual tours.

I am going to present a short review of several panoramic tools, with special focus on the most useful open source tools including:

- PanoTools with different GUIs, such as:
  - .PTOpenGUI (OpenSource) the most important one,
  - .PTGUI (with “Philosphere” implementation)(shareware)
- PanoLink & PanoCube (shareware tool) - additional possibilities for QTVR.

I’d like to concentrate on using PanoTools and PTOpenGUI for creating panoramas. One or two exercises will be prepared for these programs plus PhotoStitch and GIMP. I will also show a number of programs (commercial as well) to show different panorama’s standards. I would like to discuss the pros and cons of using commercial and open source format for archaeological presentations with different multimedia engines, especially the HTML + Open Source browser as the main engine for presentations.”

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*Sorin Hermon (Dept. of Archaeology, Ben-Gurion University Beer-Sheva, Israel)*

## **Pro and Con OpenSource**

### **Final Rimarks**

# Tools

We will talk about:

Grass, Qcad, Gimp, Weka, Salstat, Dbdesigner, Blender and Povray, OpenSceneGraph, XML, VR Works, PanoTools, etc.

## THE CONFERENCE VENUE

The Conference will be hosted at PIN, the Prato branch of the University of Florence, in its new (2002) building very close to the city center and to public transport. Projectors, PCs and the necessary Conference stuff (personnel included) will be available in quantity. Some classrooms have special equipment for teleconferencing and broadcasting. The opening plenary session and the CAA General Meeting will take place in nearby theatres which may host more comfortably a large number of participants. Access to e-mail, computer equipment for last minute revision and a presentation support service will be available for lecturers and other delegates. E-mail will be accessible also for registered accompanying persons.



You may reach Prato in several ways (details, timetables and maps will be forwarded to registered participants)

**By plane:** Prato is 10 Km from Florence airport FLR, with direct flights to Amsterdam, Barcelona, Bruxelles, Frankfurt, London Gatwick, Milan, Munich, Paris, Rome, Wien, Zurich; best connections with intercontinental flights are in Amsterdam (KLM), Frankfurt (Lufthansa), Milan (Alitalia) and Paris (Air France). There is a direct bus from the airport taking you in 15' to the bus stop in front of the University, in central Prato.

Pisa airport PSA is just 70 Km away and a direct (but a bit slow) train links Prato to Pisa airport and its budget flights to London Stansted, Bruxelles Charleroi, Frankfurt Hahn and Köln.

**By train/bus:** Prato is linked to Florence - and to Eurostar trains - by metropolitan trains leaving Florence Central Station frequently, with a 20' trip, running day and night. The railway station "Prato Porta al Serraglio" is in front of the University. Most Intercity trains on the line Milan-Rome stop at Prato Central Station, where you can take a taxi or urban bus to reach in minutes any destination in the town. From Florence Central railway station, right in the city centre, you can also take a direct bus taking you in 45' in front of the University.

**By car:** Prato is at the crossing of the North-South A1 Motorway and the Florence-Pisa A11 Motorway, so it can be easily reached from any provenance in Italy. From the motorway exit it takes 10' to reach the University, with a huge free nearby parking.