



ArcheOS v. 4, the new release of the Archaeological Operating System





acronym of **ARCHE**ological **O**perating **S**ystem

GNU/Linux live distribution built for archaeological purposes

Actually the 4th version Caesar is based on Debian 6.0

Released by Arc-Team s.n.c. under GPL license

Freely download from <http://www.archeos.eu/>



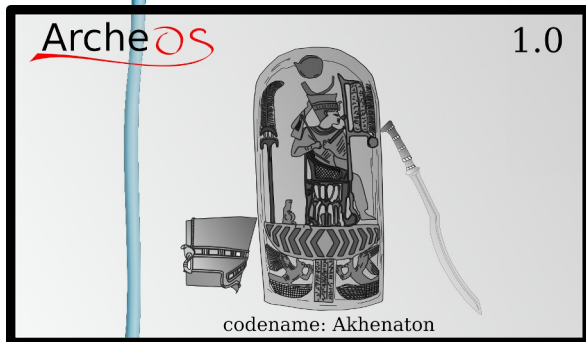


VERSION 1: AKHENATON

Year 2005

Based on:
PCLinuxOS 0.92

desktop manager:
KDE 3



IT'S BORN
THE
GNU

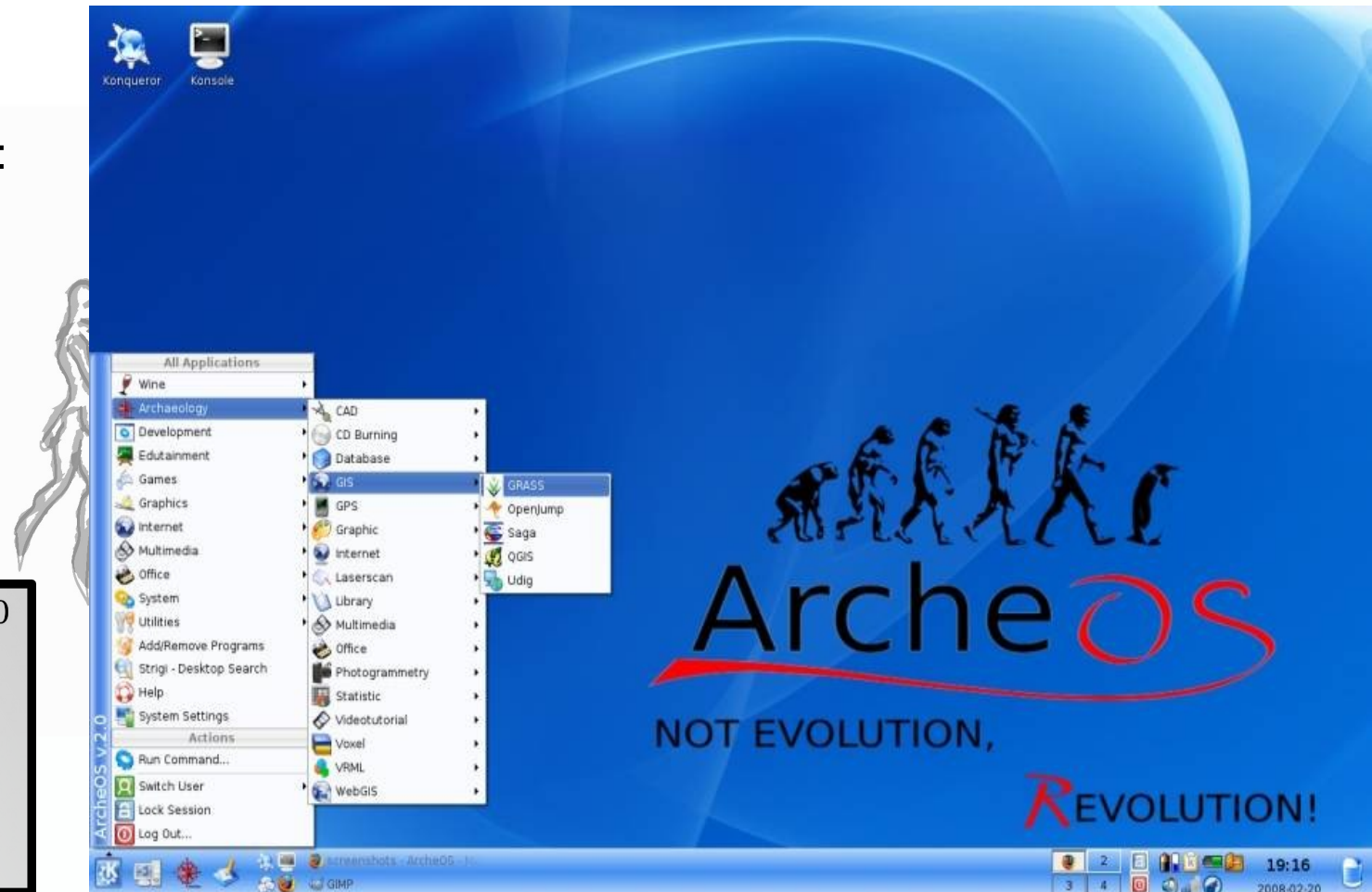
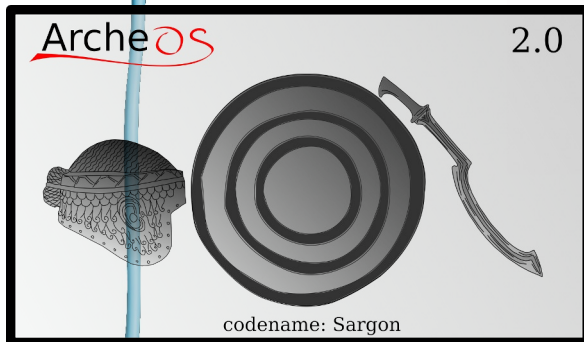


VERSION 2: SARGON

Year 2007

Based on:
KUBUNTU 7.10

desktop manager:
KDE 3



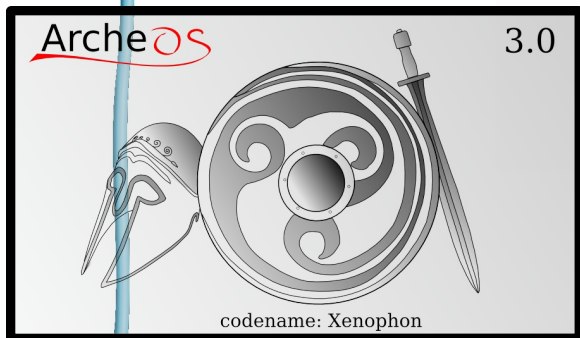


VERSION 3: **XENOPHON**

Year 2009

Based on:
KUBUNTU 9.04

desktop manager:
KDE 4



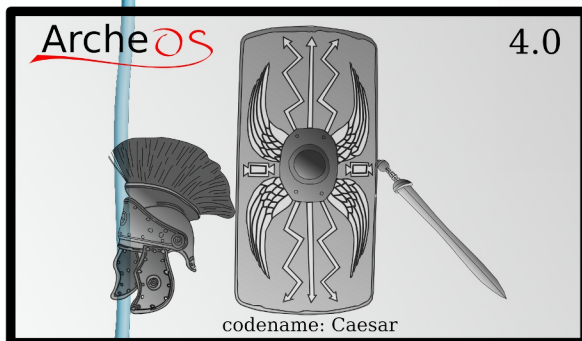
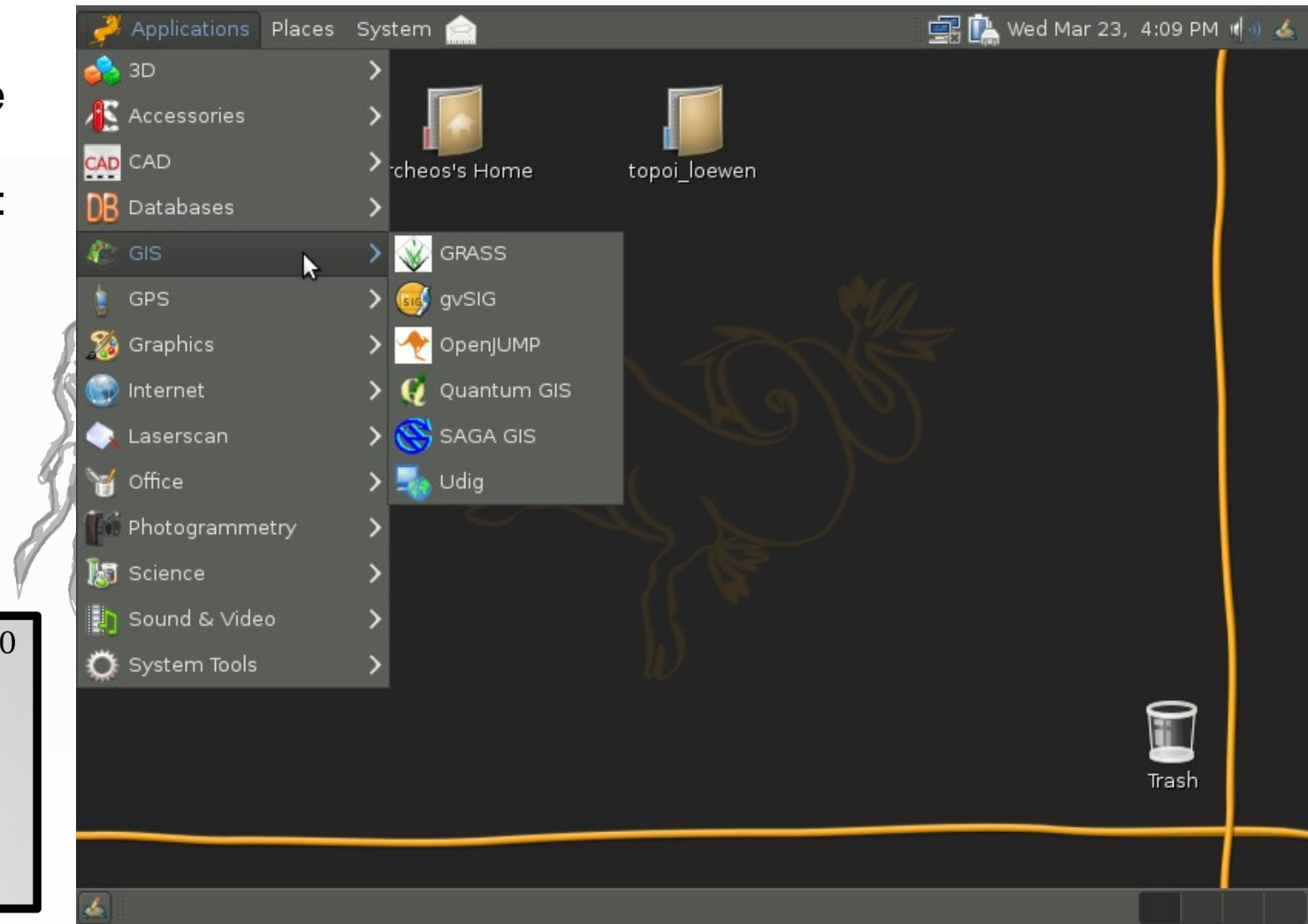


VERSIONE 4: CAESAR

Year 2011

Based on:
DEBIAN Squeeze

desktop manager:
GNOME 2.30.2





Download the ISO image

Burn it into a DVD

Try it live without make changes on your computer (in live-mode it use only RAM memory)

If you choose to install it, you can set up a DUAL BOOT configuration (e.g. Windows + ArcheOS)

Then you can **SHARE IT**
Increase the **COMMUNITY**



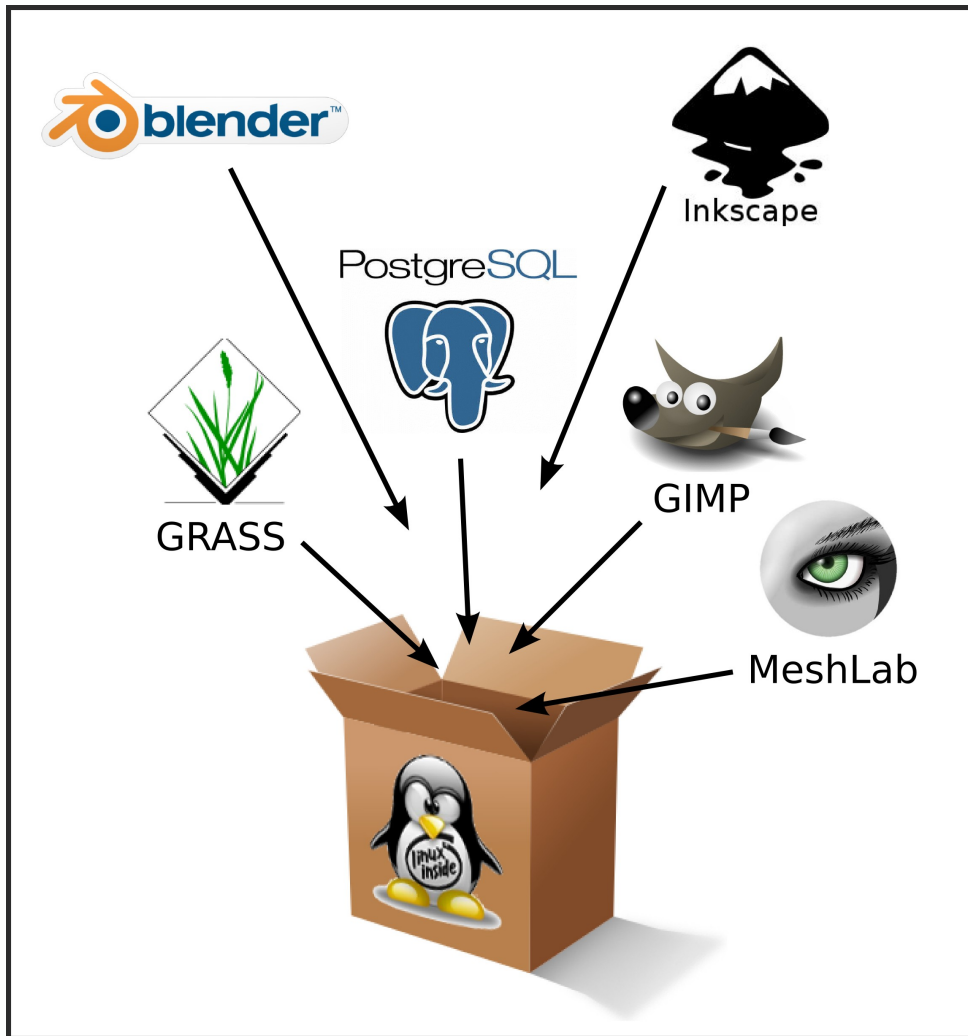


Web site: <http://www.archeos.eu/>

Mailing list: -archeos-dev@lists.linux.it
-archeos@lists.linux.it

Tutorial project: <http://vai.uibk.ac.at/dadp/>



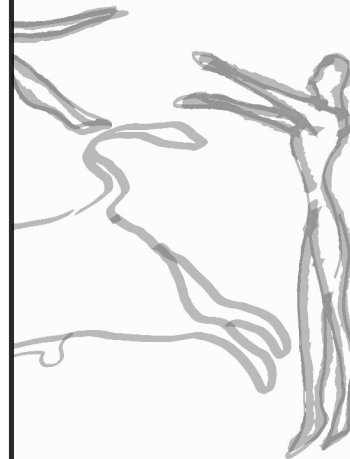


Debian Based

GNOME Desktop

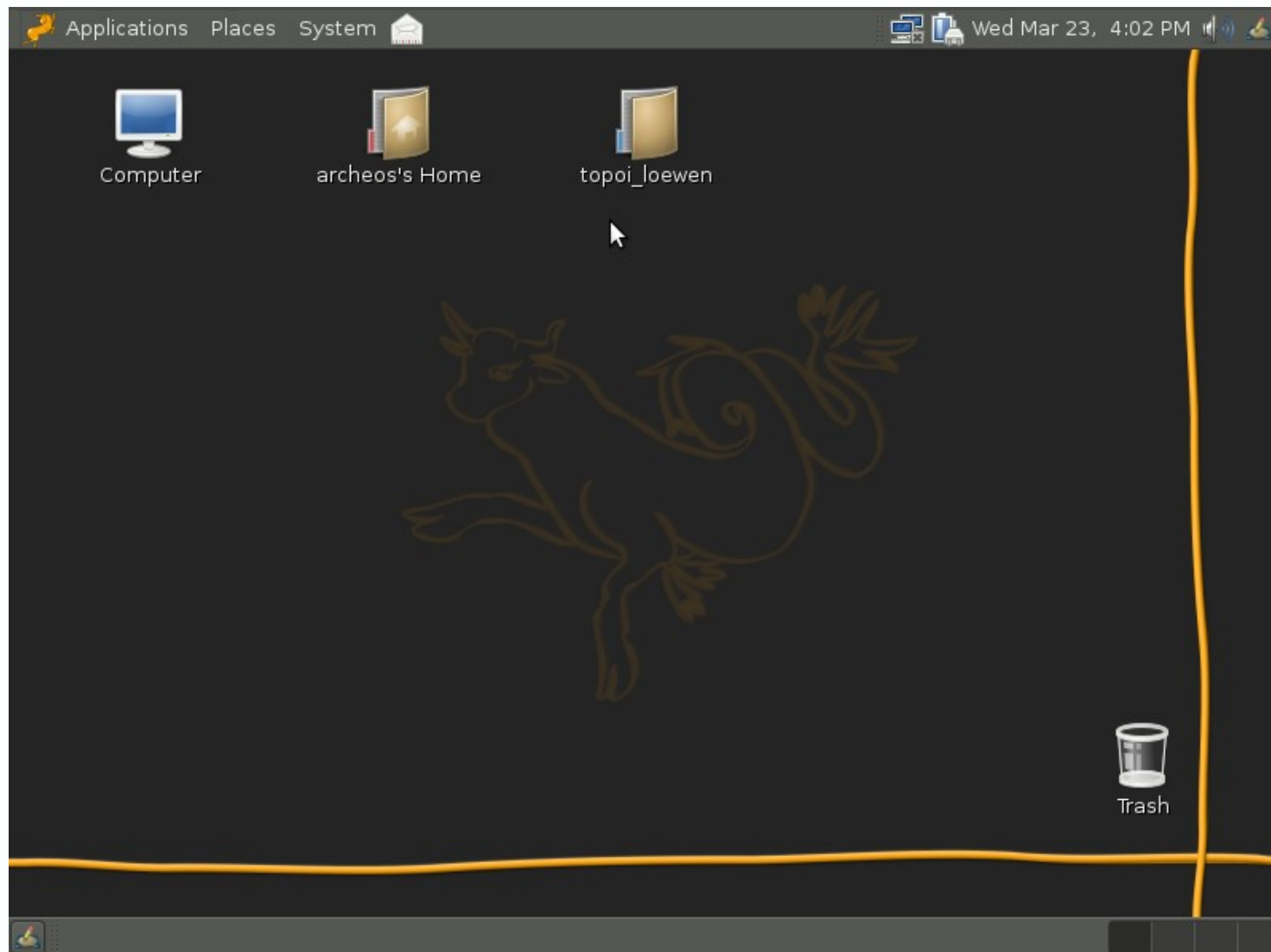
Different software ordered in section:

- 3D
- CAD
- DATABASE
- GIS
- GPS
- GRAPHICS
- INTERNET
- LASERSCAN
- OFFICE
- PHOTOGRAMMETRY
- SCIENCE



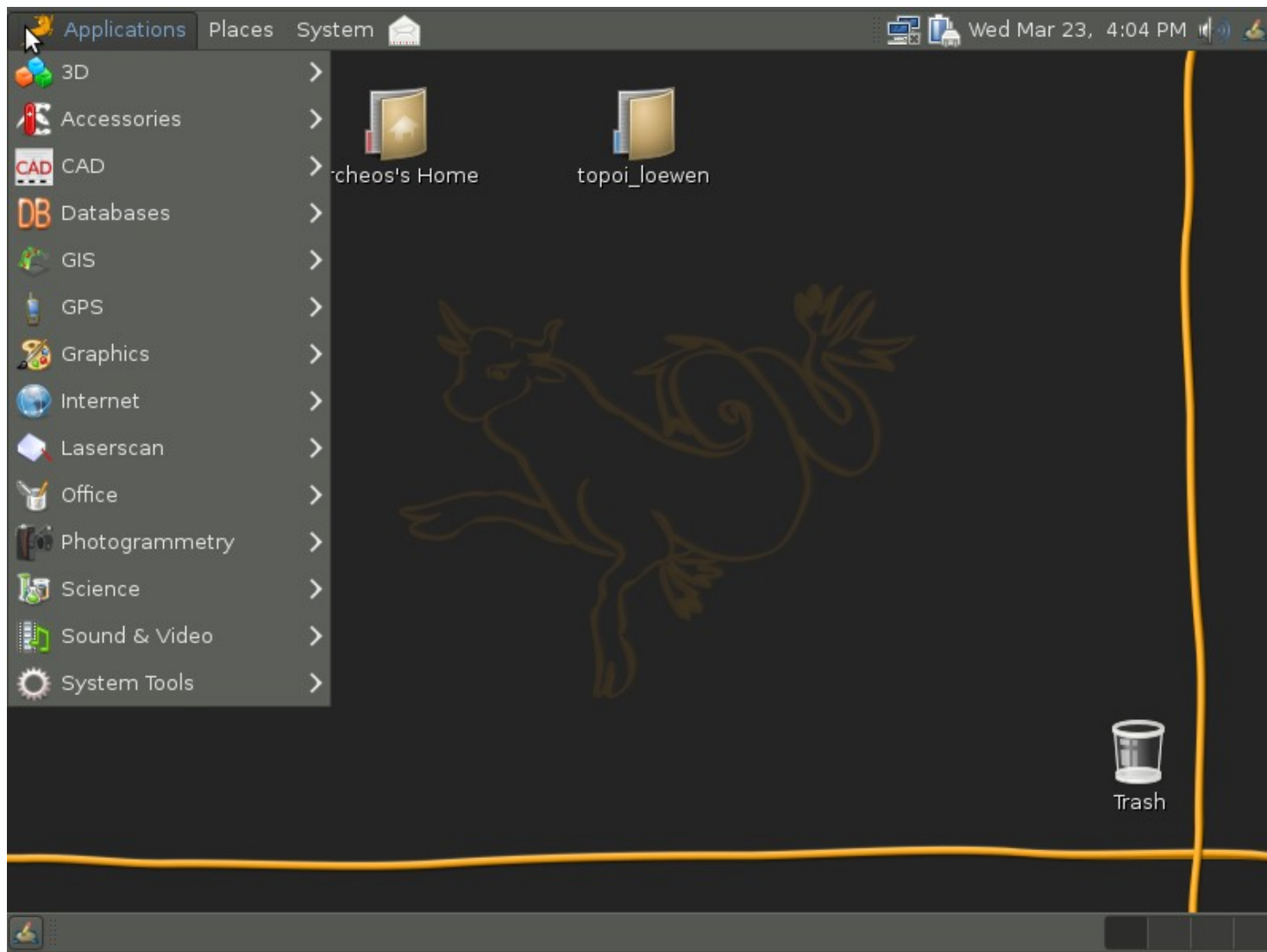


Archeos Desktop



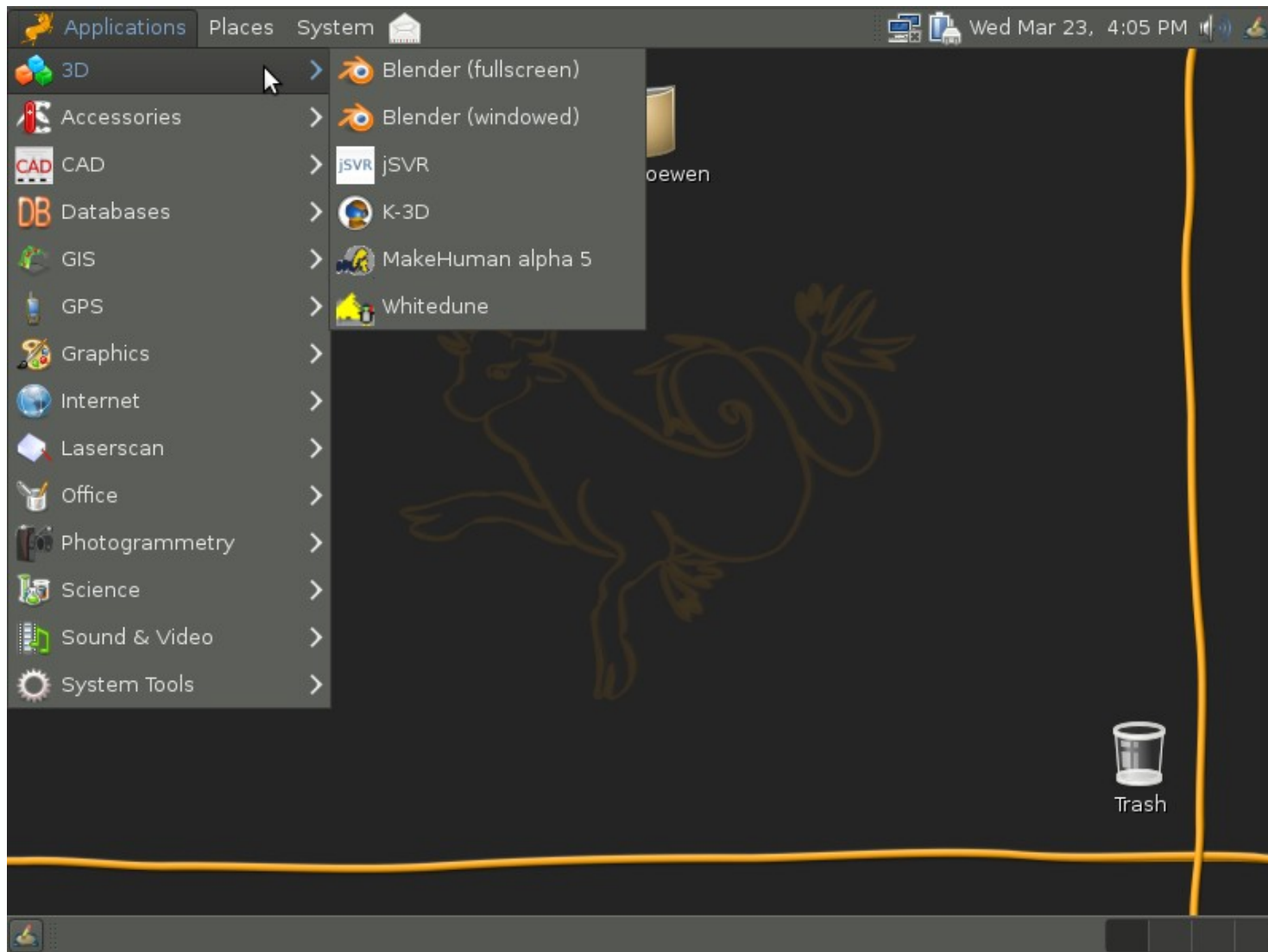


Archeos Menu





3D Menu

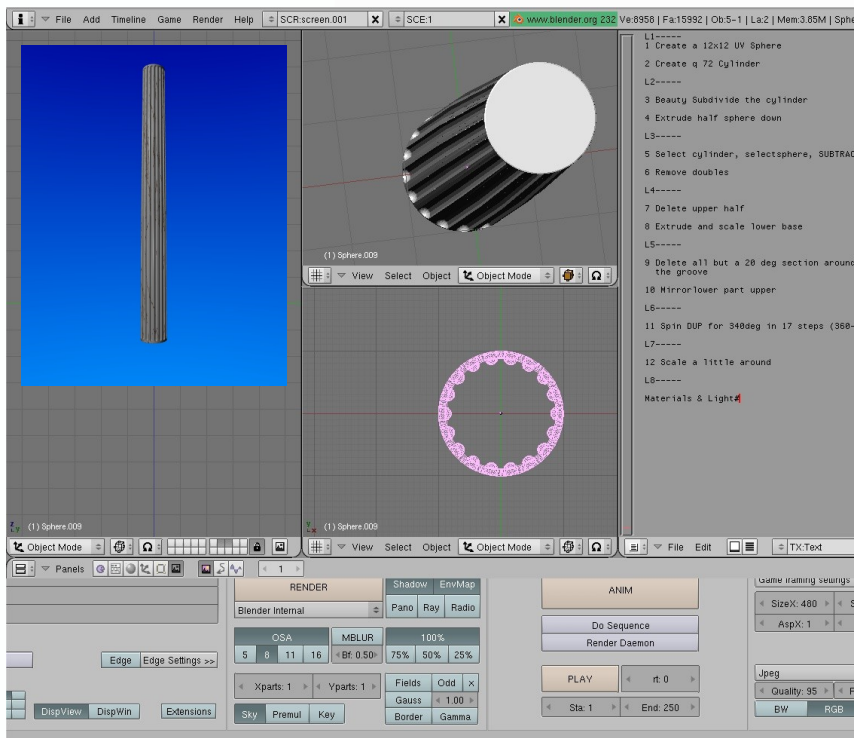




3D Menu

BLENDER

is the free open source 3D content creation suite, available for all major operating systems under the GNU General Public License.



Screenshots kindly offered
by **S. Selleri** (2004)

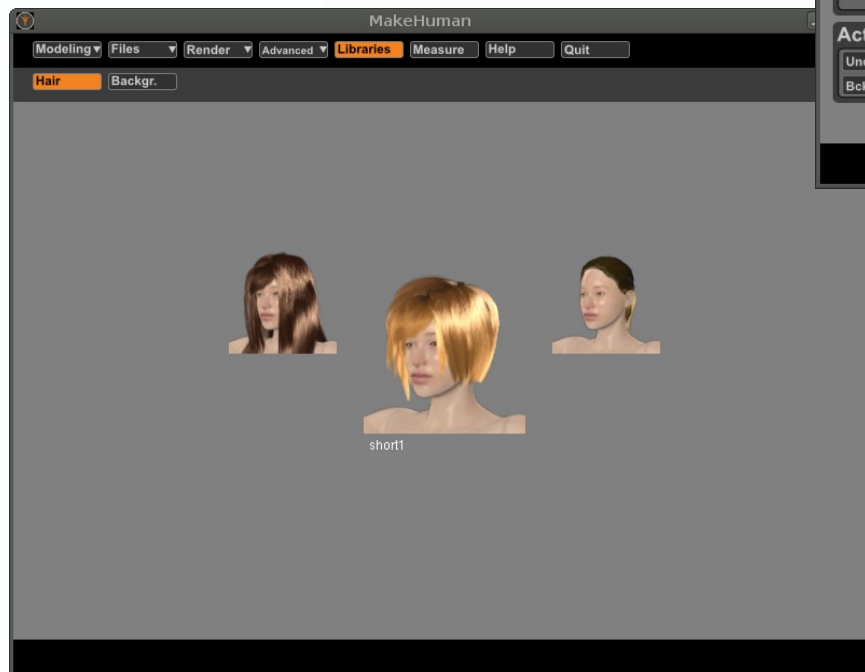
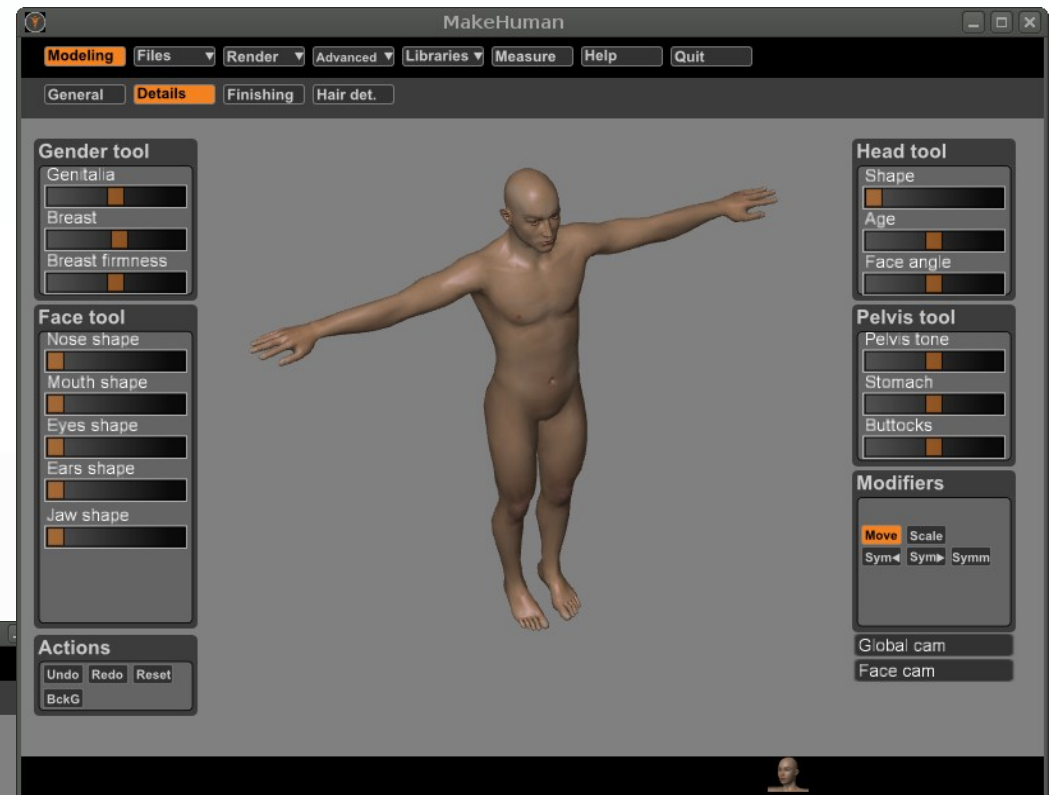


<http://www.blender.org/>



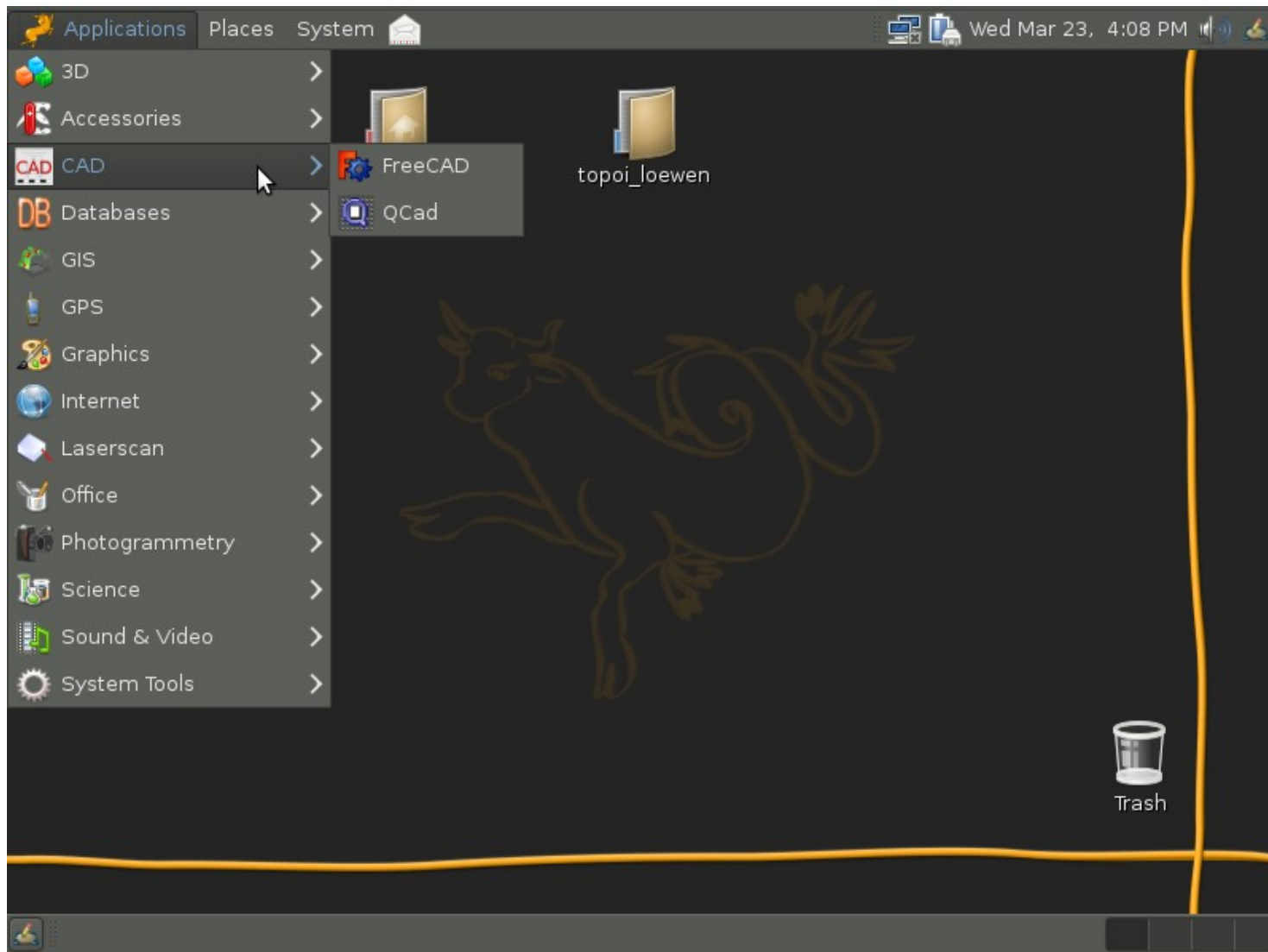
MAKEHUMAN

is an open source (so it's completely free), innovative and professional software for the modelling of 3-Dimensional humanoid characters.





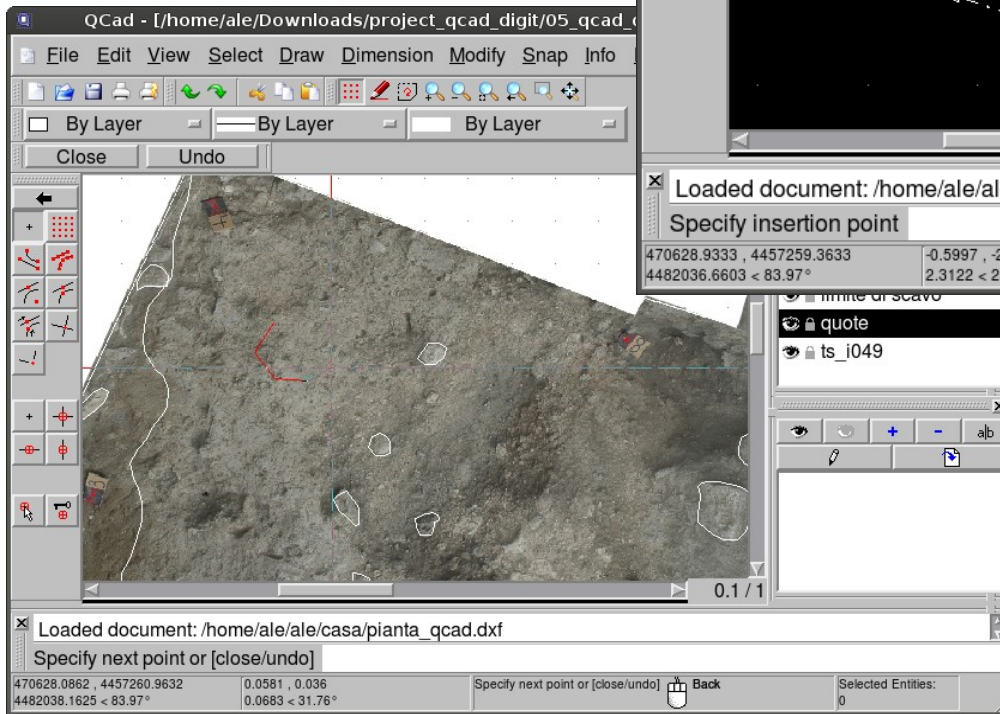
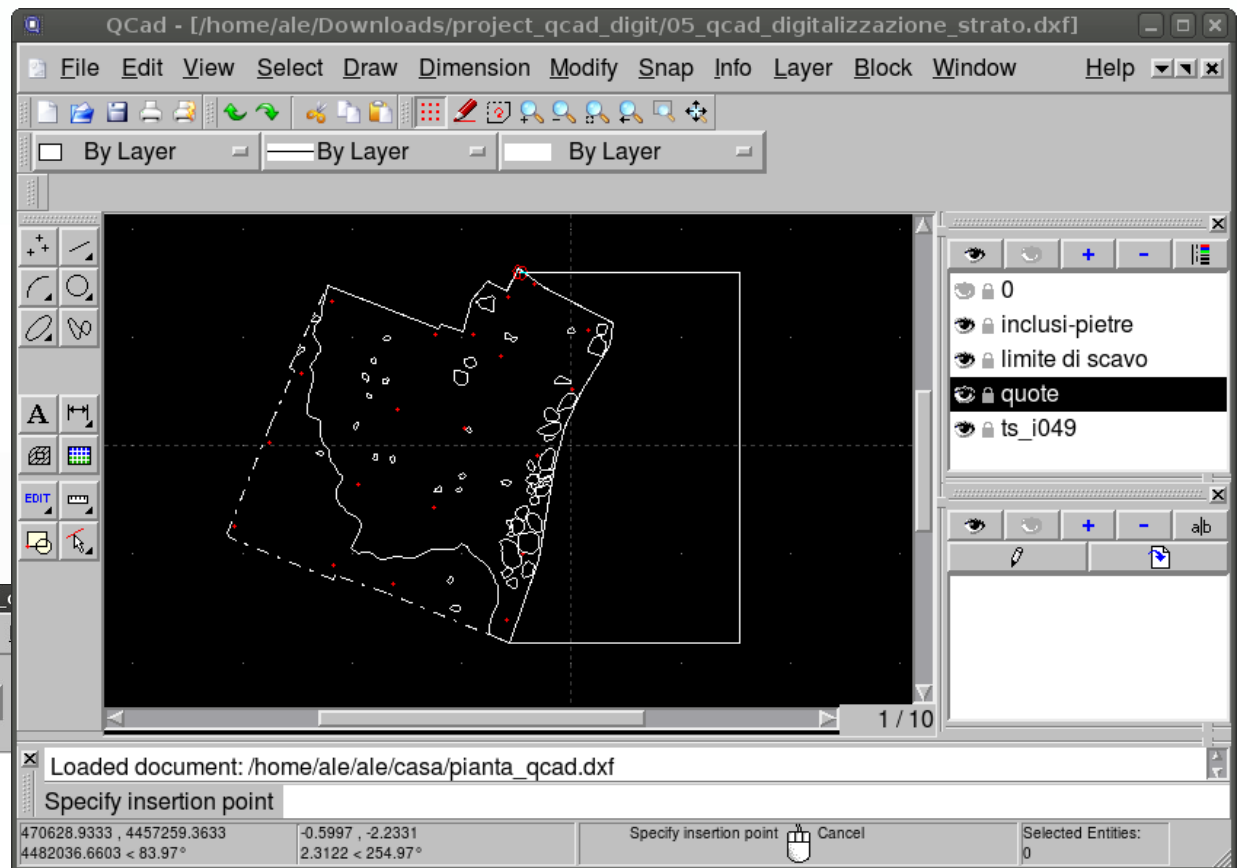
CAD Menu





QCAD

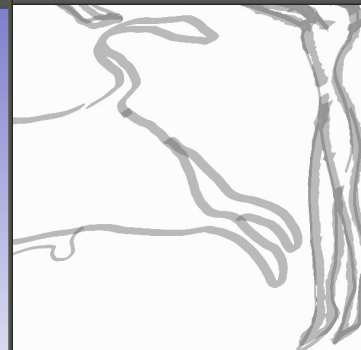
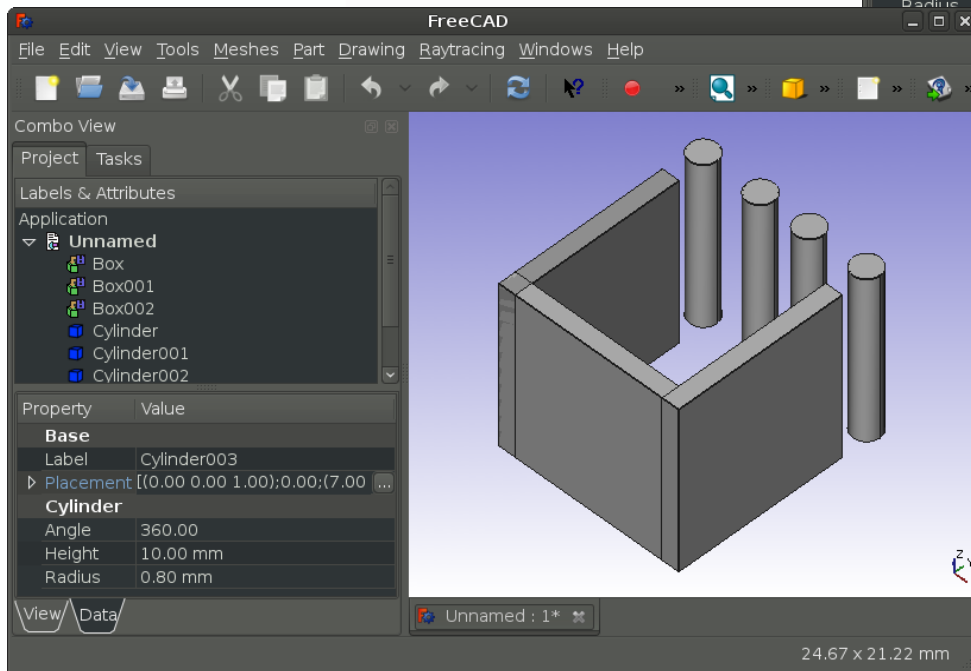
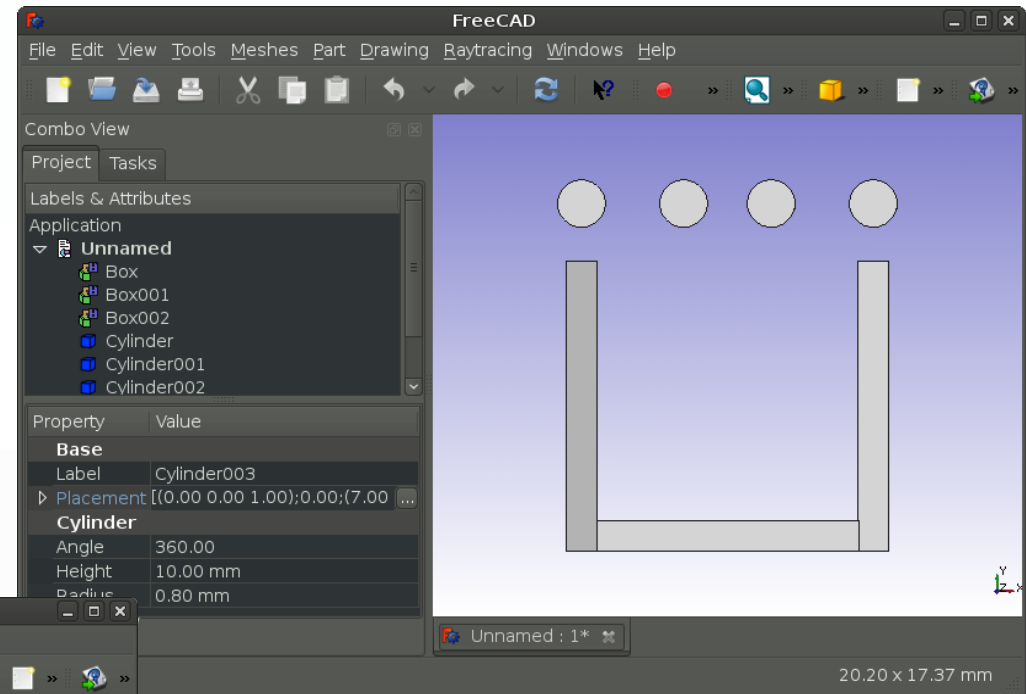
is an application for computer aided drafting in two dimensions (2d).





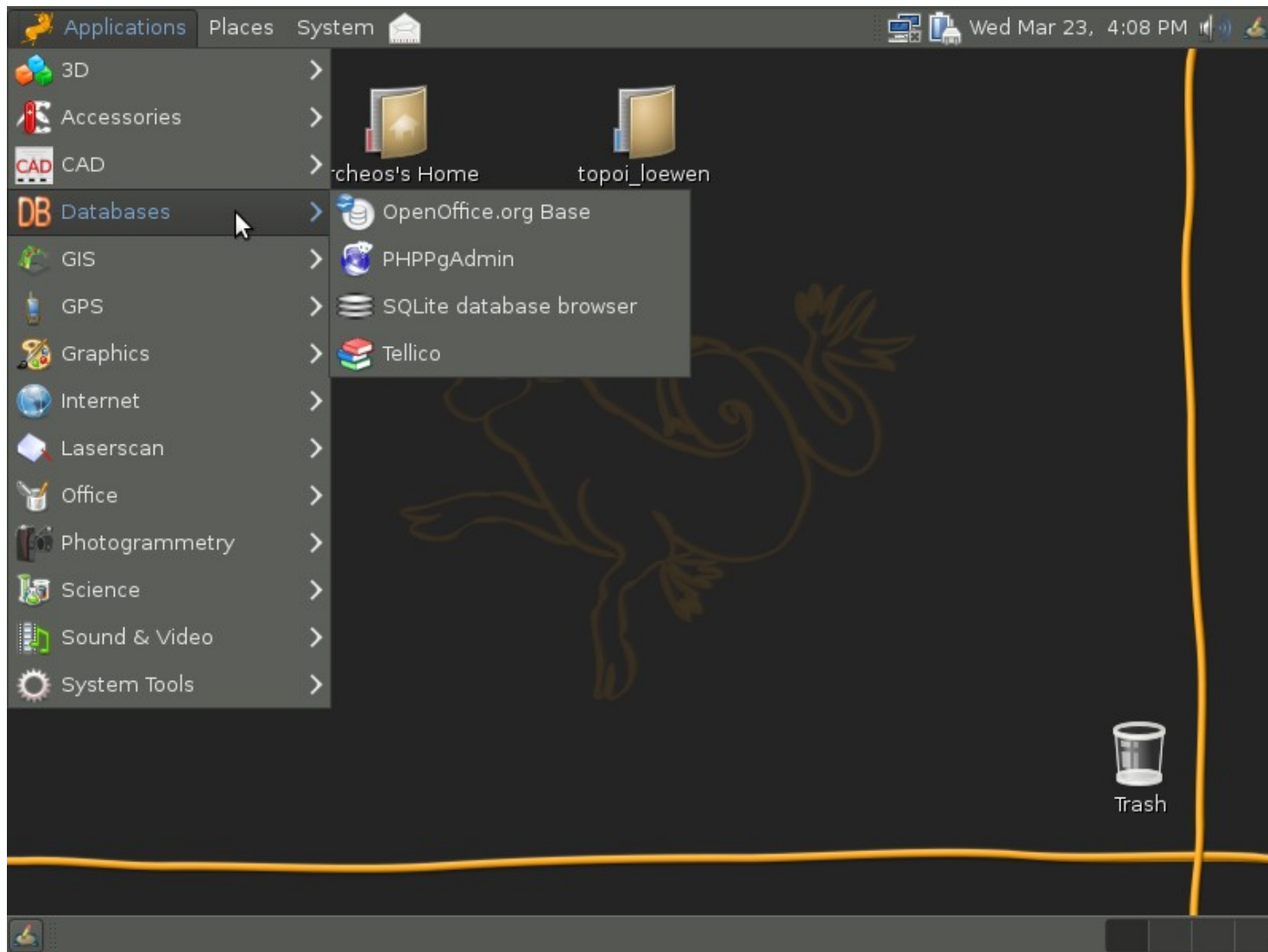
FREECAD

is an Open Source 3D CAD/CAE program, based on OpenCascade, QT and Python.





Database Menu



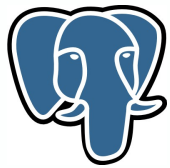


OpenOffice Base
is a fully featured
desktop database
management
system

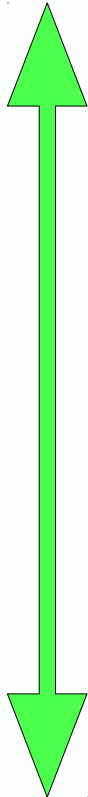
The screenshot shows two overlapping windows from the OpenOffice suite. The background window is 'schedaUS - OpenOffice.org Base', displaying a database interface with a sidebar containing 'Tabelle', 'Ricerche', 'Formulari', and 'Rapporti'. The foreground window is 'scheda-fronte(sola lettura) - OpenOffice.org Writer', showing a form for an archaeological site. The form is titled 'US' and includes fields for 'N. CATALOGO GENERALE', 'N. CATALOGO INTERNAZIONALE', 'MINISTERO PER I BENI CULTURALI E AMBIENTALI', 'ISTITUTO CENTRALE PER IL CATALOGO E LA DOCUMENTAZIONE', 'SOPRINTENDENZA', 'Trento', 'LOCALITA' ROVER (CLOZ)', 'ANNO 2005', 'AREA', 'SAGGIO A', 'SETTORE/I est AMBIENTE 2c27', 'QUADRATO/I', 'QUOTE', 'UNITA' STRATIGR. 33', 'NAT. x', 'ART. x', 'PIANTE plan_33.dxf', 'SEZIONI A-A1', 'PROSPETTI nord', 'FOTO imm_21', and 'TABELLE MATERIALI RA N'. Below these fields are sections for 'DEFINIZIONE E POSIZIONE', 'CRITERI DI DISTINZIONE', 'MODO DI FORMAZIONE', 'COMPONENTI' (with sub-sections for GEOLOGICI, ORGANICI, and ARTIFICIALI), 'CONSISTENZA', 'STATO DI CONSERVAZIONE', and 'DESCRIZIONE'. The 'COMPONENTI' section contains the following data:

	GEOLOGICI	ORGANICI	ARTIFICIALI
calcare		ossa	frammenti ceramici
scapoli lapidei		frustoli carboniosi	bronzo

The 'DESCRIZIONE' section contains the text: 'Strato tabulare costituito da scapoli lapidei e calcari di dimensioni centimetriche e decimetriche e di forme differenti. Si pone su un allettamento di limo-argilloso steso in maniera uniforme e planare.'

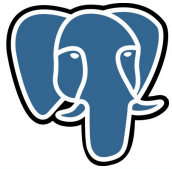


PostgreSQL is a powerful, open source object-relational database system

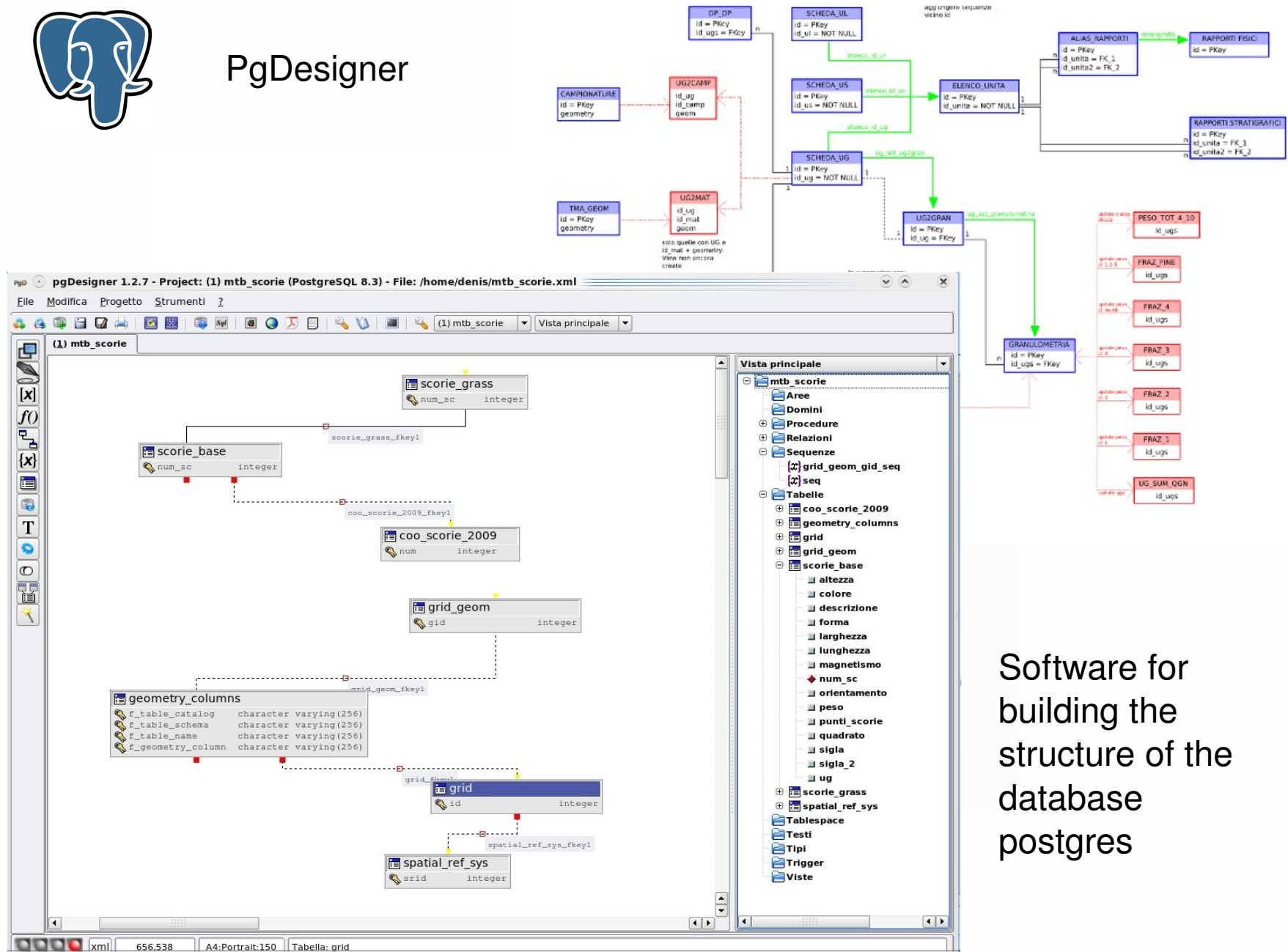


PostGIS adds support for geographic objects to the PostgreSQL object-relational database

The screenshot displays three overlapping software interfaces. At the top right is the **Open Office Base** window, showing a data table for 'Analisi granulometrica' with columns for 'classe', 'peso_lab (gr)', 'peso_scavo (gr)', 'freq. (%)', 'qgn (gr/mm)', and 'qgp (%)'. Below it is the **PgAdmin** window, showing a tree view of database objects and a SQL editor with the command: `CREATE TABLE scheda Ug (id integer NOT NULL DEFAULT Ug integer NOT NULL, Ug_part character varying(10), id Ug character varying(10))`. At the bottom is the **PhpPgAdmin** web interface, displaying a table of archaeological data with columns for 'Azioni', 'sigla', 'num_sc', 'descrizione', 'lunghezza', 'larghezza', and 'altezza'. The table contains 20 rows of data, including items like '44 vesicchio di piccola dm' and '1660 vesicchio di piccola e medie dm'.



PgDesigner



Software for
building the
structure of the
database
postgres



SQLite is the most widely deployed SQL database engine in the world

```

denis@acer:~$ spatialite /home/denis/progetti/lana/databas
Spatialite version ..: 2.4.0   Supported Extensions:
- 'VirtualShape' [direct Shapefile access]
- 'VirtualDbf' [direct DBF access]
- 'VirtualText' [direct CSV/TXT access]
- 'VirtualNetwork' [Dijkstra shortest path]
- 'RTree' [Spatial Index - R*Tree]
- 'MbrCache' [Spatial Index - MBR cache]
- 'VirtualFDO' [FDO-OGR interoperability]
- 'Spatialite' [Spatial SQL - OGC]
PROJ.4 version ..: Rel. 4.6.0, 21 Dec 2007
GEOS version ..: 3.0.0-CAPI-1.4.1
SQLite version ..: 3.7.0.1
Enter ".help" for instructions
spatialite>
    
```

SQLite Database Browser - /home/denis/progetti/lana/database/lana_veneto.db

File Edit View Help

Database Structure Browse Data Execute SQL

Name	Object	Type	Schema
geometry_columns	table		CREATE TABLE geometry_col...
geometry_columns_auth	table		CREATE TABLE geometry_col...
lv_mat_classe_morfo	table		CREATE TABLE "lv_mat_class...
lv_mat_dati	table		CREATE TABLE "lv_mat_dati"...
lv_sito	table		CREATE TABLE "lv_sito" ("id"...
id	field	INTEGER PRIMARY KEY	
regione	field	CHARACTER VARYING (50)	
provincia	field	CHARACTER VARYING (10)	
cont_amb	field	CHARACTER VARYING (50)	
cont_arch_gen	field	CHARACTER VARYING (50)	
cont_arch_spec	field	CHARACTER VARYING (50)	
mod_rinv	field	CHARACTER VARYING (50)	
materiali	table		CREATE TABLE materiali (...)
sito	table		CREATE TABLE sito (...)
spatial_ref_sys	table		CREATE TABLE spatial_ref_sy...
trs	table		CREATE TABLE trs (id integer...

SQLite Database Browser - /home/denis/progetti/lana/database/lana_veneto.db

File Edit View Help

Database Structure Browse Data Execute SQL

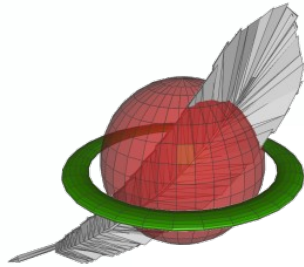
Table:

New Record Delete Record

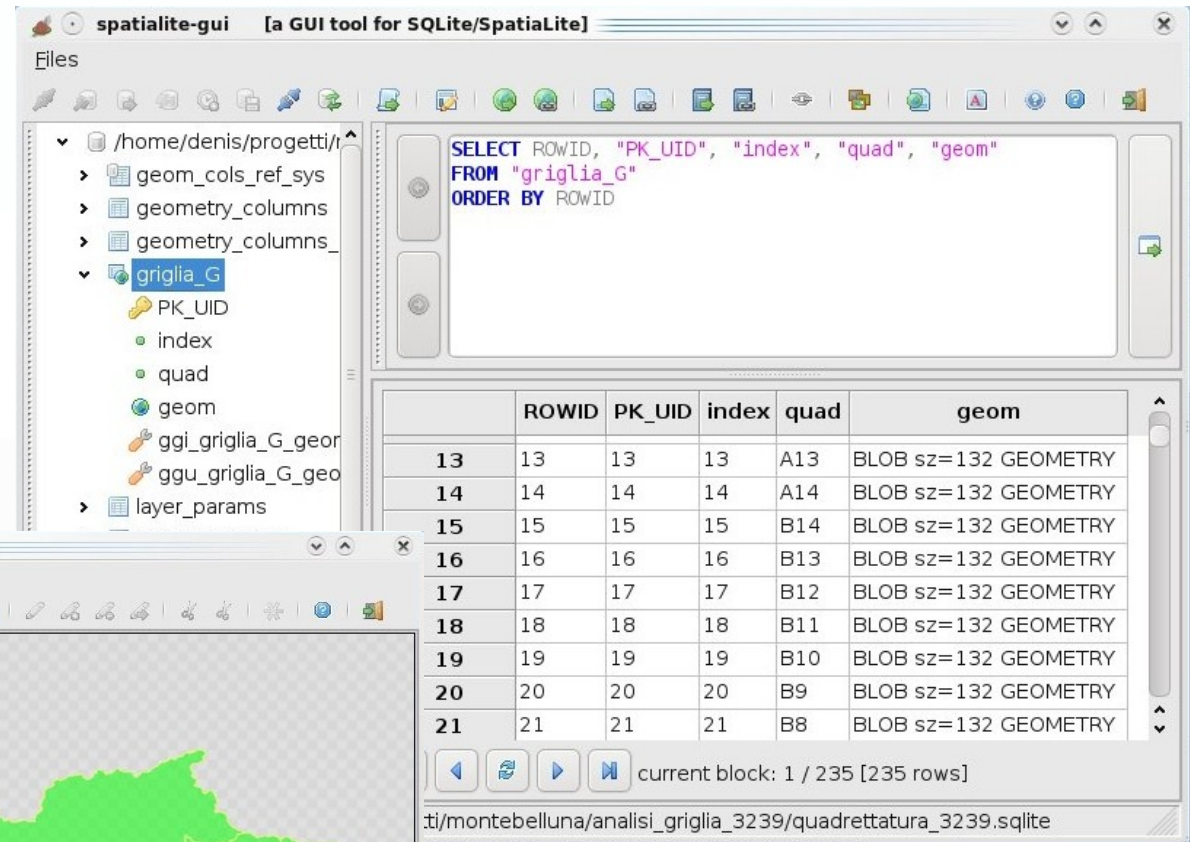
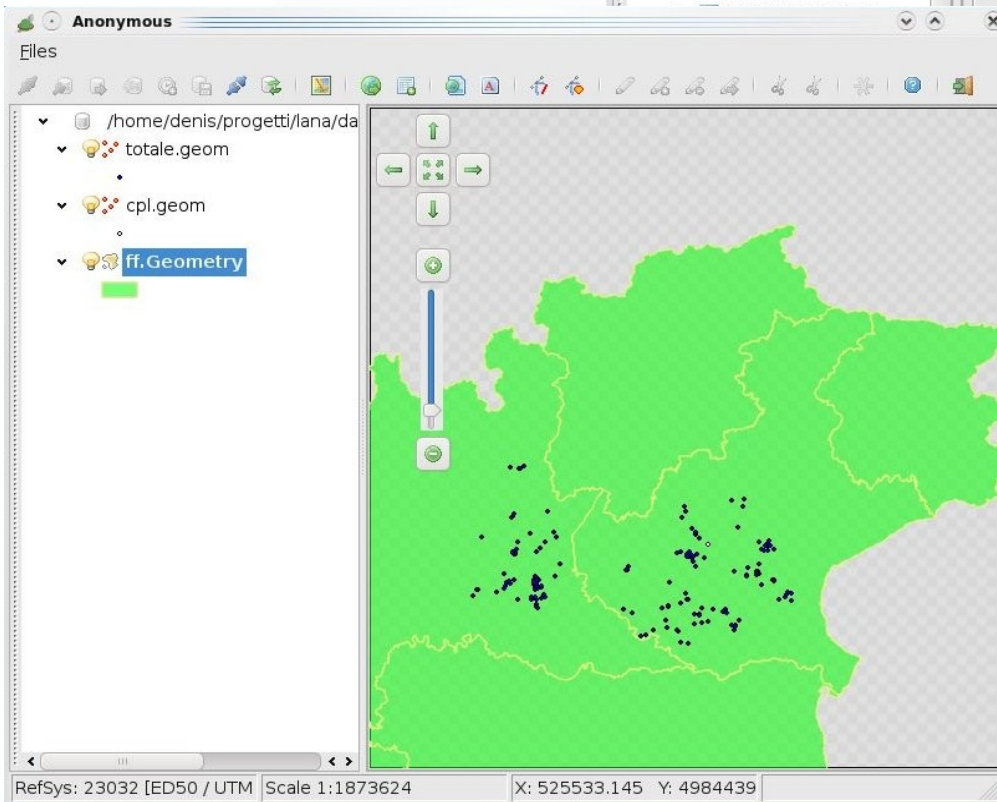
	id	sito	num_mat	num_inv	provincia	comune	loc_rinv
1	115	"PD001"	1				
2	116	"PD001"	"UD1009"				
3	117	"PD001"	111				
4	118	"PD001"	"PD9817"				
5	215	"PD001"	"PD0101"	"IR4896"			

1 - 5 of 5

Go to:



Spatialite-GIS

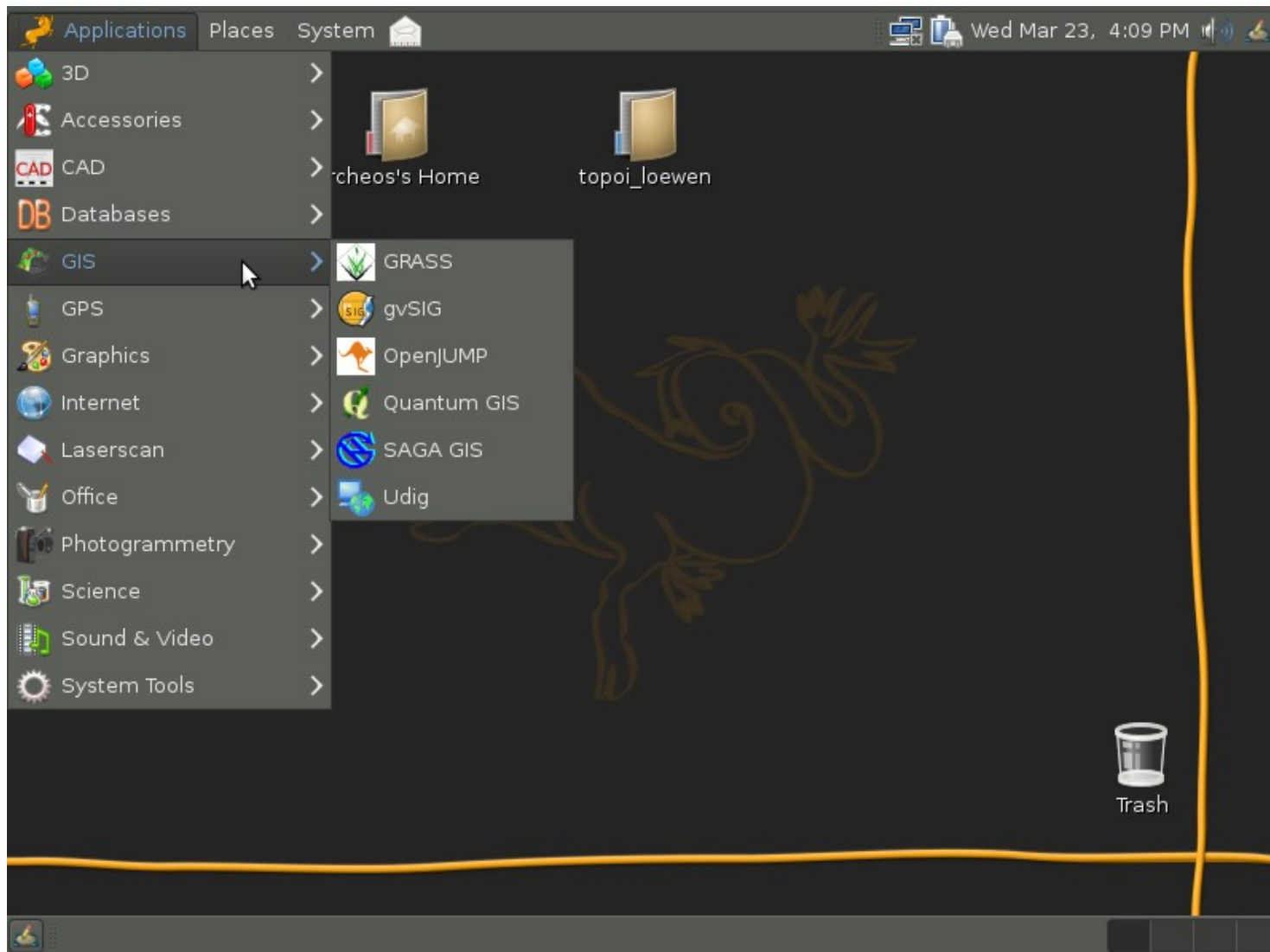


Spatialite-GUI

The SpatiaLite extension enables SQLite to support spatial data



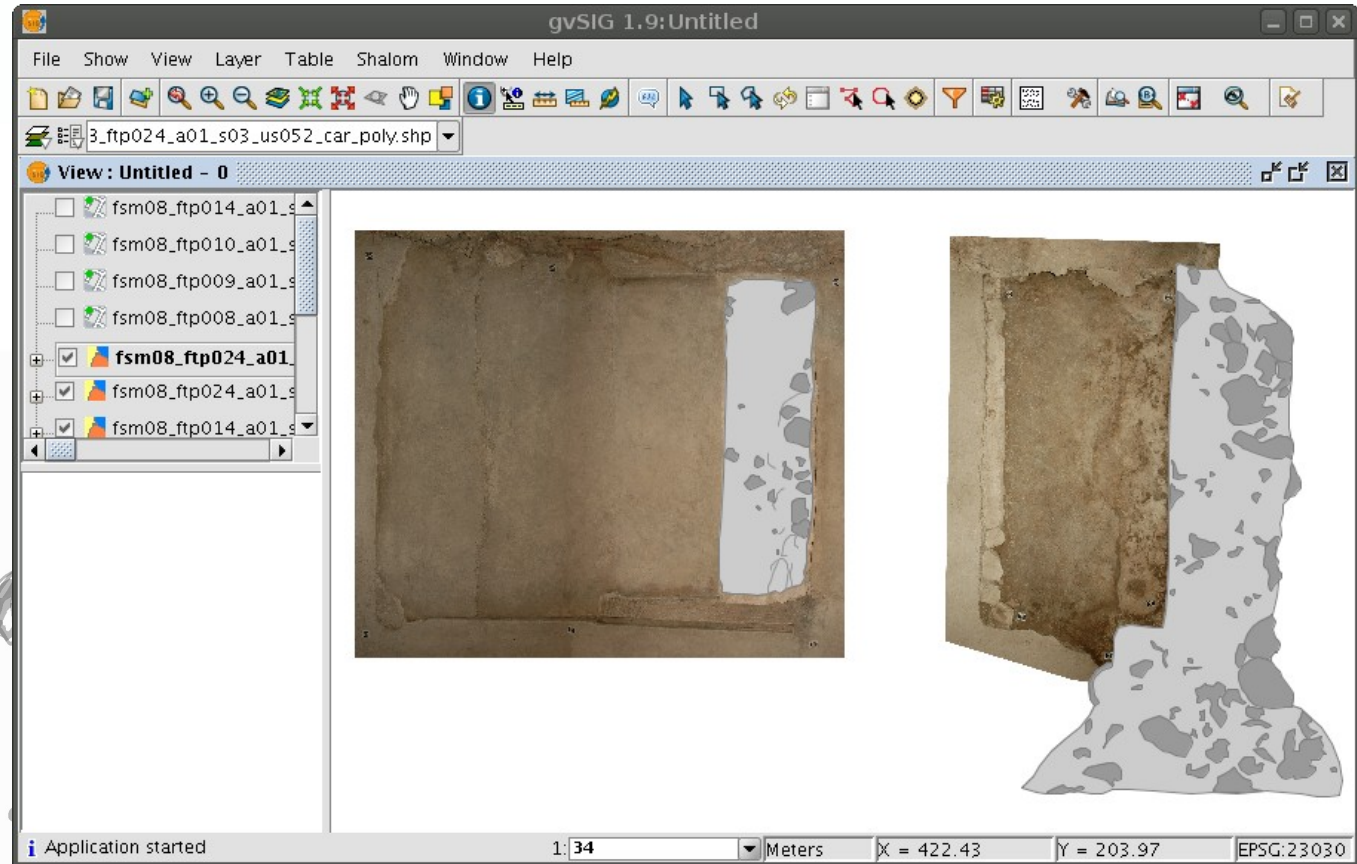
GIS Menu





GvSIG

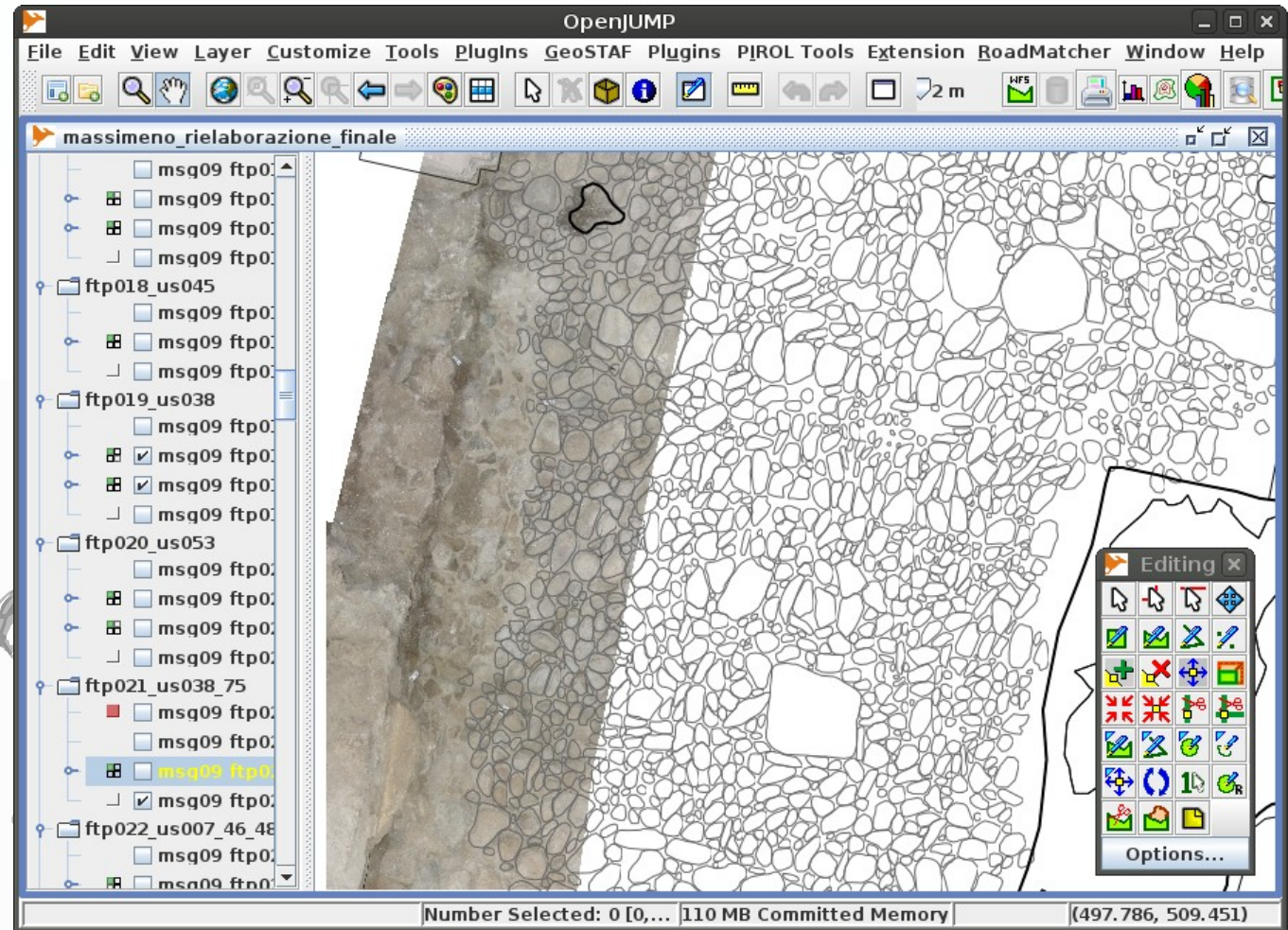
is a Geographic Information System (GIS), a desktop application designed for capturing, storing, handling, analysing and deploying any kind of referenced geographic information.





OpenJUMP

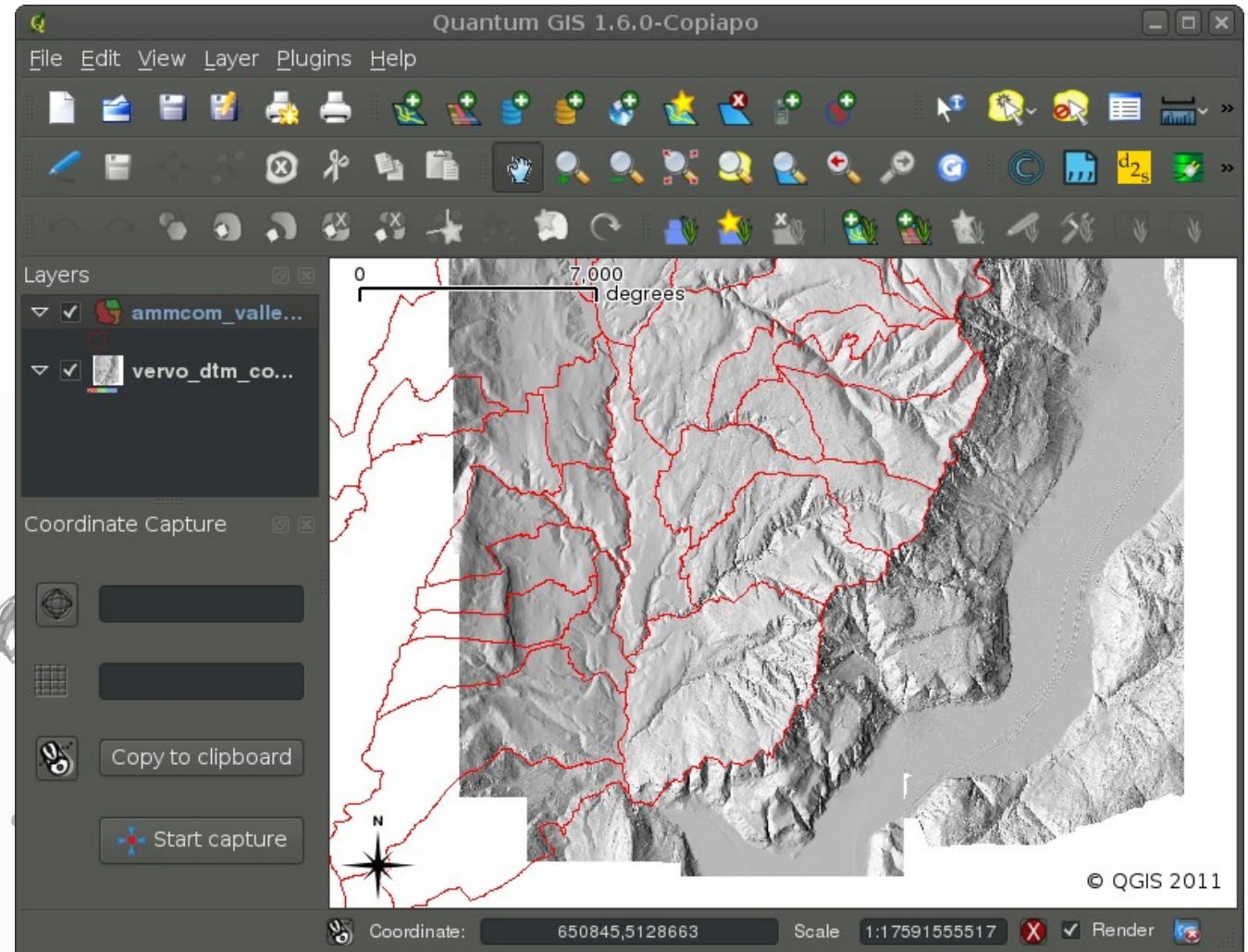
is an open source
Geographic
Information System
(GIS) written in the
Java programming
language.





Quantum GIS

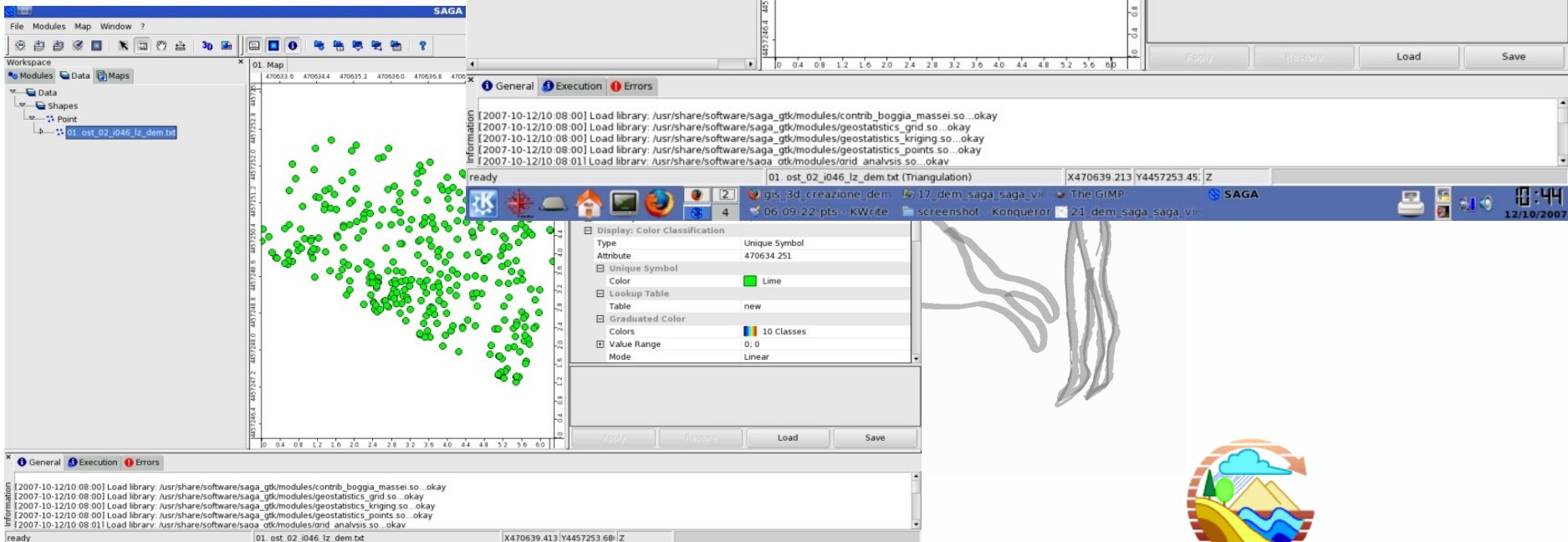
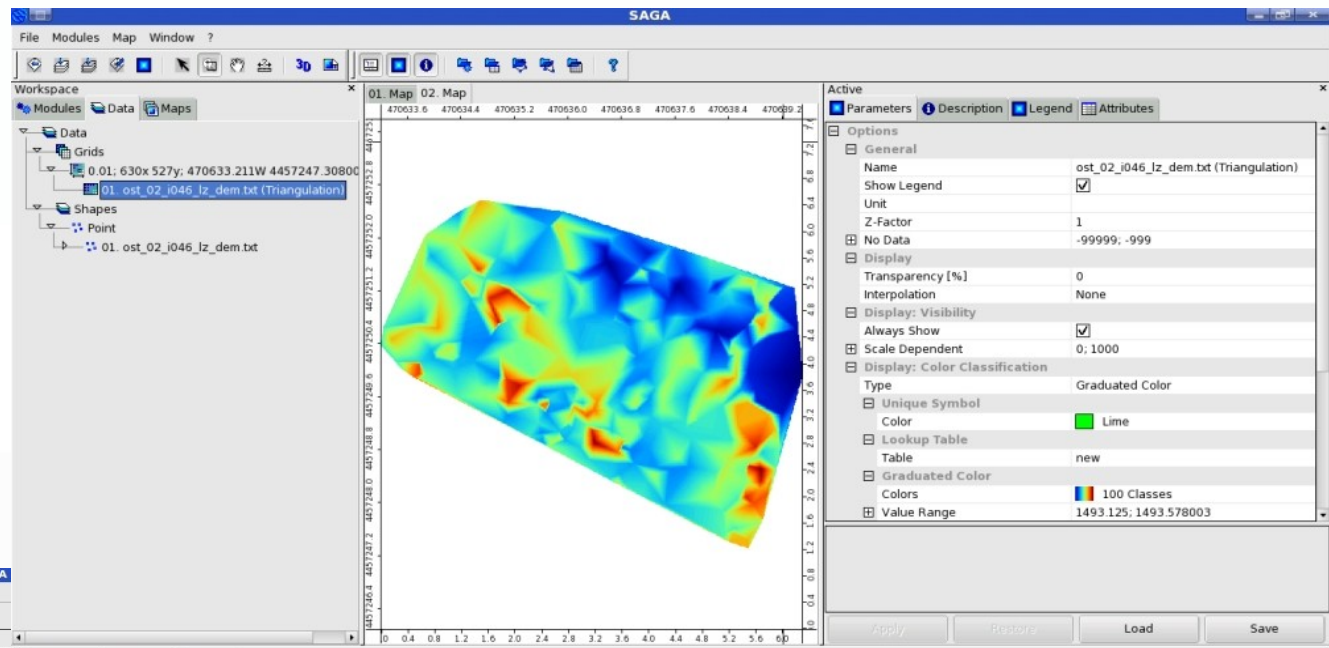
(QGIS) is a user friendly Open Source Geographic Information System (GIS) licensed under the GNU General Public License.





Saga

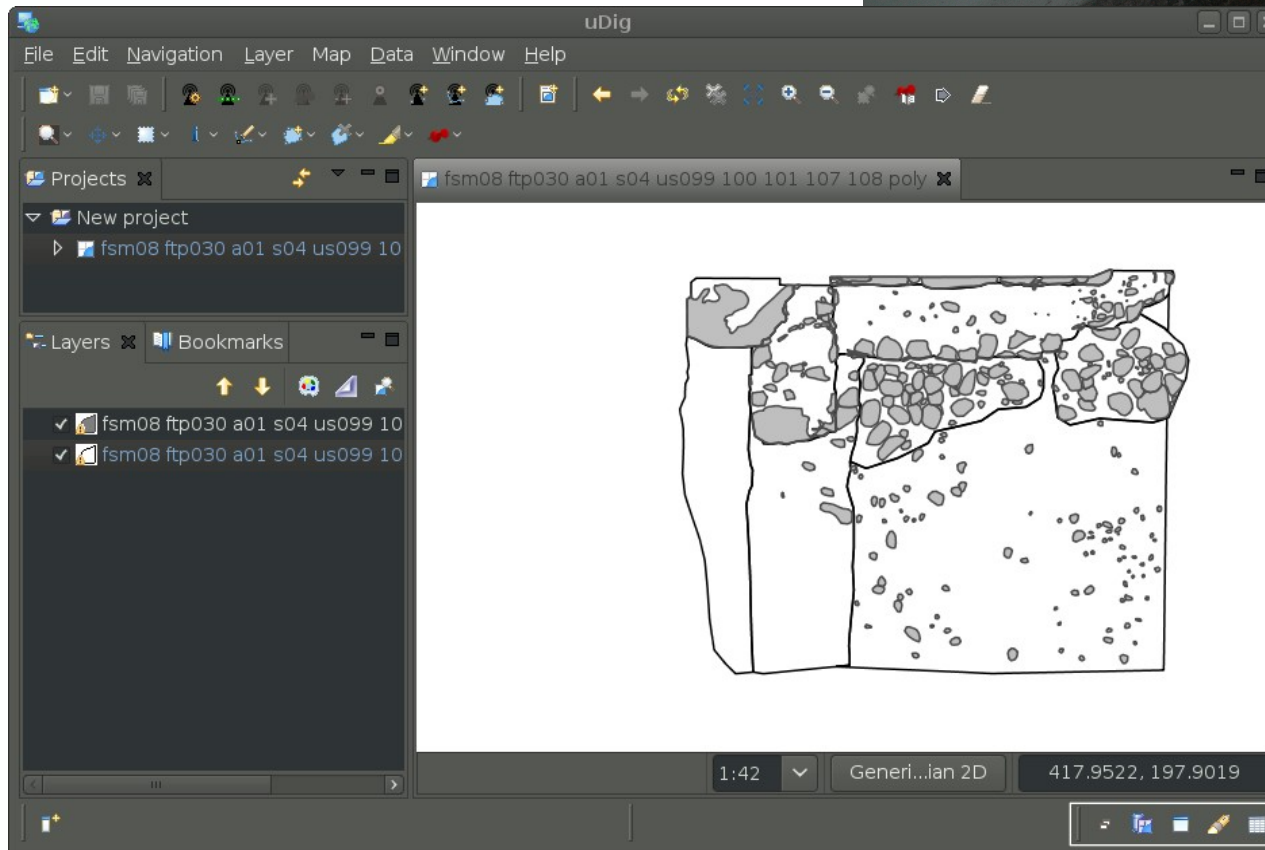
is the abbreviation for
System for Automated
Geoscientific Analyses





Udig / BeeGIS

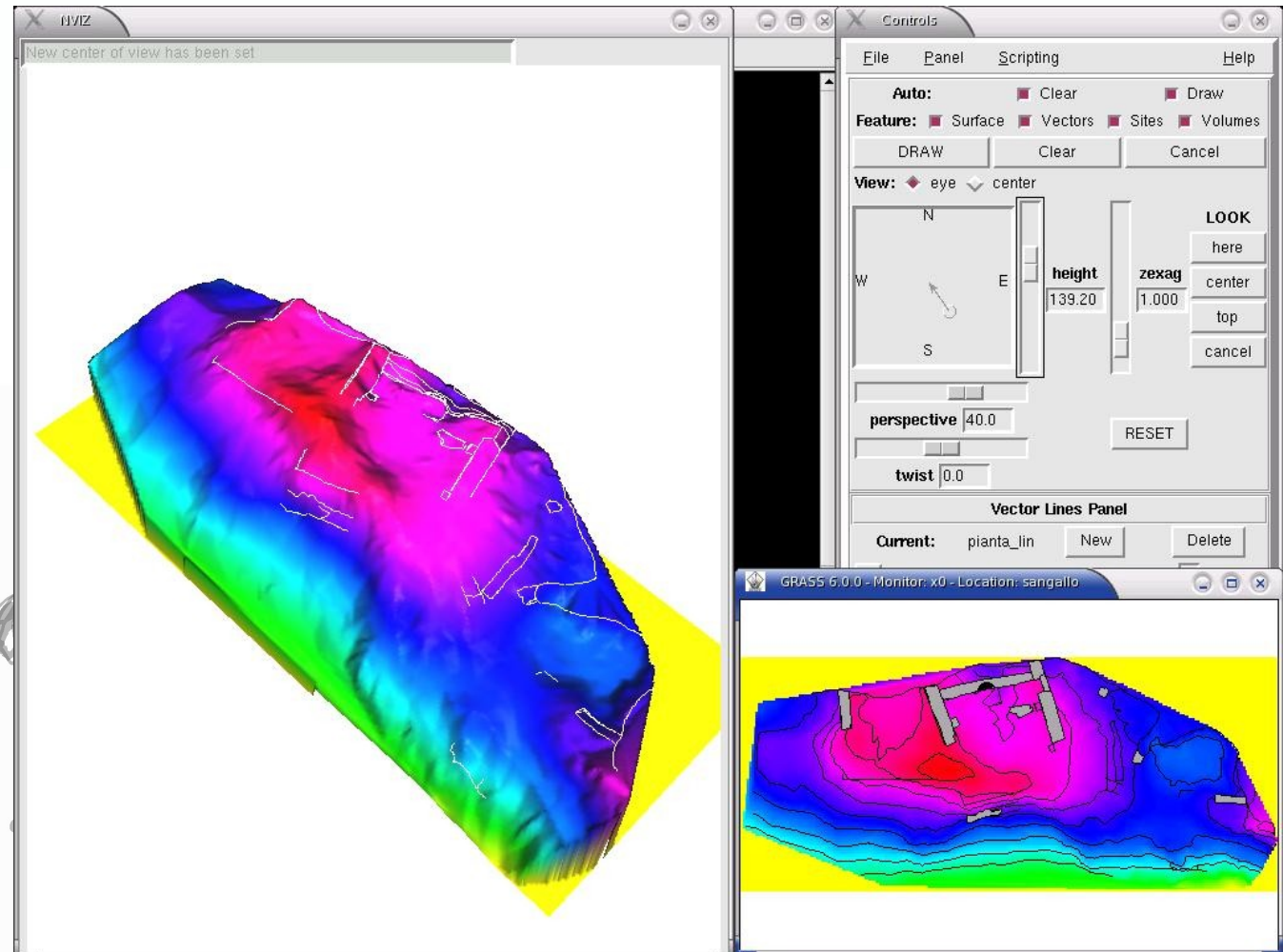
is an open source (LGPL) desktop application framework, built with Eclipse Rich Client (RCP) technology.





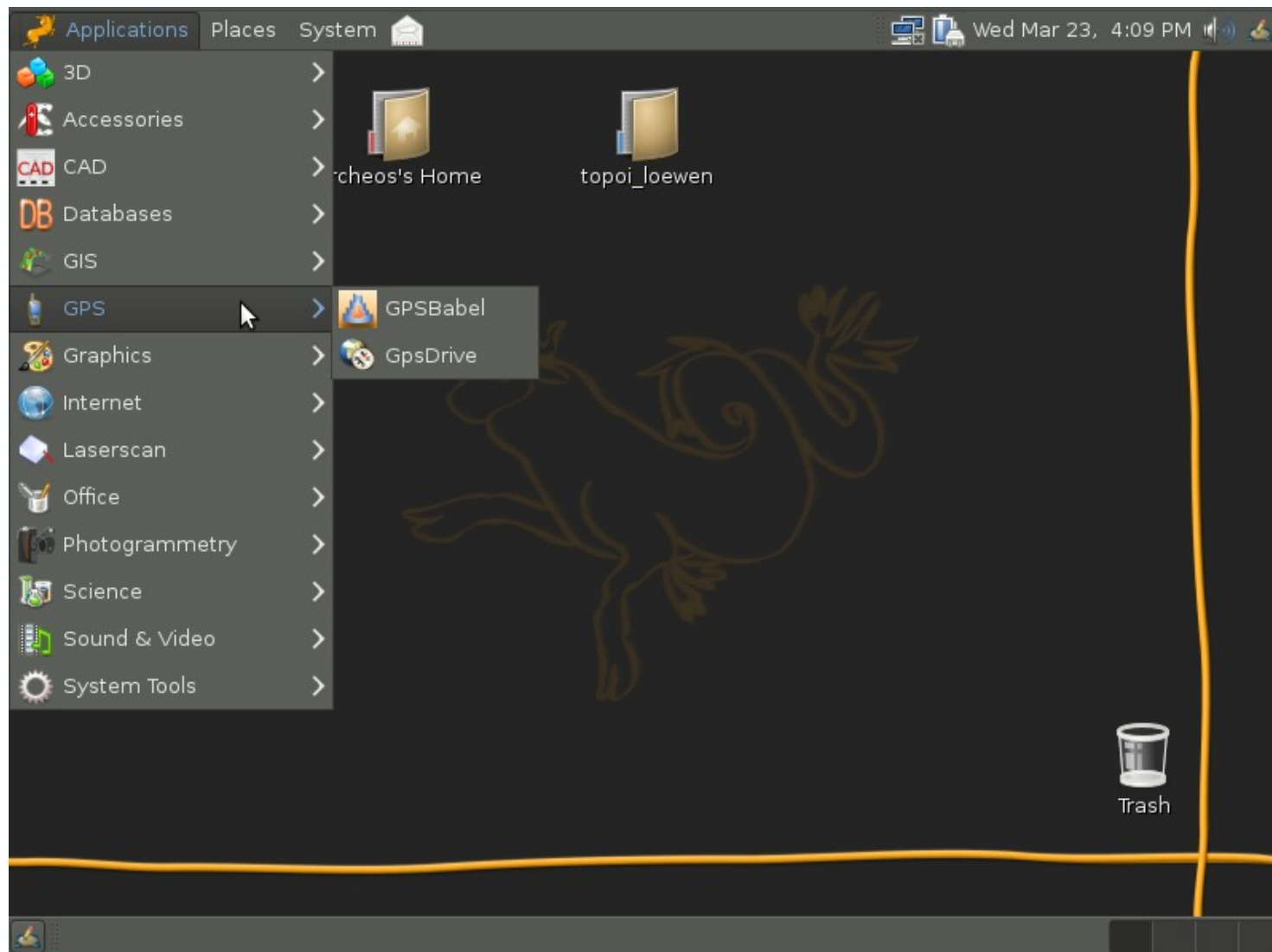
GRASS

is a free Geographic Information System (GIS) software used for geospatial data management and analysis, image processing, graphics/maps production, spatial modelling, and visualization.





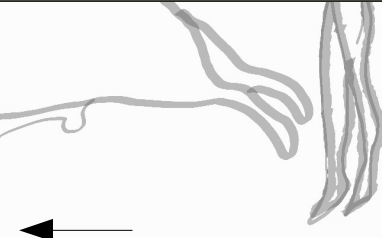
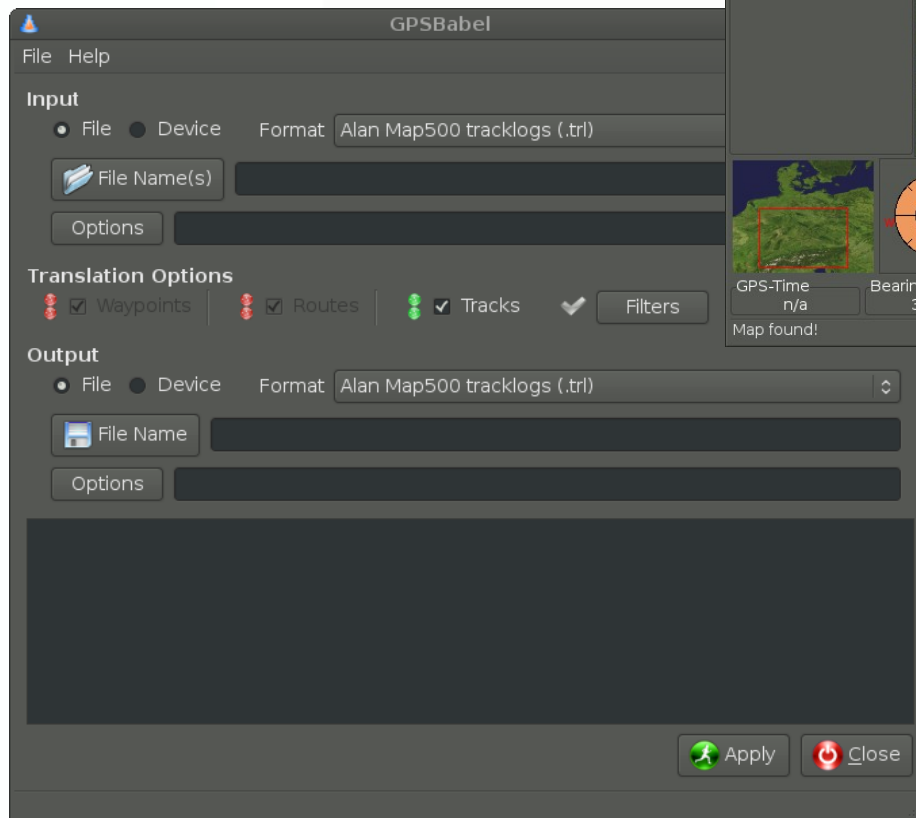
GPS Menu





GPSTDrive

displays your position provided from your GPS receiver on a zoomable map.

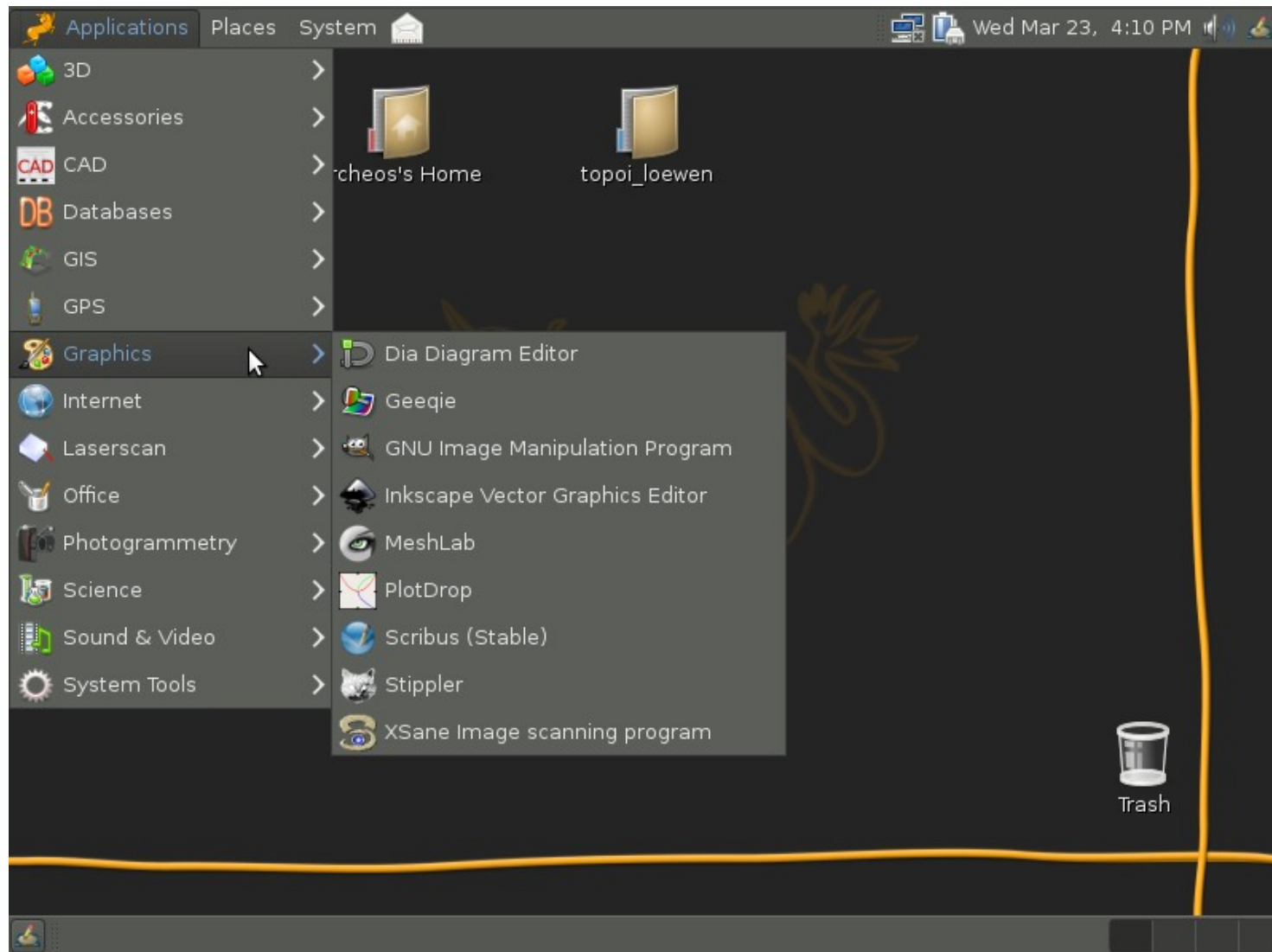


GPSBabel

converts waypoints, tracks, and routes between popular GPS receivers and mapping programs.

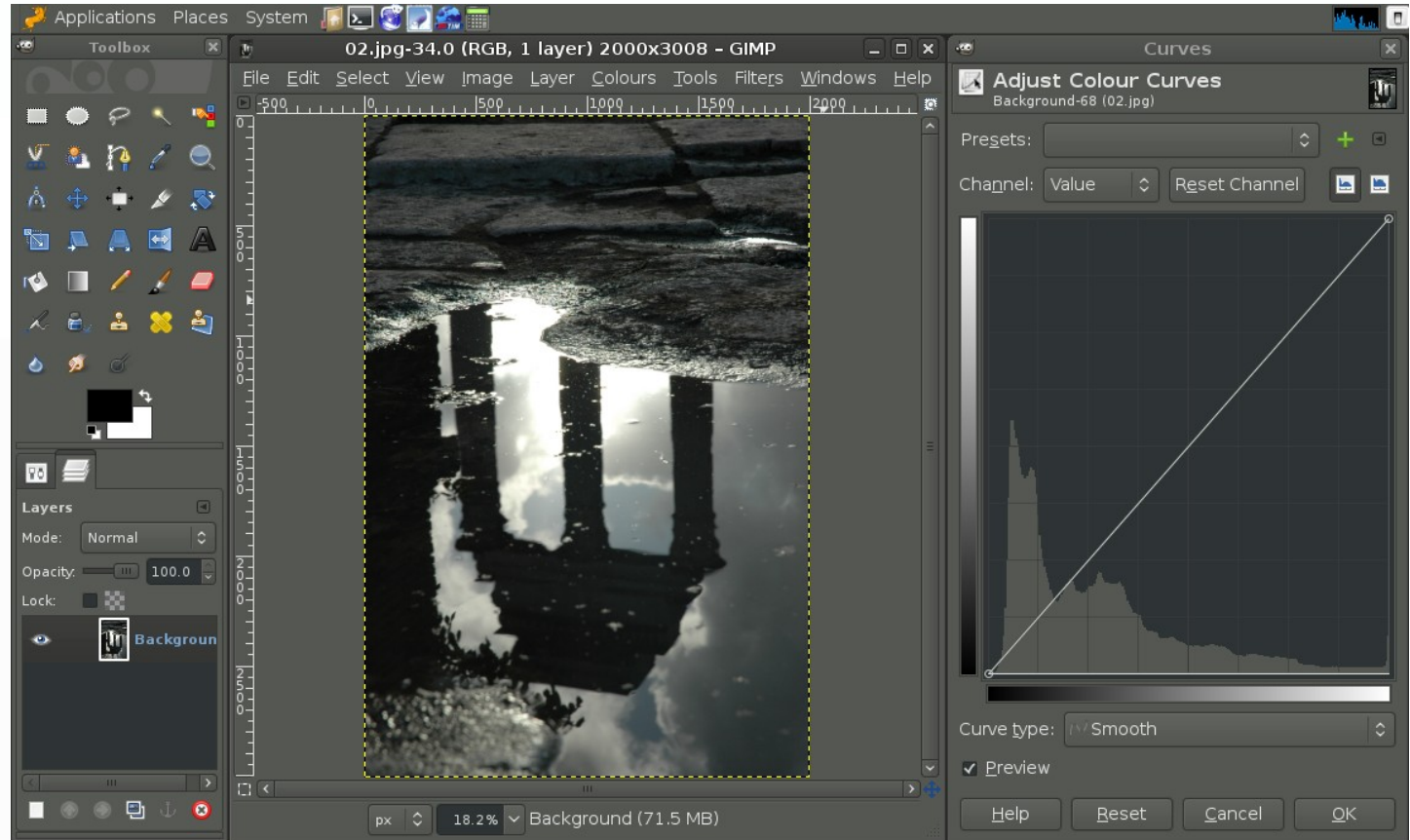


Graphic Menu





GIMP is the GNU Image Manipulation Program. It is a freely distributed piece of software for such tasks as photo retouching, image composition and image authoring.

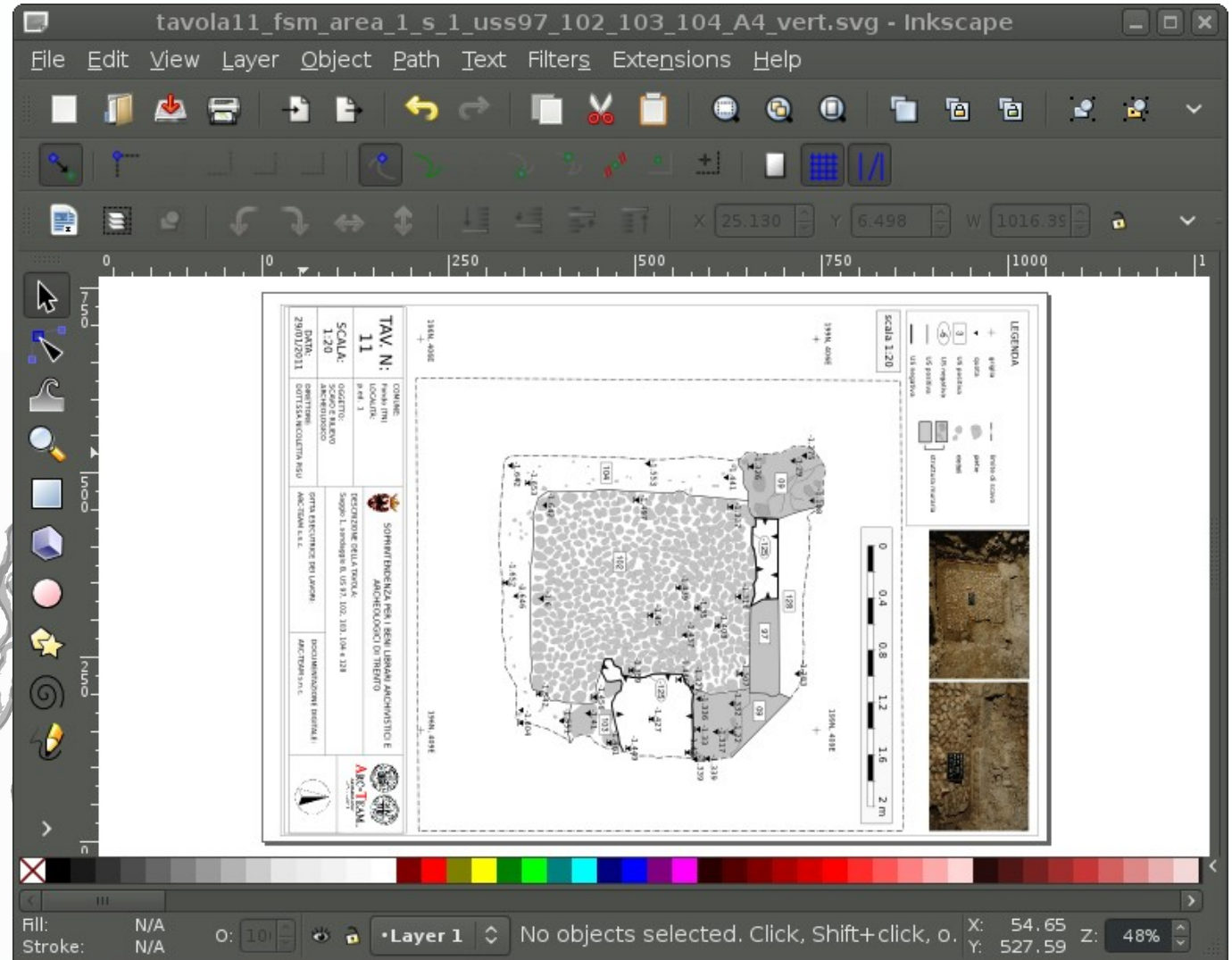




InkScape
is An Open
Source vector
graphics
editor, using
the W3C
standard
Scalable
Vector
Graphics
(SVG) file
format.

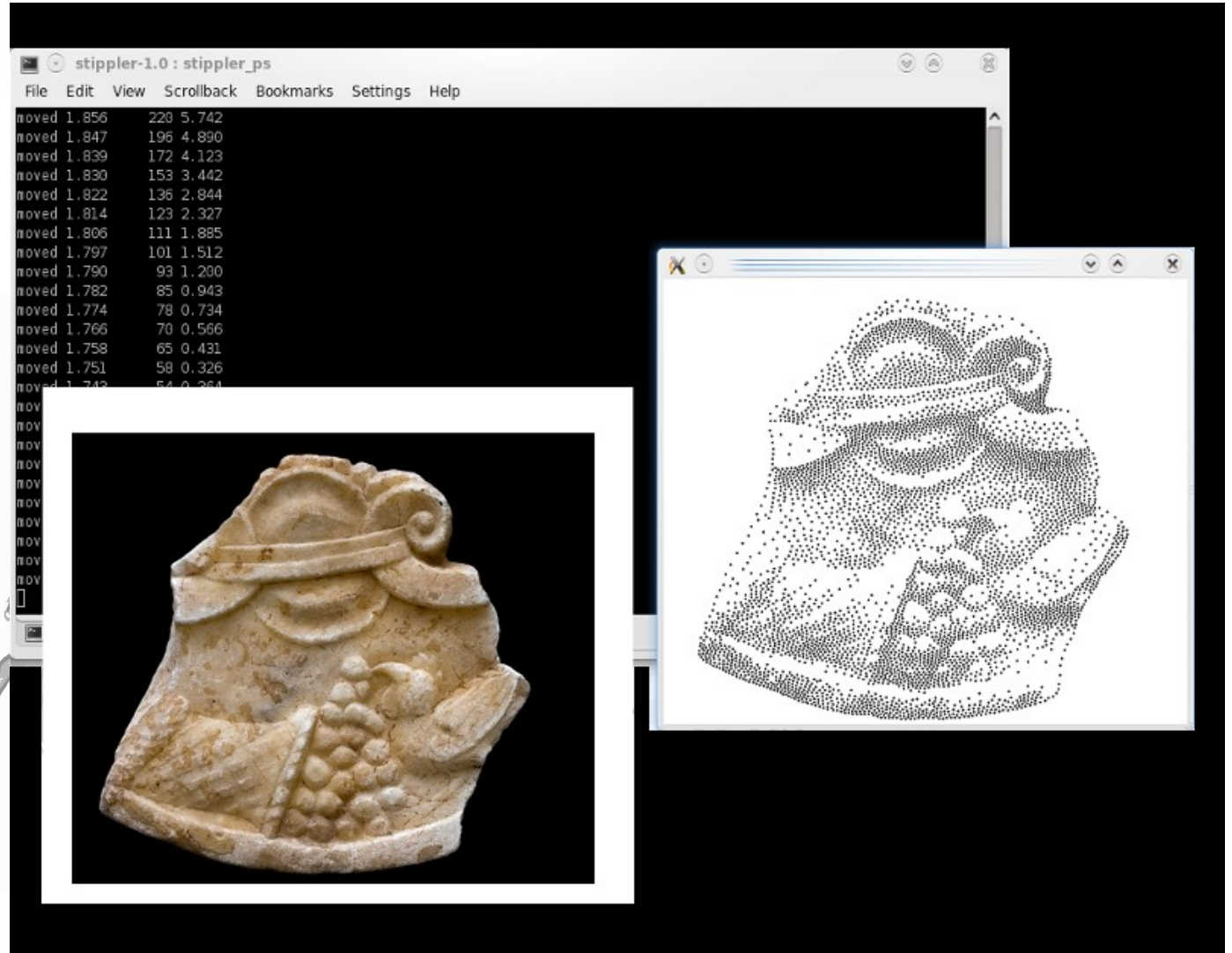


<http://inkscape.org/>



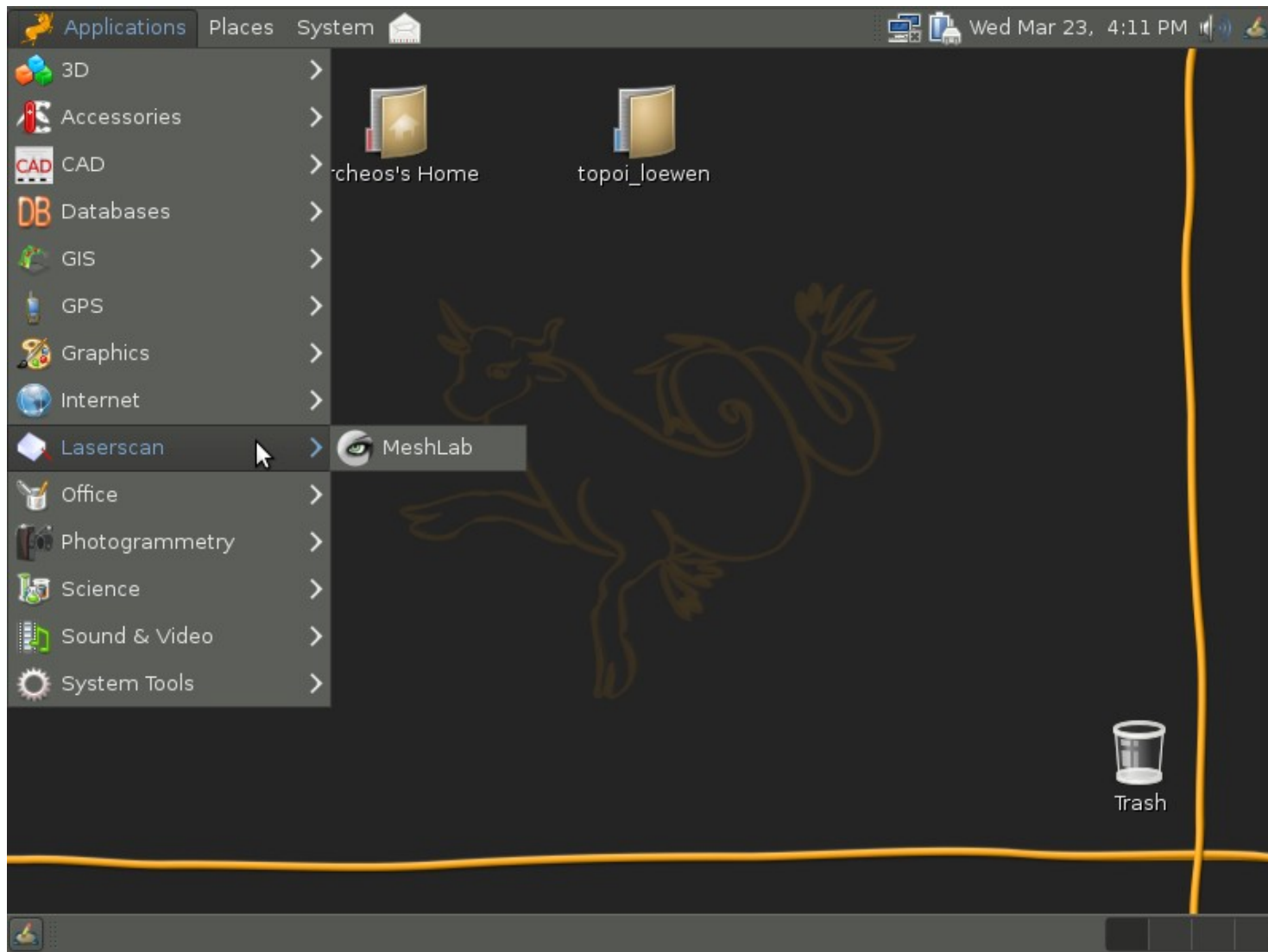


Stippler
is software for
turning
greyscale
images into
"stippled"
images.





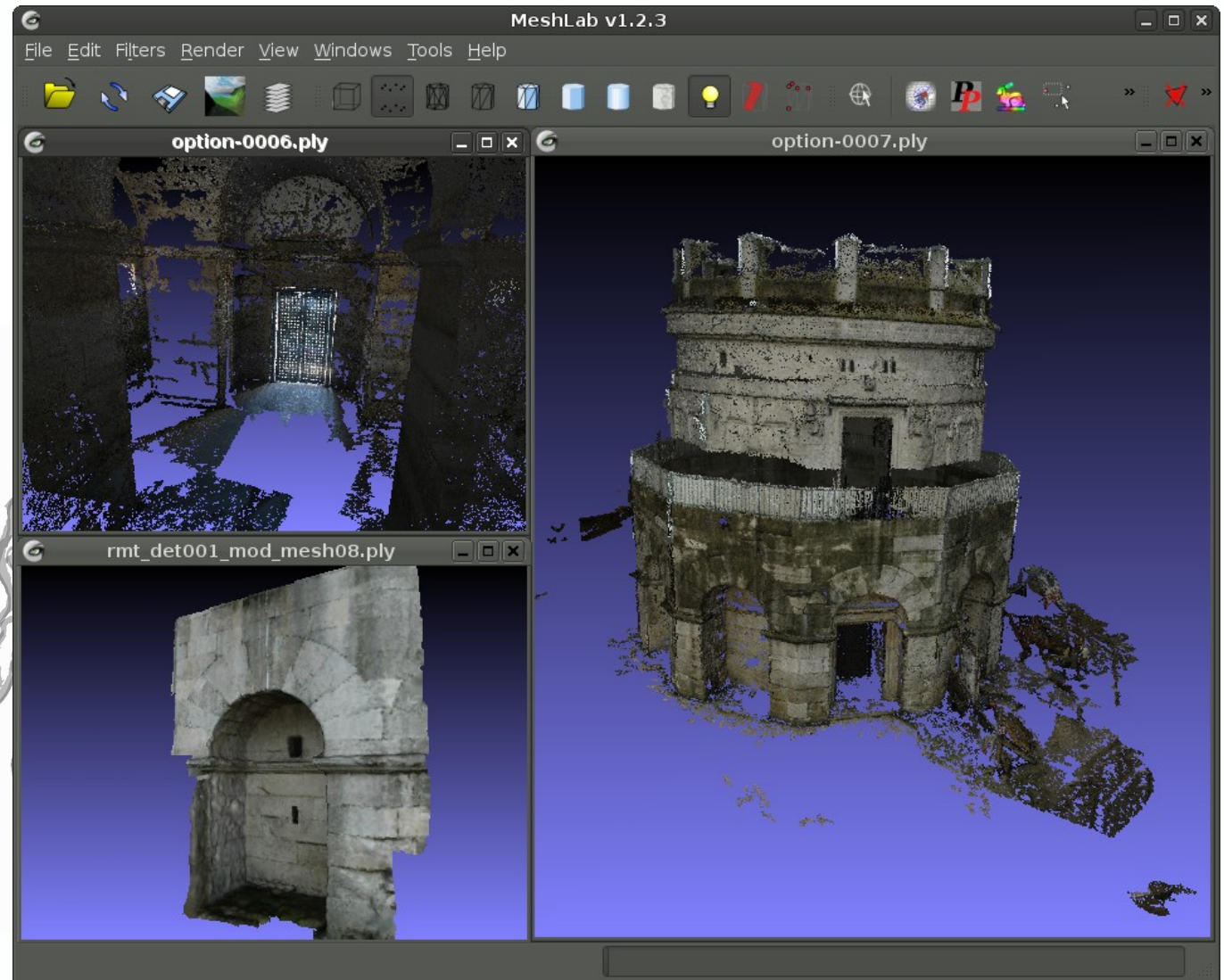
Laserscan Menu





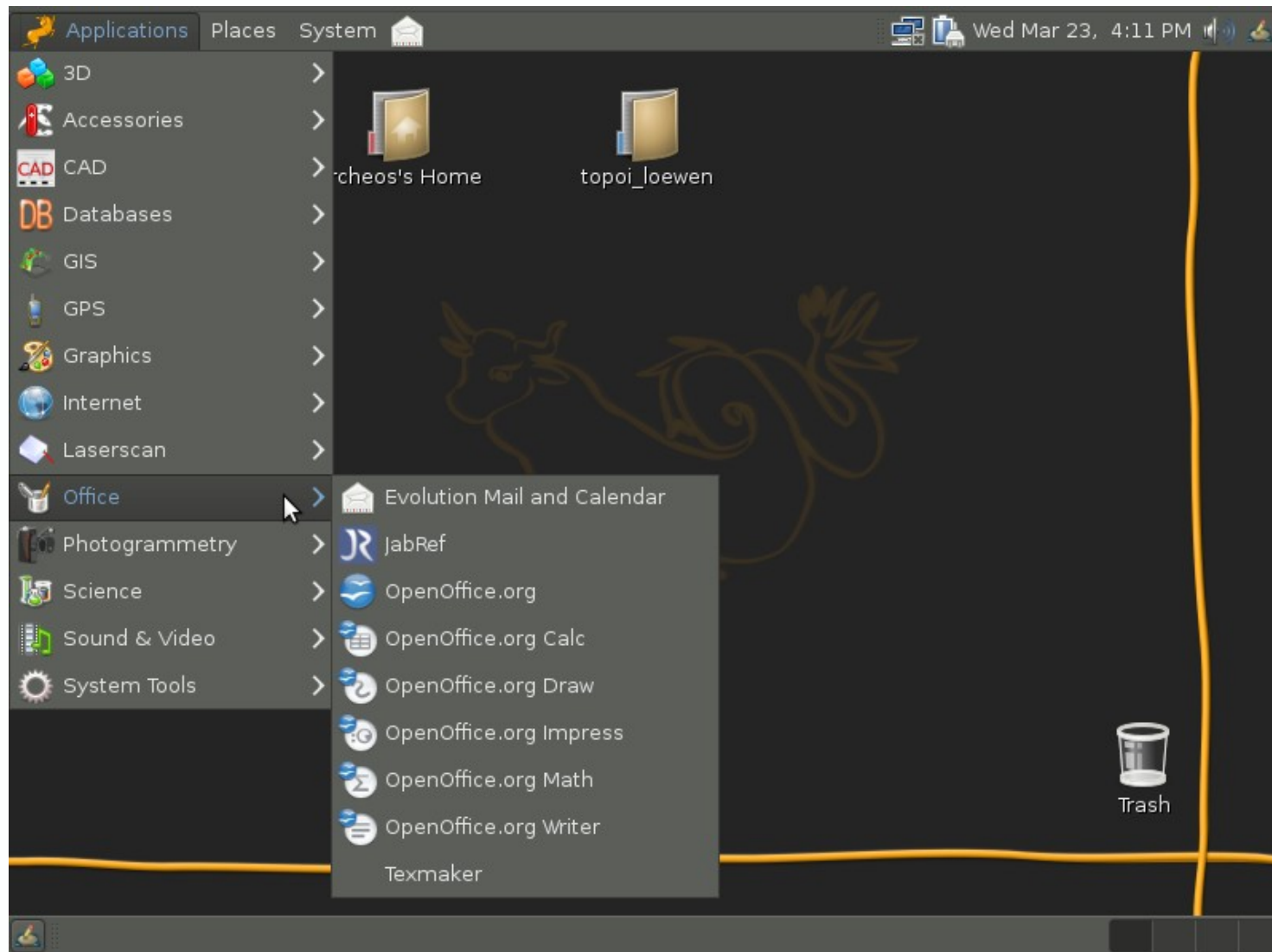
MeshLab

is an open source, portable, and extensible system for the processing and editing of unstructured 3D triangular meshes.





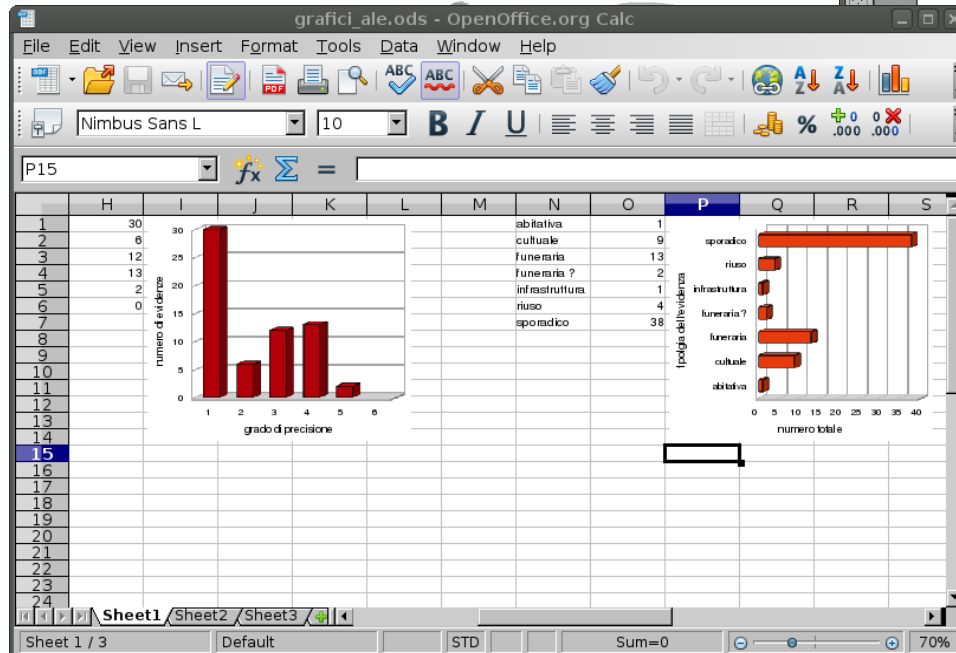
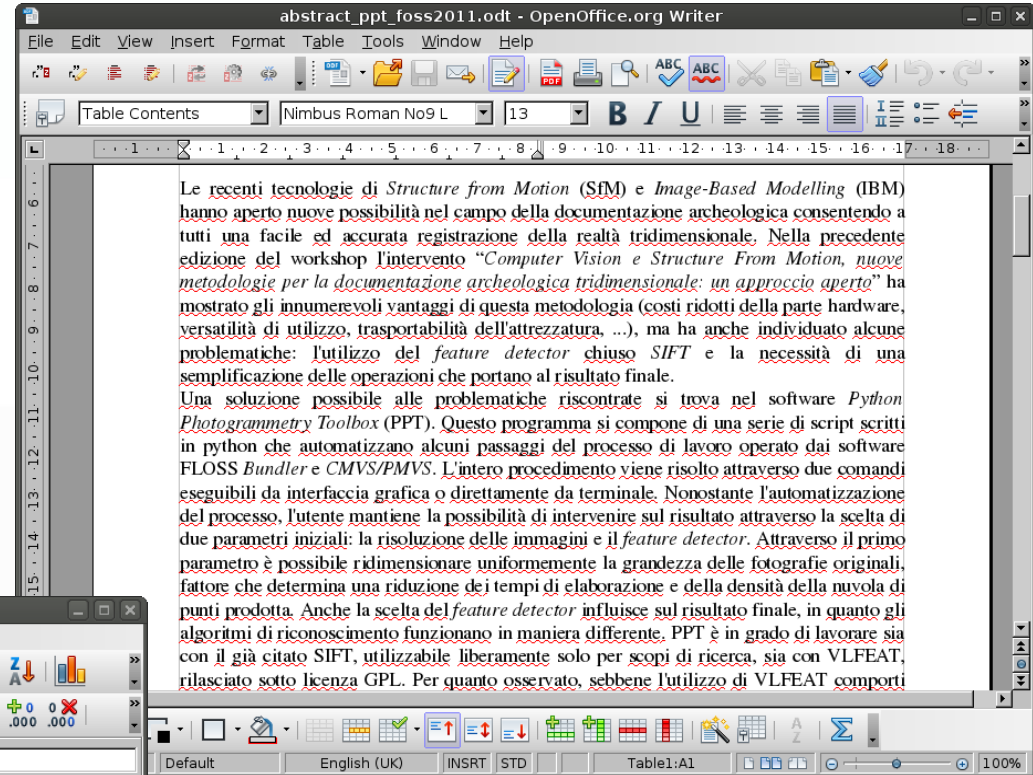
Office Menu





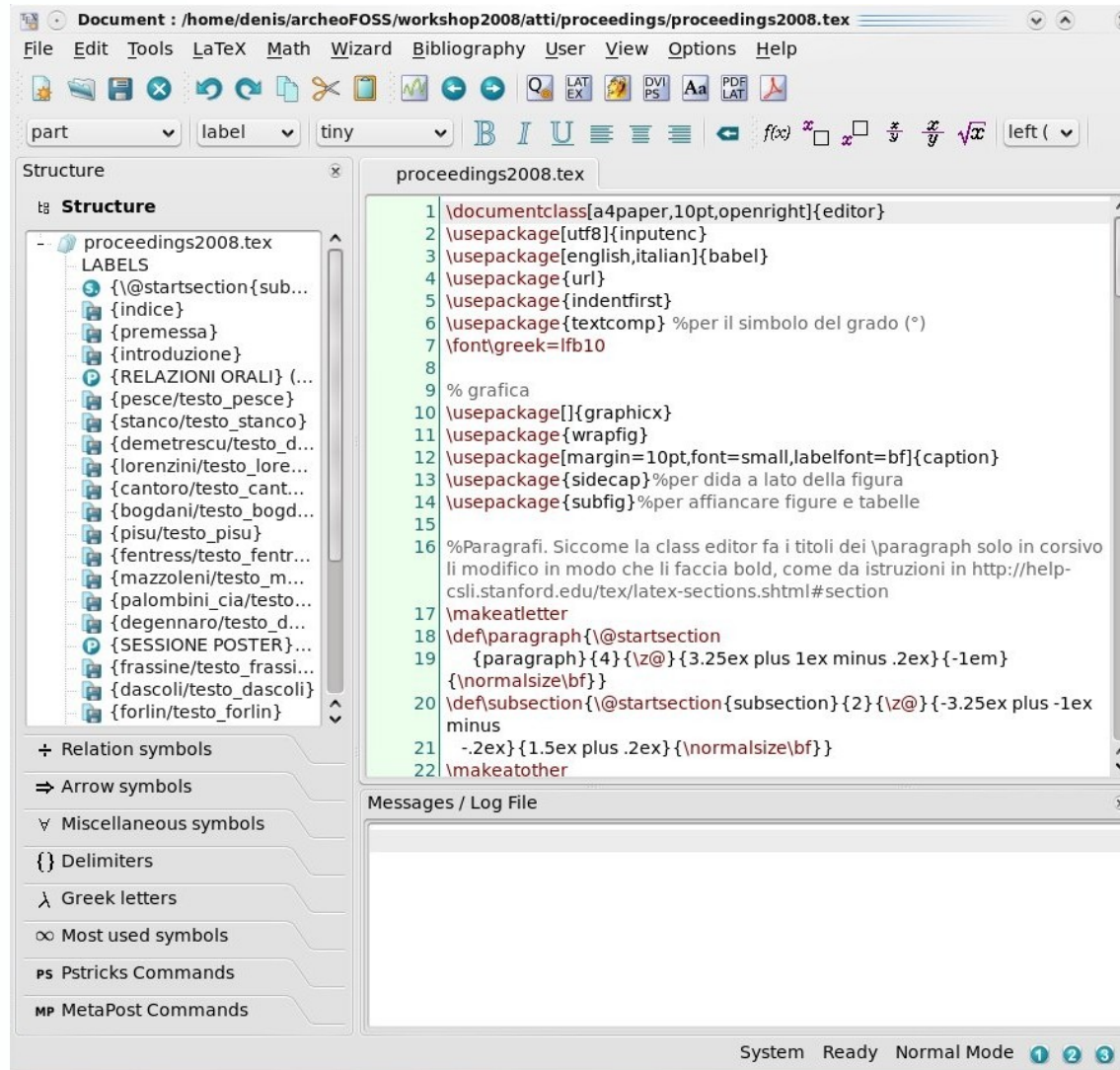
OpenOffice

- Writer
- Impress
- Calc
- Math
- Draw





Texmaker is a free, modern and cross-platform LaTeX editor



Arc-Team s.n.c. open research (sharing results)

Alessandro BEZZI*, Luca BEZZI*, Rupert GIETL*

SOMMARIO. Con questo contributo si intendono presentare alcuni progetti aperti, svolti da Arc-Team s.n.c. tra la fine del 2007 e l'inizio del 2008, in modo da condividere i risultati ottenuti (in un'ottica di "open research") e creare/ampliare una comunità di utenti e sviluppatori che da una parte si avvalga liberamente dei risultati raggiunti e dall'altra contribuisca attivamente al miglioramento dei progetti stessi. Tra le ricerche presentate vi saranno quelle riguardanti la condivisione di strumenti, di *know-how* e di dati.

ABSTRACT. With this contribute we would like to present some of Arc-Team's open projects, to share the results we achieved, using an "open research" point of view. The idea is to create/improve a users and developers community to share ideas and experiences and to reach better results. Different researches will be presented, regarding the sharing of instruments, know-how and data.

1. Premessa

Ormai da diversi anni Arc-Team s.n.c. promuove l'utilizzo di *software* libero (*Free e Open Source*) all'interno del mondo archeologico. Grazie all'esperienza maturata sul campo è stato possibile sviluppare uno strumento come ArcheOS, che con la versione 2.0 è in grado di offrire una stabile e potente piattaforma *software*, capace di soddisfare le differenti esigenze della disciplina archeologica (dallo scavo d'emergenza alla ricerca più speculativa).

ArcheOS è però solo uno dei progetti "aperti" che Arc-Team s.n.c. conduce nell'ambito della sua attività. Di seguito verranno presentati alcuni di questi progetti, riguardanti la condivisione di strumenti, di conoscenza e di dati.

2. Condivisione di strumenti (software)

2.1. ArcheOS

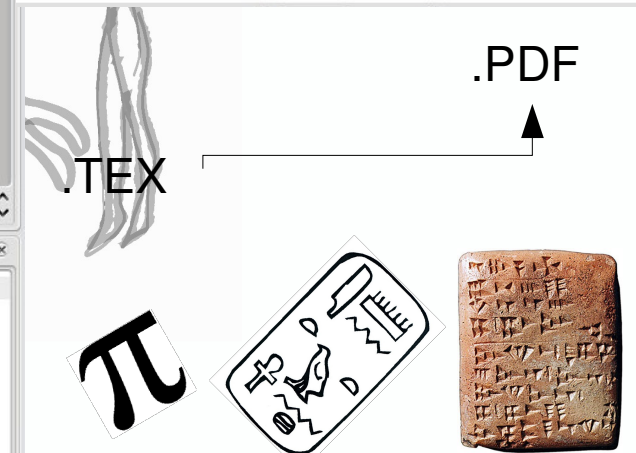
Il progetto ArcheOS¹ (acronimo di *Archaeological Operating System*) ha come obiettivo la creazione di un sistema operativo libero (GNU/Linux) interamente dedicato alla ricerca archeologica.

Allo stato attuale ArcheOS v. 2.0 è basato su Ubuntu Gutsy (v 7.10) ed è corredato da software *Free e Open Source* accuratamente testato e selezionato per soddisfare le principali necessità di un qualsiasi progetto archeologico (dalla fase di scavo o di studio fino a quelle di pubblicazione).

Dal punto di vista tecnico ArcheOS rappresenta una distribuzione *free*. Questa caratteristica rende l'intero sistema particolarmente adatto ai principianti, in

¹Arc-Team s.n.c.

²Per il sistema ArcheOS si rimanda agli articoli: Bezzi *et alii* 2005a e Bezzi *et alii* 2007.



+ texlive-font-extra



JabRef is an open source bibliography reference manager.

#	Entry...	Author ▲	Title	Y...	Jou
1	Incoll...	Becchetti	La marrana dell'acqua Mariana	1974	
2	Book	Lais	Il rivo dell'acqua Mariana, second...	1920	
3	Book	Lais	Il rivo dell'acqua Mariana	1913	
4	Book	Lock	Using computers in archaeology. ...	2003	
5	Book	Mancini	Le mura aureliane di Roma: atlant...	2001	
6	Incoll...	Motta	La decadenza degli acquedotti an...	1986	
7	Book	Shanks and Tilley	Re-constructing Archaeology. The...	1987	
8	Book	Turkle	Life on the Screen. Identity in the ...	1995	
9	Other		P.R.G.1908, Relazione presentata ...	1908	

<input checked="" type="checkbox"/> Required fields <input type="checkbox"/> Optional fields <input type="checkbox"/> General <input type="checkbox"/> Abstract <input type="checkbox"/> Review	
Title	Le mura aureliane di Roma: atlante di un palinsesto murario
Publisher	Roma
Year	2001
Editor	
Author	R. Mancini
Bibtexkey	MANCINI2001

Status: Opened database '/home/denis/archeoFOSS/workshop2008/atti/proceedings/demetrescu/biblio demetrescu.b

```

@book{MANCINI2001,
  author="R. Mancini",
  title="Le mura aureliane di Roma: atlante di un palinsesto murario",
  publisher="Roma",
  year="2001"
}

@book{LAIS1913,
  author="F. Lais",
  title="Il rivo dell'acqua Mariana",
  publisher="Grottaferrata",
  year="1913"
}

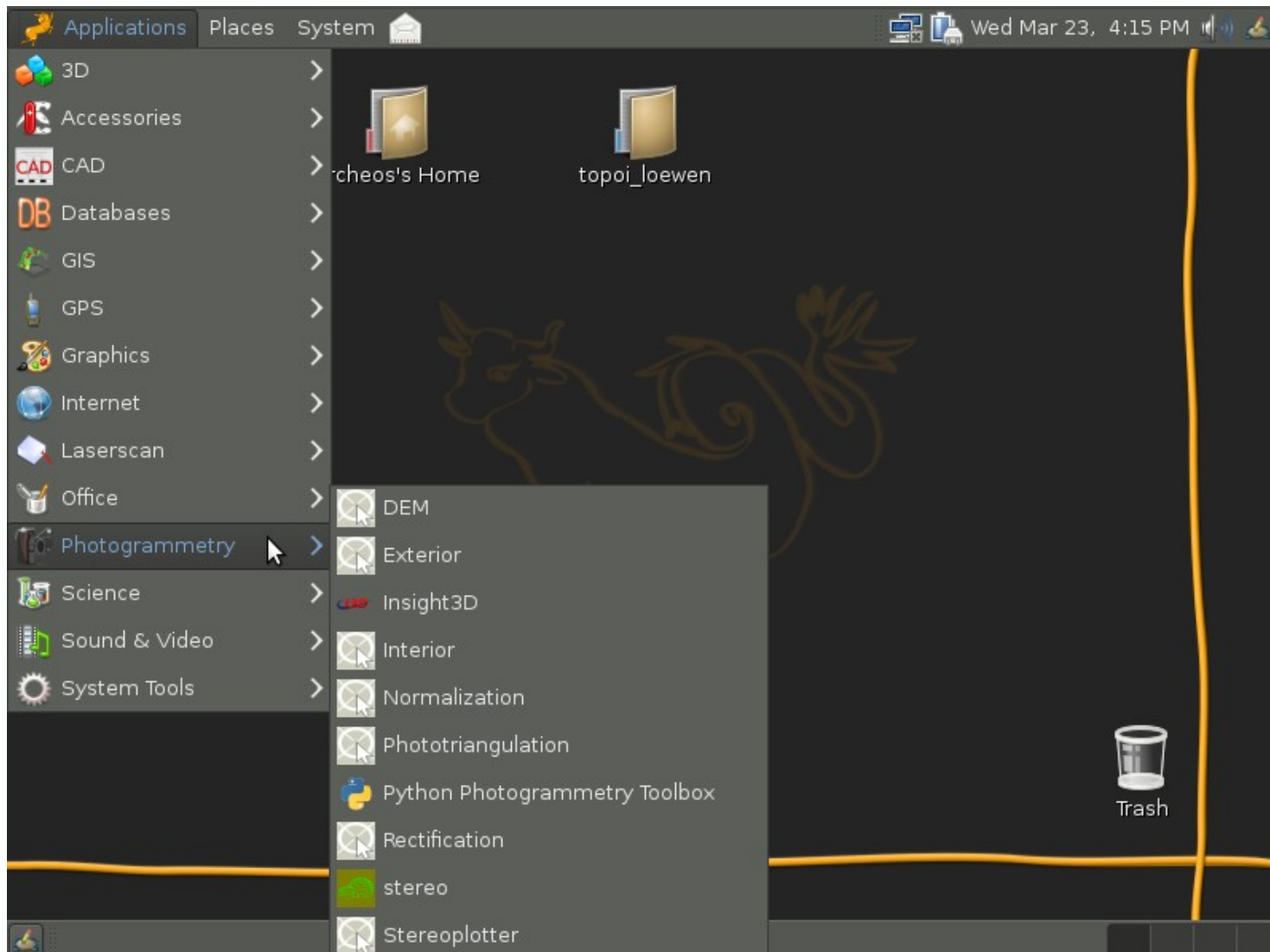
@book{LAIS1920,
  author="F. Lais",
  title="Il rivo dell'acqua Mariana, seconda edizione riveduta ed ampliata",
  publisher="Grottaferrata",
  year="1920"
}

@incollection{BECCHETTI1974,
  author="P. Becchetti",
  title="La marrana dell'acqua Mariana",
  editor="G. Arrigo and P. Parboni",
  booktitle="Le acque di Roma: dalle scaturigini attraversando l'urbe al mare",
  publisher="Roma",
  year="1974",
  pages="15--40"
}

@incollection{MOTTA1986,
  author="R. Motta",
  title="La decadenza degli acquedotti antichi e la conduzione dell'Acqua Mariana",
  booktitle="Il Trionfo dell'Acqua. Acque e Acquedotti a Roma, IV sec. a.C. - XX sec. (catalogo della Mostra)",
  publisher="Grottaferrata",
  year="1986"
}
  
```



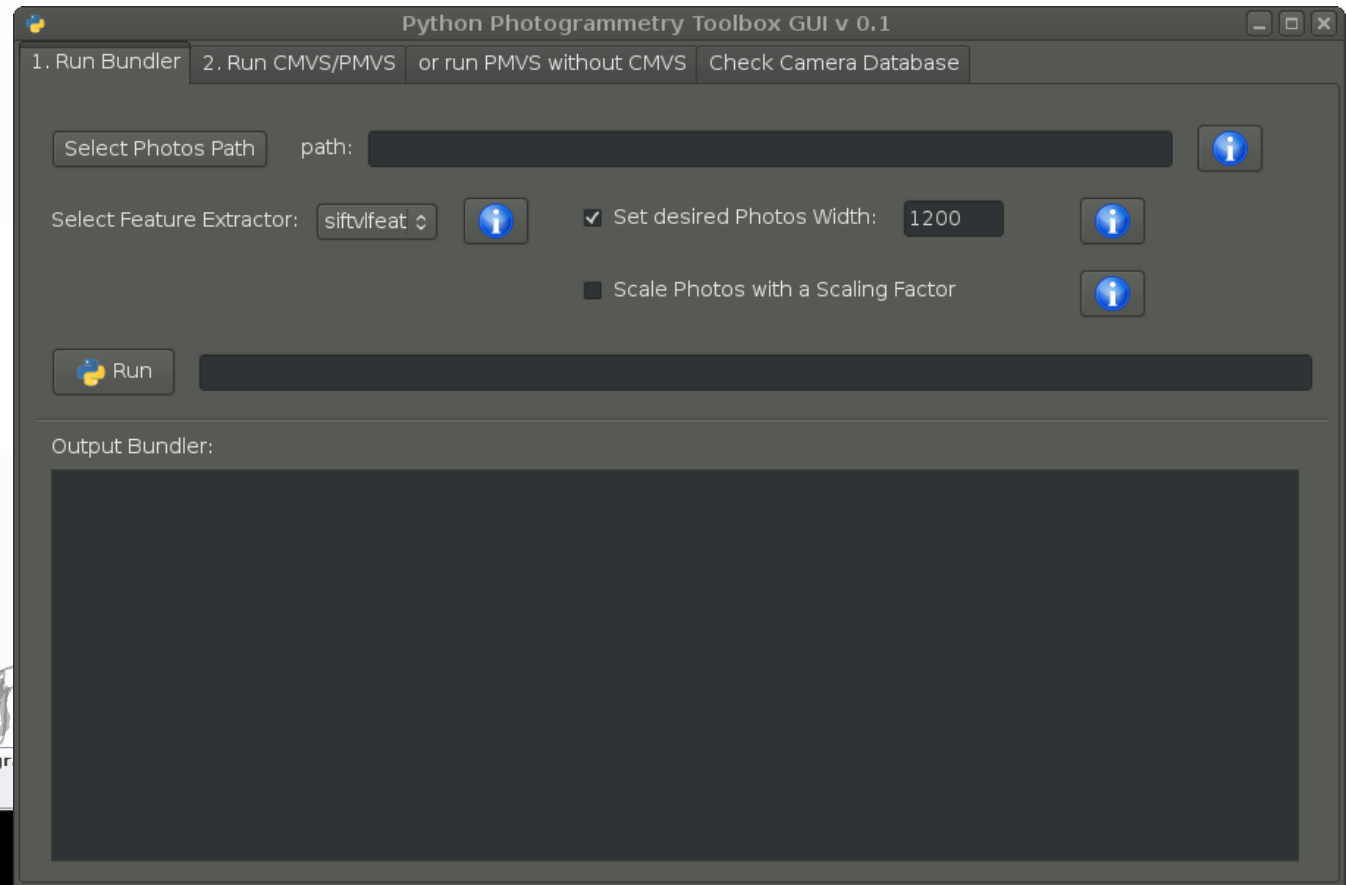
Photogrammetry Menu





Python Photogrammetry Toolbox

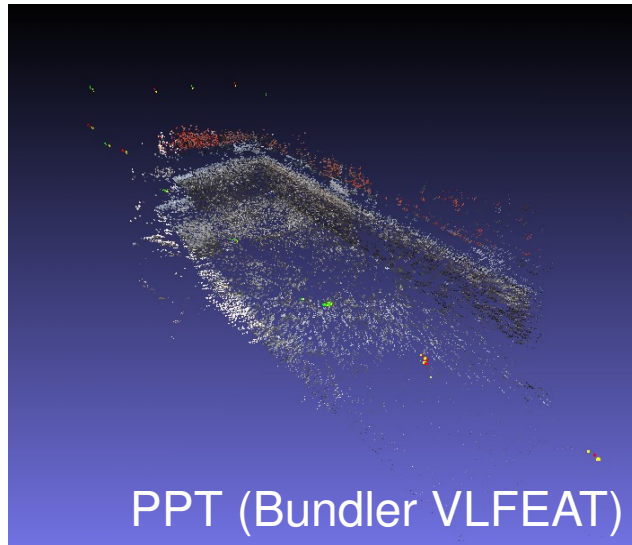
A free solution to
record three-
dimensional data



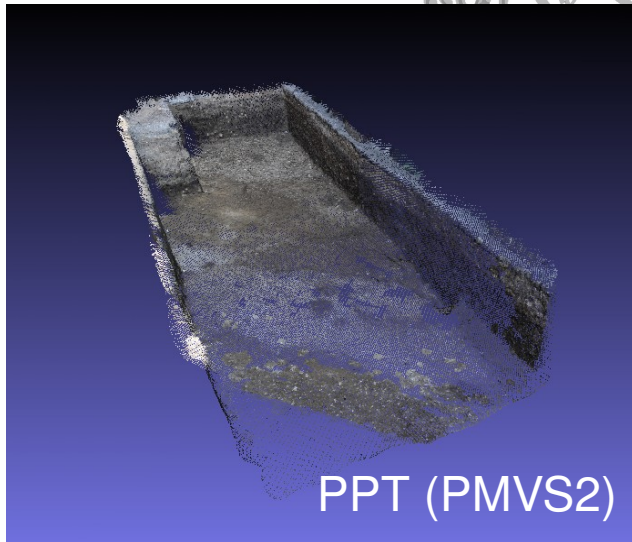
```
ale@ale-laptop: ~/arc-team/software/pmvs-2/progr
Session Edit View Bookmarks Settings Help
nazzo/ option.txt
-----
--- Summary of specified options ---
# of timages: 3 (range specification)
# of oimages: 0 (enumeration)
level: 2  csize: 2
threshold: 0.7  wsize: 7
minImageNum: 3  CPU: 4
useVisData: 1  sequence: -1
-----
Reading images: ***
0 1 2 Harris running ...Harris running ...Harris running ...983 harris done
DoG running...972 harris done
DoG running...936 harris done
DoG running...1531 dog done
1534 dog done
1527 dog done
done
adding seeds
(0,25)(2,18)(1,6)done
---- Initial: 0 secs ----
Total pass fail0 fail1 refinepatch: 9270 56 9121 93 149
Total pass fail0 fail1 refinepatch: 100 0.604099 98.3927 1.00324 1.60734
Expanding patches...[]
```



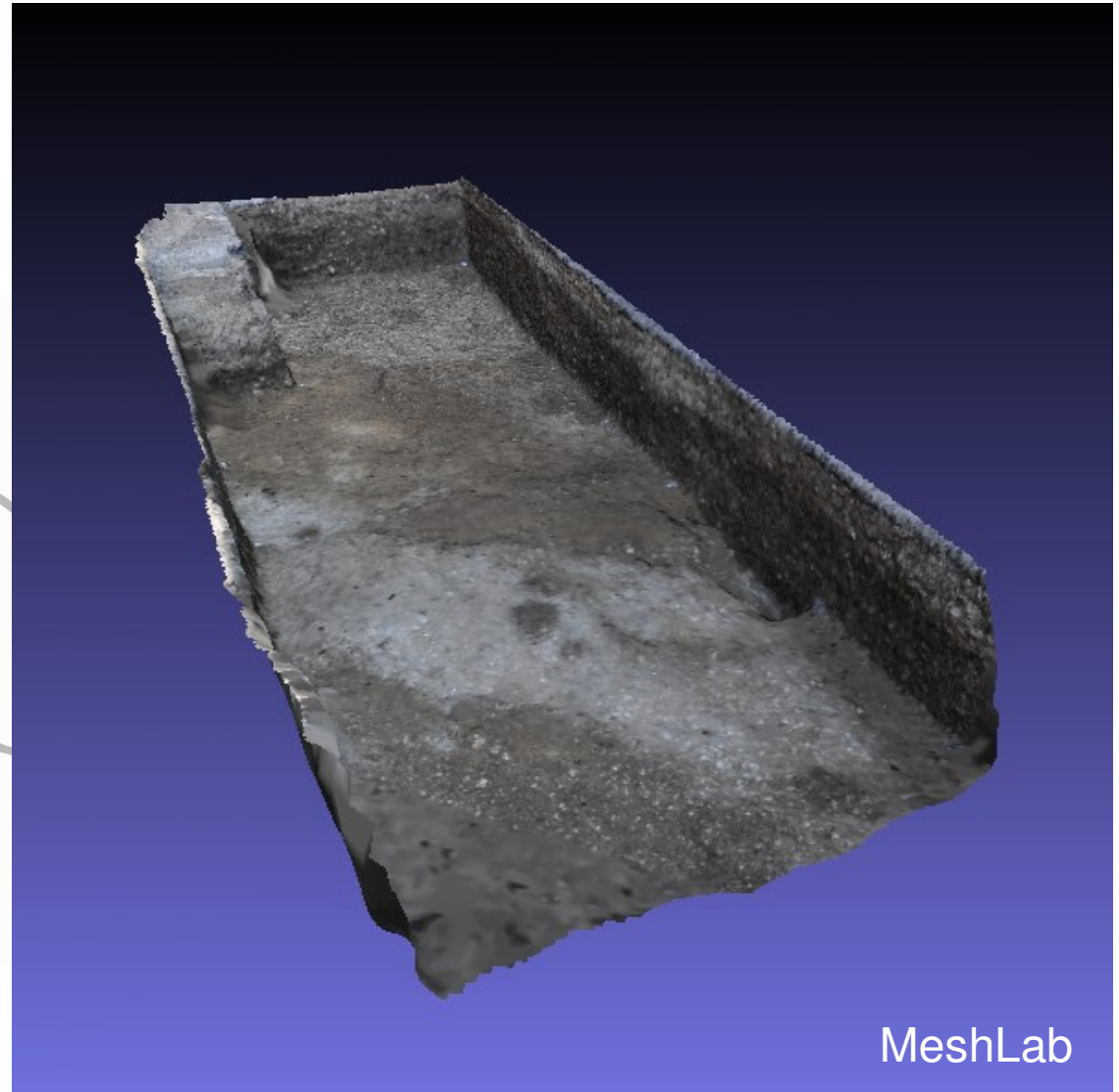
Python Photogrammetry Toolbox



PPT (Bundler VLFEAT)



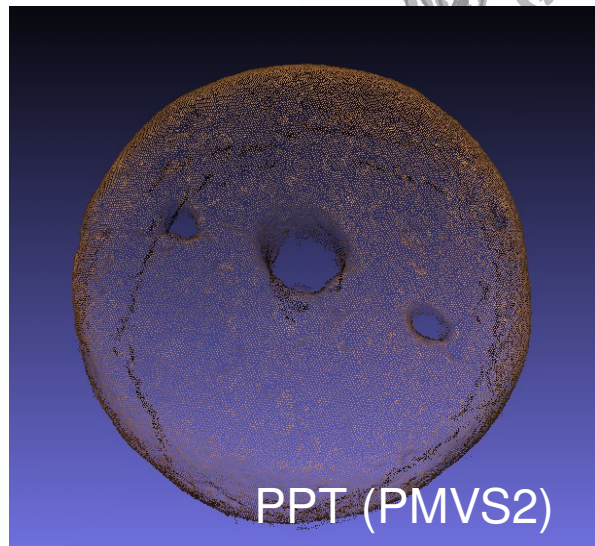
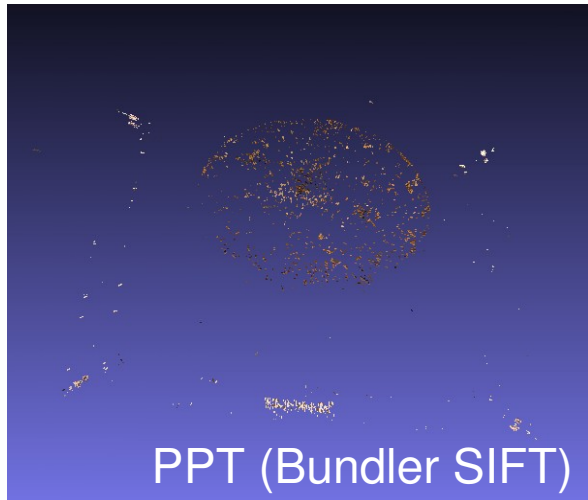
PPT (PMVS2)



MeshLab

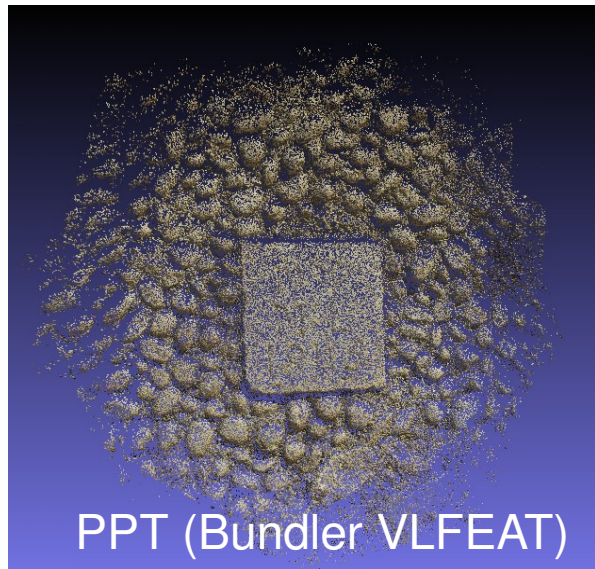


Python Photogrammetry Toolbox

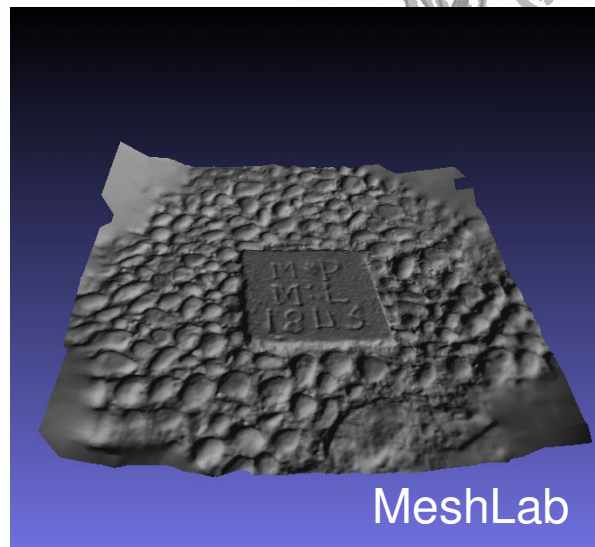




Python Photogrammetry Toolbox



PPT (Bundler VLFEAT)



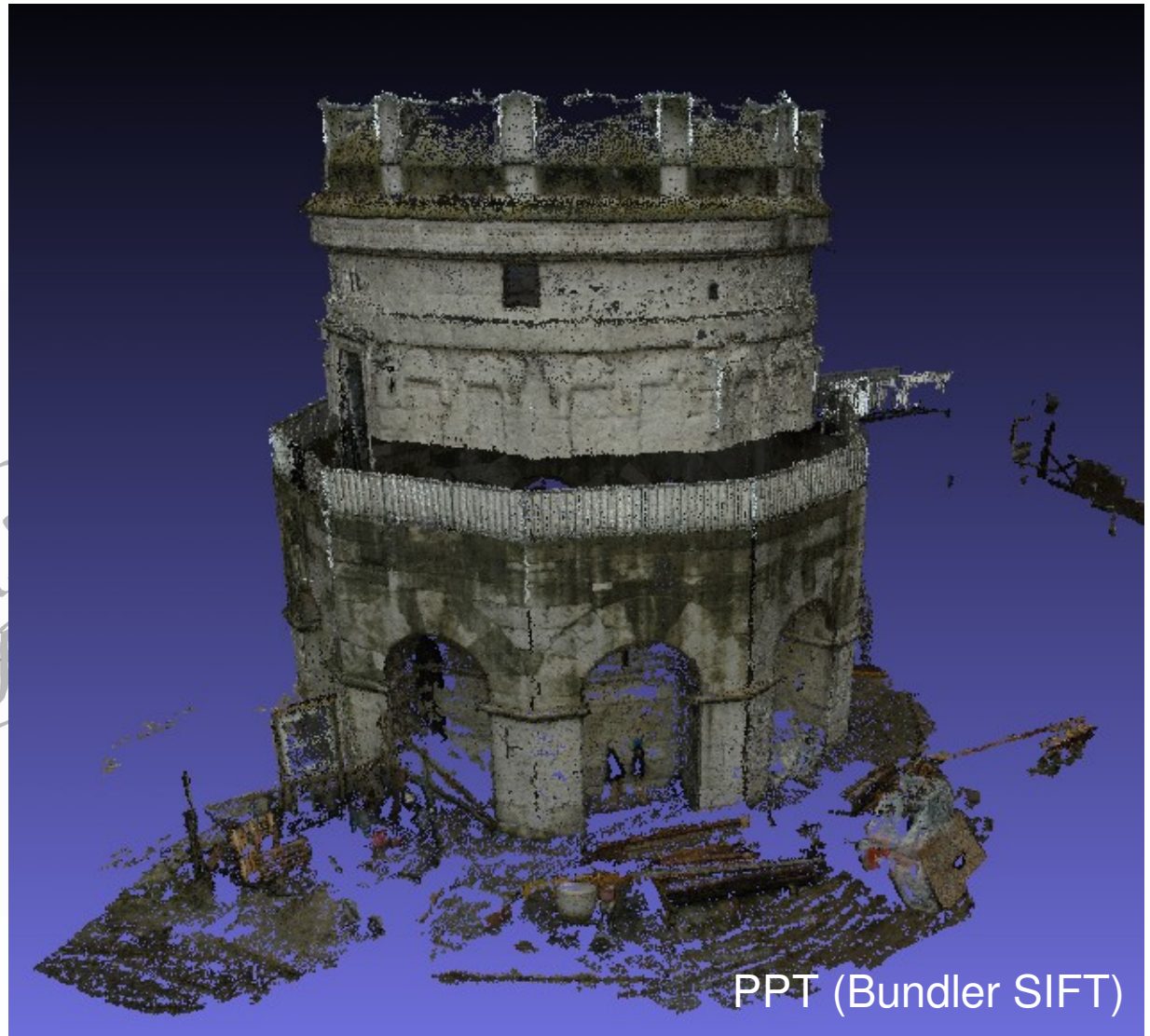
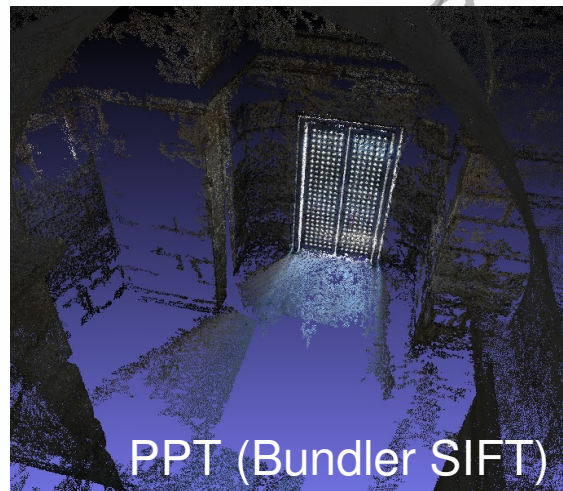
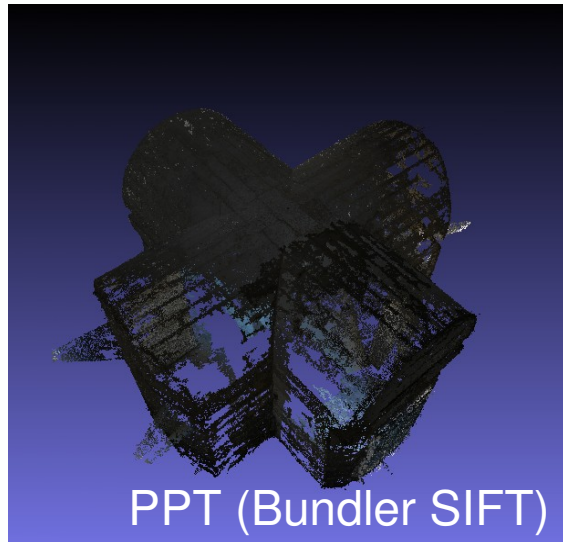
MeshLab



MeshLab



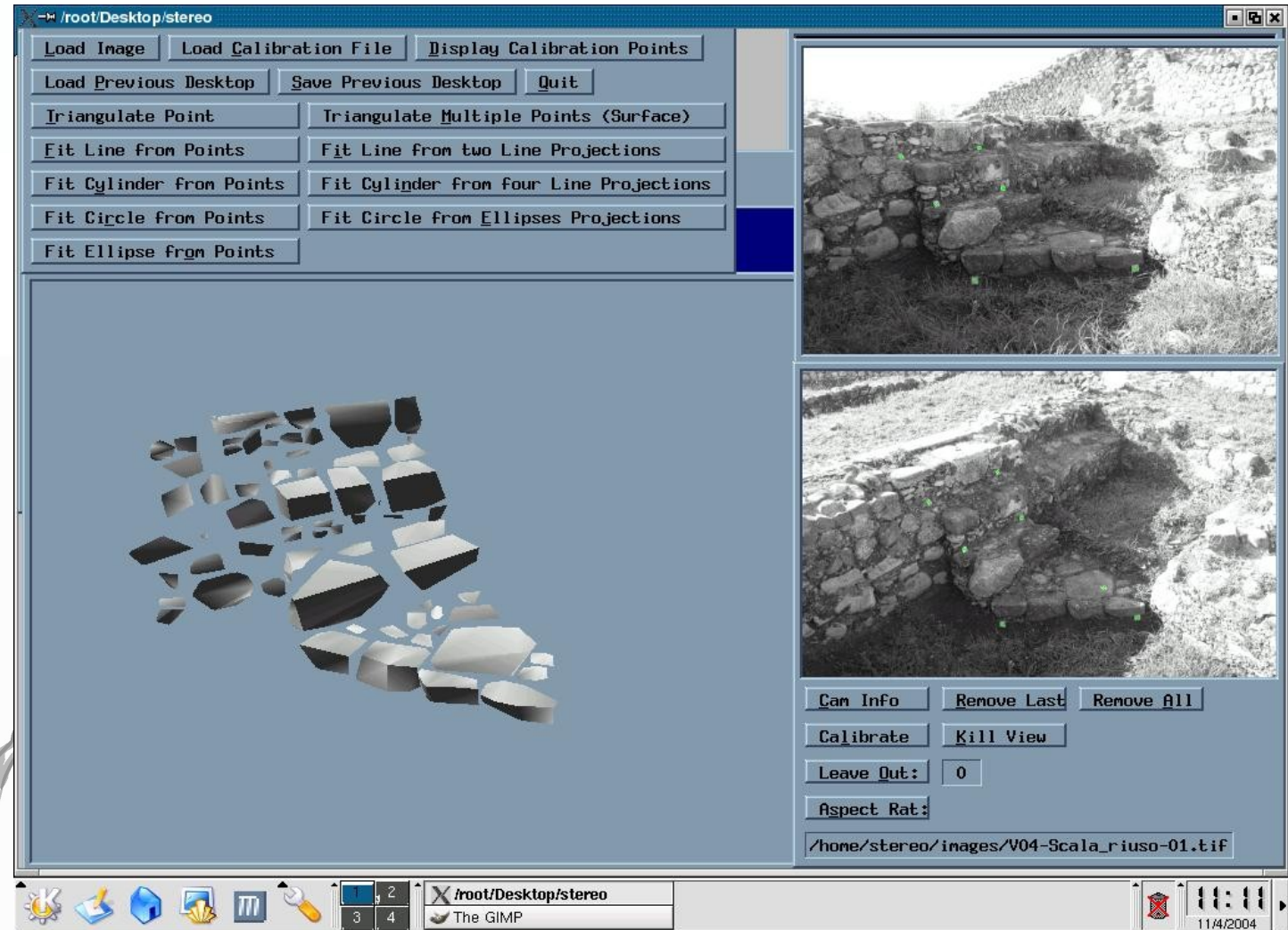
Python Photogrammetry Toolbox





Stereo

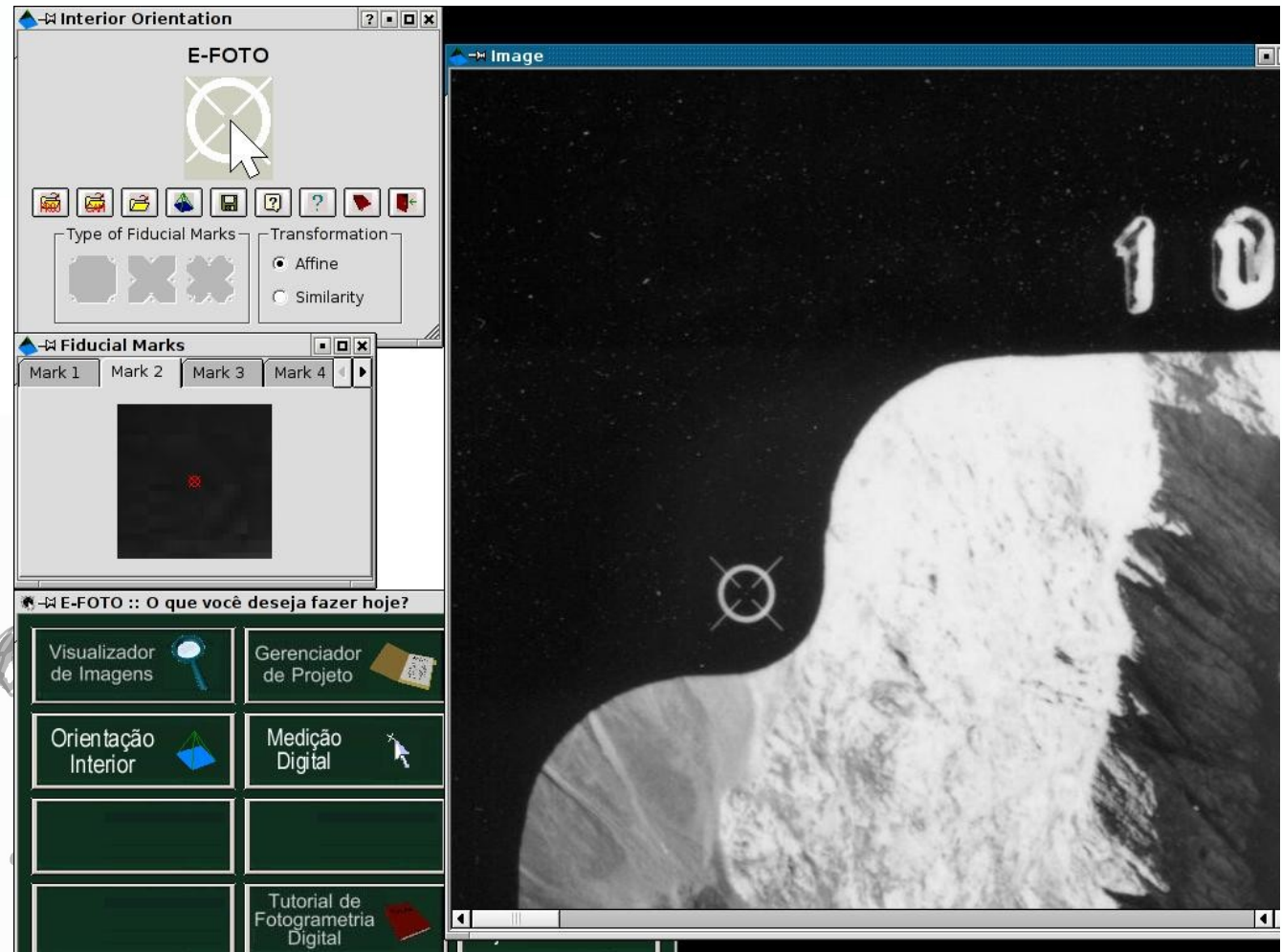
is a software that allows the user to obtain dimensional data of 3D objects or surfaces within stereo photographs or images.





e-foto

a simple set of software that could help students understand the principles behind Photogrammetry.



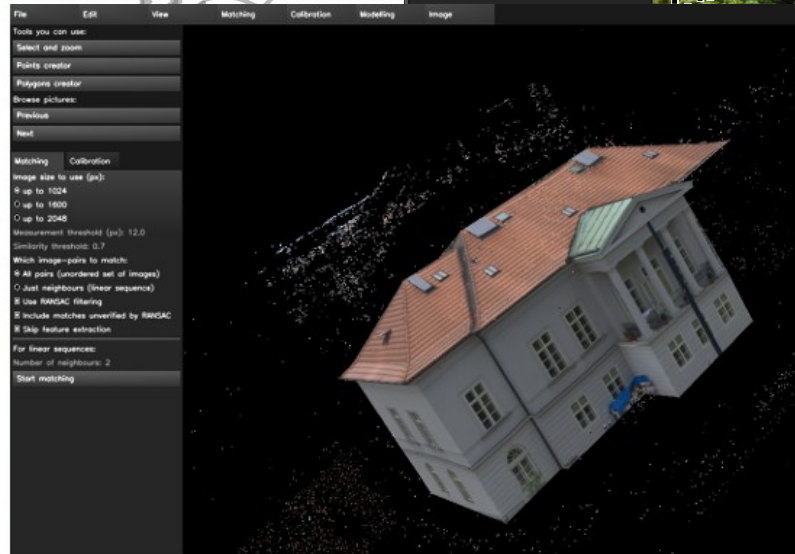
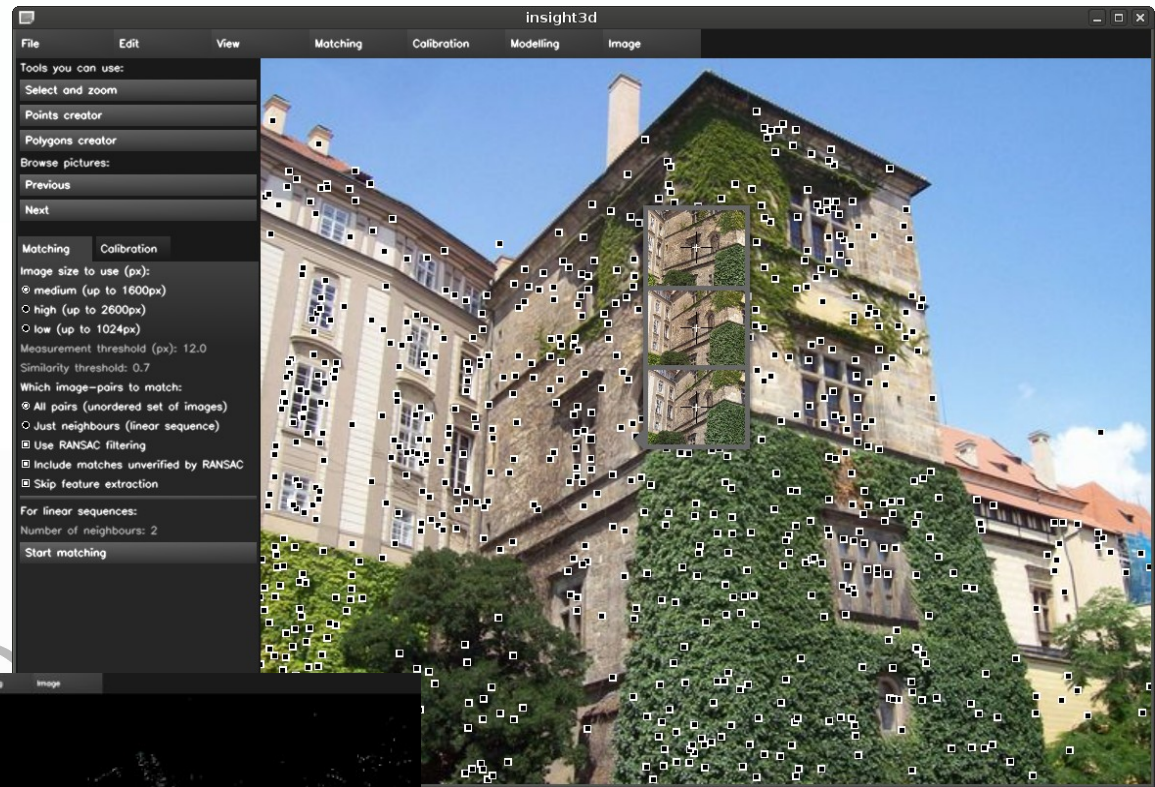
 -foto

<http://www.efoto.eng.uerj.br/doku.php?id=en:start>



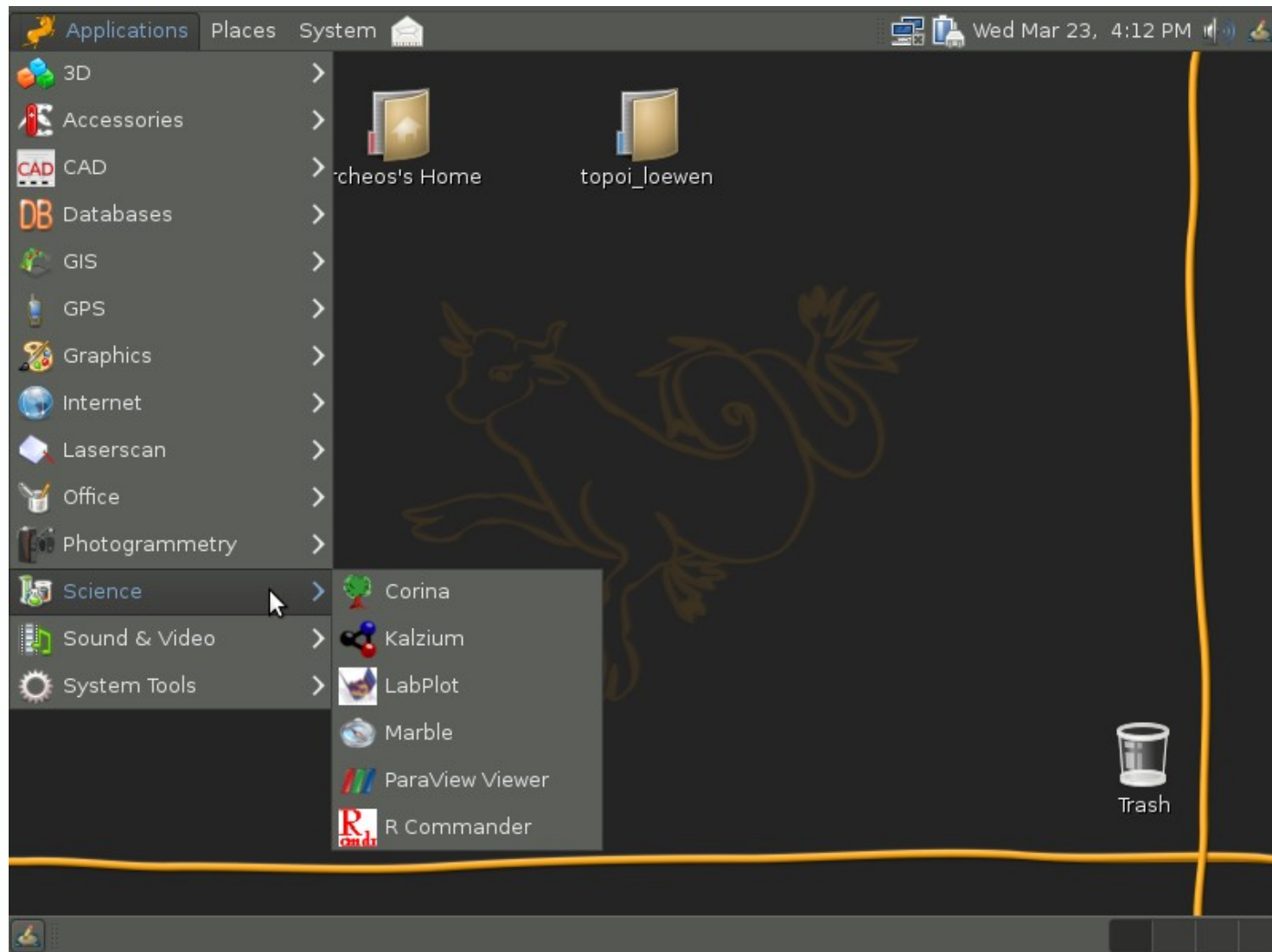
insight3D

lets you create
3D models from
photographs.



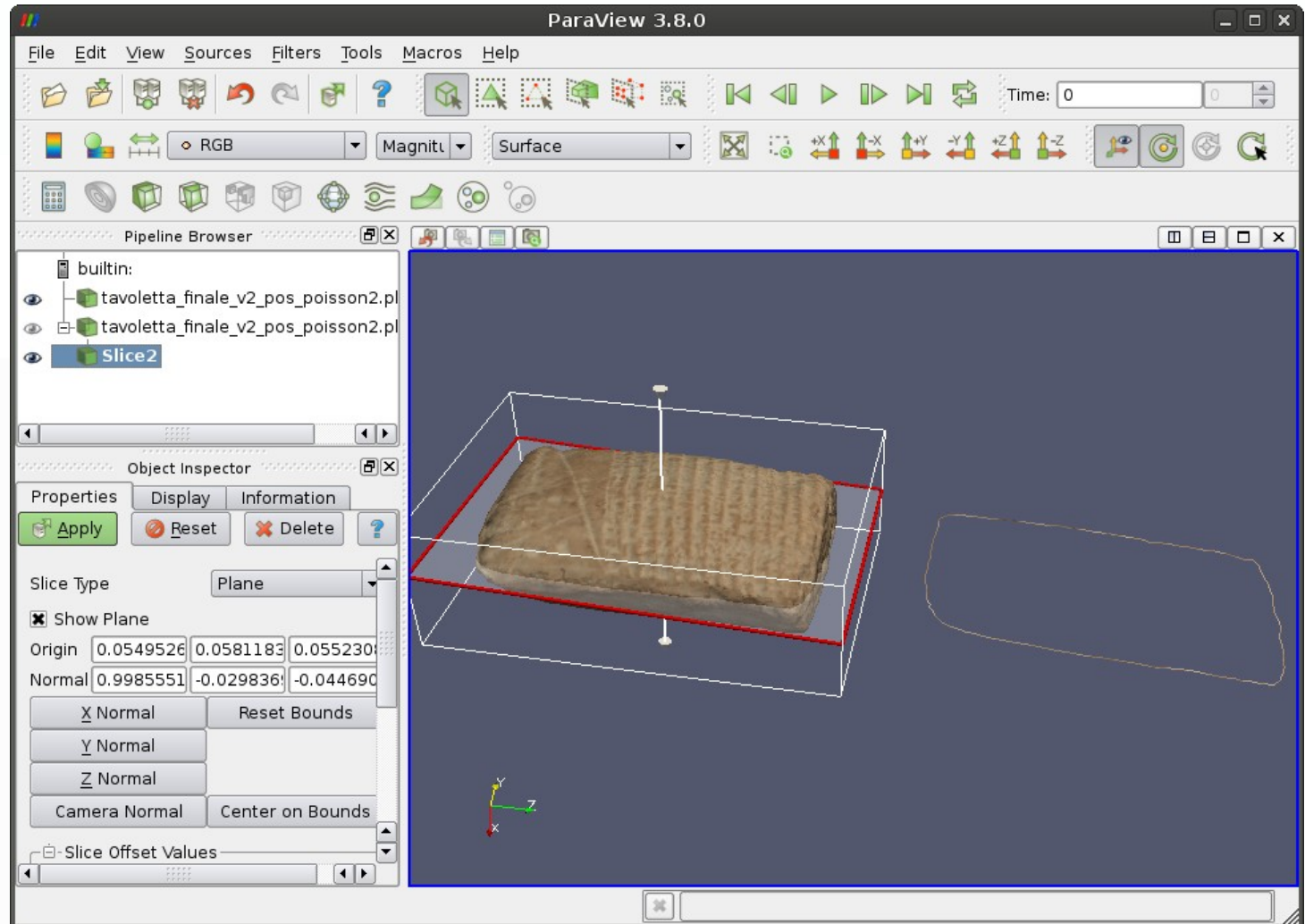


Science Menu





Paraview is an open-source, multi-platform data analysis and visualization application.

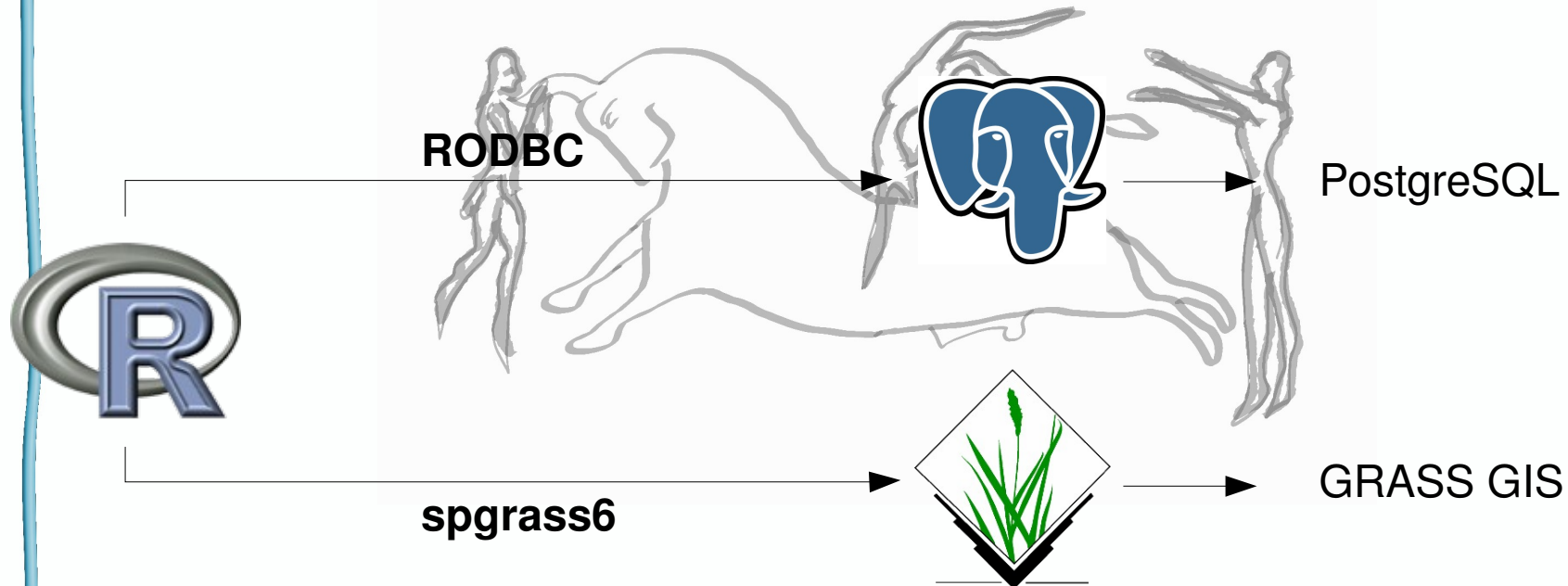




R = a powerful free software environment for statistical computing and graphics. Not a software but a programming language

In ArcheOS it is possible to add new packages to work with other software and to calculate different kind of analysis

Packages to work with:





Rcmdr – R Commander

statistica : R

File Modifica Visualizza

```
Carico il pacchetto ric
> ug3002
classe frequenza
1 01a 2.55
2 01b 4.44
3 02a 12.03
4 02b 13.31
5 02c 13.98
6 02d 13.98
7 03a 5.11
8 03b 6.32
9 03c 6.99
10 03d 5.11
11 03e 3.16
12 04a 4.03
13 04b 4.03
14 05 3.43
15 06 1.61
16 07 0.00
17 08 0.00
18 09 0.00
19 10 0.00
> ug6005f
```

ug3167

classe	frequenza
1 01a	15.92
2 01b	5.97
3 02a	6.54
4 02b	7.11
5 02c	5.68
6 02d	7.39
7 03a	2.27
8 03b	1.71
9 03c	1.71
10 03d	1.14
11 03e	1.14
12 04a	1.89
13 04b	1.51
14 05	0.99
15 06	2.01
16 07	3.79
17 08	19.86
18 09	8.50
19 10	4.88

ug3133

classe	frequenza
1 01a	4.19
2 01b	10.65
3 02a	12.94
4 02b	15.22
5 02c	18.04
6 02d	16.59
7 03a	4.64
8 03b	2.74
9 03c	3.20
10 03d	1.83
11 03e	1.37
12 04a	3.35
13 04b	2.21
14 05	1.45
15 06	1.60
16 07	0.00
17 08	0.00
18 09	0.00
19 10	0.00

R Graphics: Device 2 (ACTIVE)

R Commander

File Modifica Dati Statistiche Grafici Modelli Distribuzioni Strumenti Aiuto

Set di dati: **ug3167** | Edita i dati | Visualizza i dati | Modello: <Nessun modello attivo>

Finestra dei comandi

```
plot(ug3133$frequenza, type="h")
abline(h=0, col="gray")
barplot(table(ug3133$classe), xlab="classe", ylab="Frequency")
Hist(ug3133$frequenza, scale="percent", breaks="Sturges", col="darkgray")
fix(ug3133)
qnorm(c(1), mean=0, sd=1, lower.tail=TRUE)
t.test(ug3133$frequenza, alternative='two.sided', mu=0.0, conf.level=.95)
showData(ug3167, placement='-20+200', font=getRcmdr('logFont'), maxwidth=80,
maxheight=30, suppress.X11.warnings=FALSE)
```

Finestra dei risultati

```
> qnorm(c(1), mean=0, sd=1, lower.tail=TRUE)
[1] Inf

> t.test(ug3133$frequenza, alternative='two.sided', mu=0.0, conf.level=.95)

One Sample t-test

data: ug3133$frequenza
t = 3.7625, df = 18, p-value = 0.001426
alternative hypothesis: true mean is not equal to 0
95 percent confidence interval:
 2.324750 8.203671
sample estimates:
mean of x
 5.26421

> showData(ug3167, placement='-20+200', font=getRcmdr('logFont'), maxwidth=80,
+ maxheight=30, suppress.X11.warnings=FALSE)
```

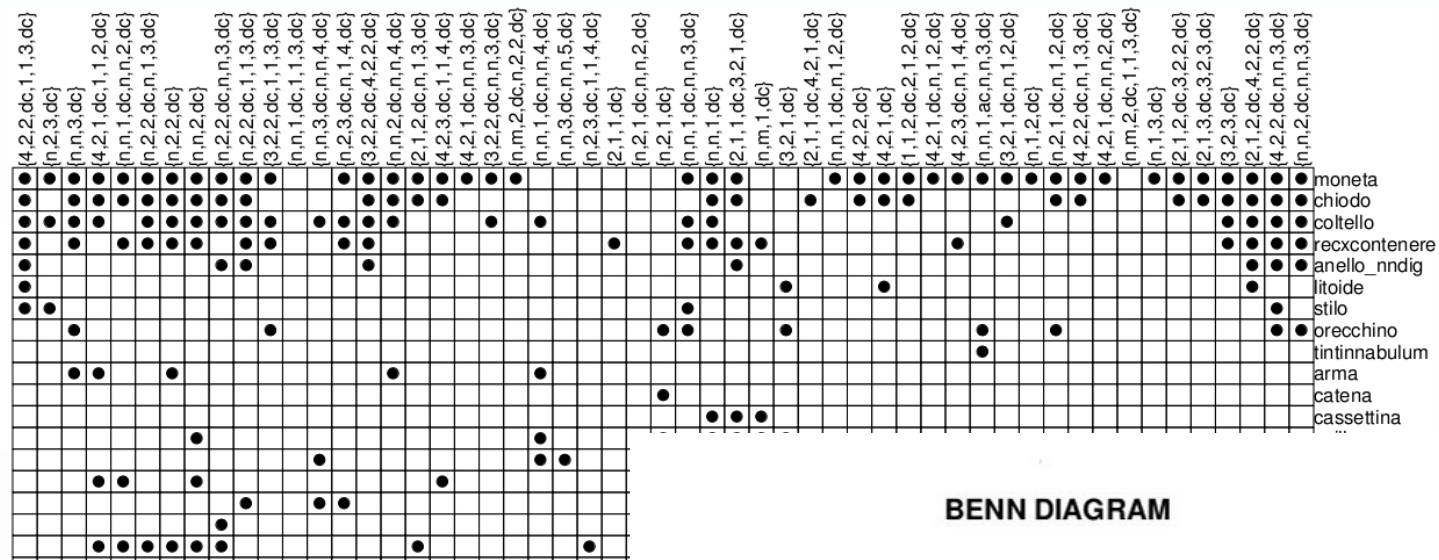
Messaggi

```
[8] NOTA: Il set di dati ug3133 ha 19 righe e 2 colonne.
[9] NOTA: Il set di dati ug3167 ha 19 righe e 2 colonne.
```

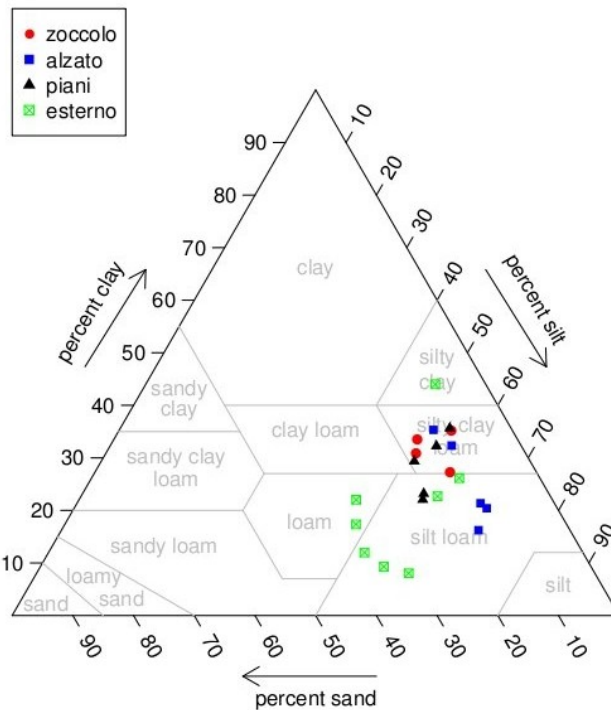
6.66 / 5.24 | 0.00 x 0.00 | Pagina 6 / 6 | Predefinito | 78%



seriation

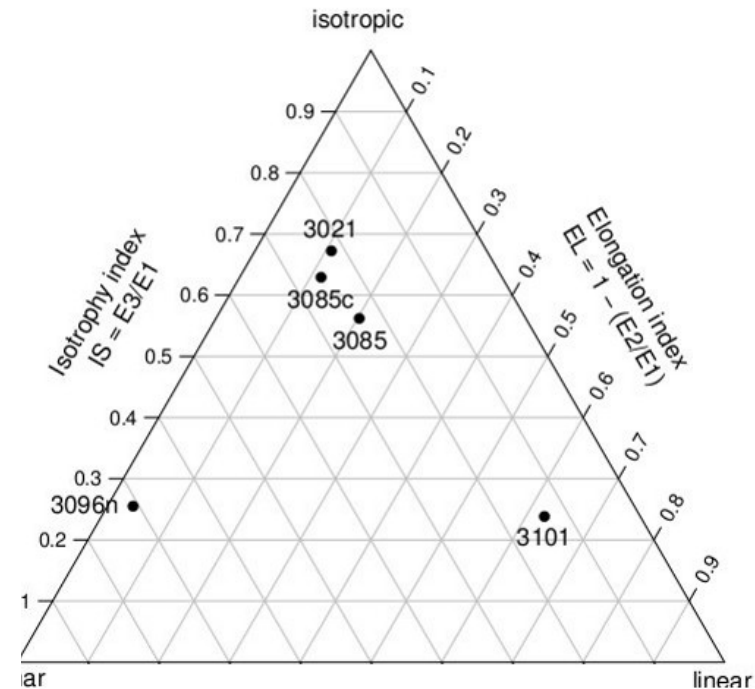


Soil Texture Triangle



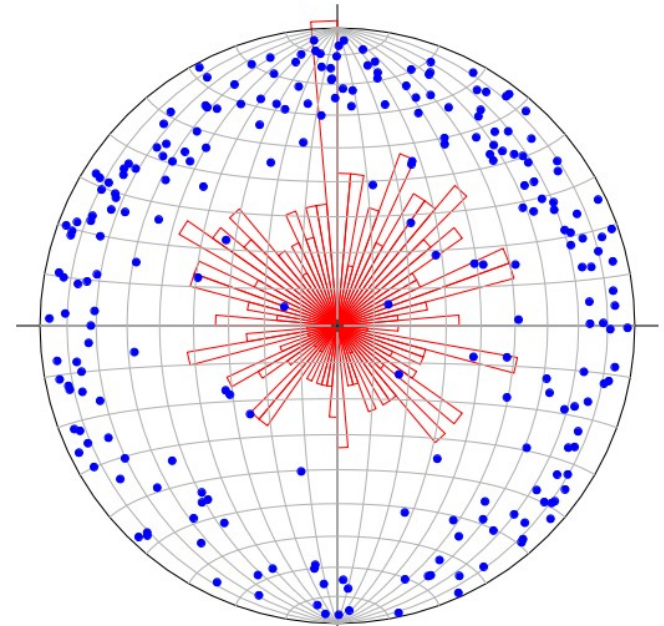
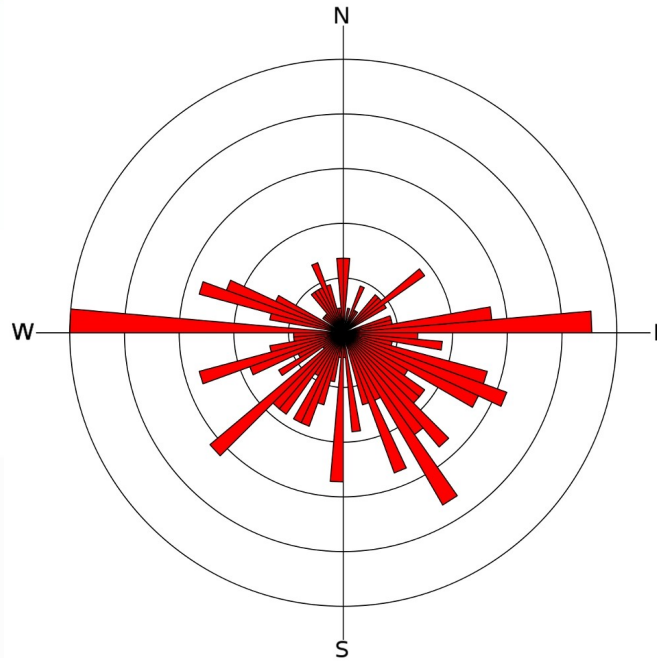
plotrix

BENN DIAGRAM





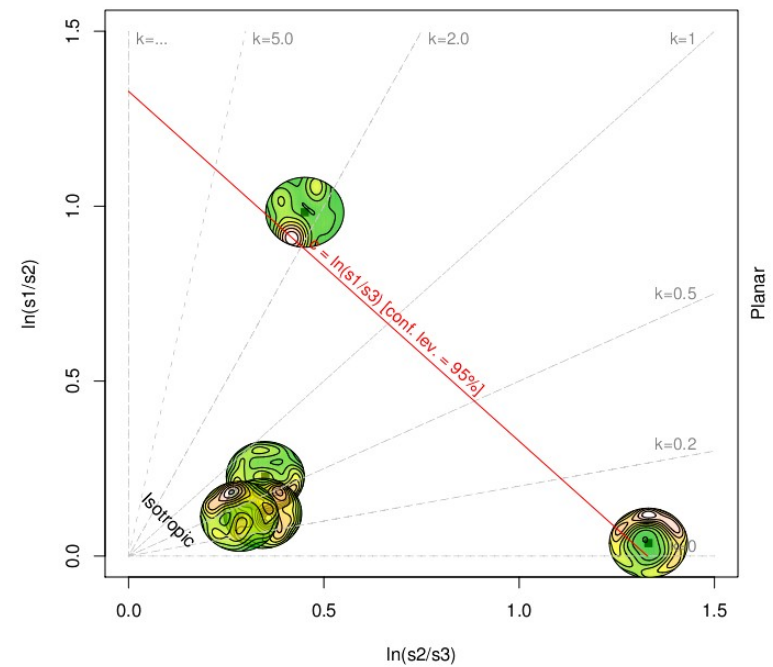
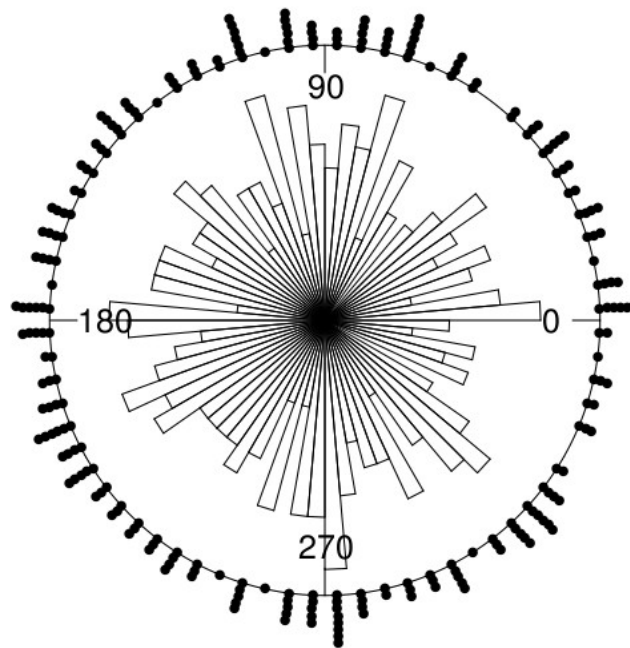
Circle Statistic



CircStat

her.Misc

RFOC





THANKS

Alessandro Bezzi

alessandro.bezzi@arc-team.com

Luca Bezzi

luca.bezzi@arc-team.com

Denis Francisci

denis.francisci@gmail.com

Fabrizio Furnari

fab.furnari@gmail.com

Mag. Rupert Gietl

ruppi@arc-team.com