



Computational Data Science Laboratory

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Universidad de Granada



Foundation 1531



Universidad de Granada

01

Structures

124 departments
19 research institutes

02

Campuses

Five in Granada +
two in north of Africa

03

Students

55,000+

04

Professionals

3,500+ R&T, 2,500+
Administration

05

Studies

98 degrees
150+ masters
28 doctoral

06

EU statistics

H2020, 122 projects, 30M€
HE + others, 165 projects, 34M€



CODAS LAB

LET'S DO SCIENCE TOGETHER

Research Group of UGR



Knowledge discovery in Big Data

Development of new ML and statistical tools

Statistical design of experiments

Let's do Science together

Your Research and our Data Science
partnered with the same objective

[I WANT TO CONTACT CODAS LAB](#)

Complex experiments generate complex data

Technological advancement and the dissemination of knowledge are driving increasingly sophisticated experiments. This results in a growing volume of data and greater complexity in its interpretation



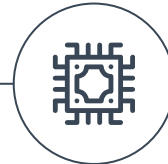
Multivariate **Big** Data Research

Complex Data

Big Data $[\infty, M]$, $[N, \infty]$,
Multi-omics, Multi-
modal, Data quality,
Spatio-Temporal

Exploration & Viz

PCA, (O)PLS-(DA),
Sparse, Multi-block,
Subject Stratification



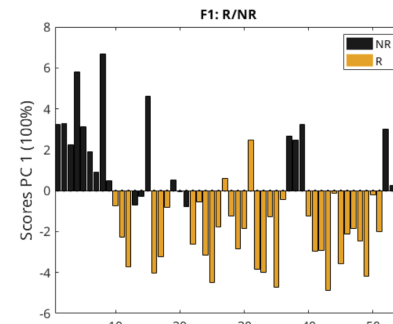
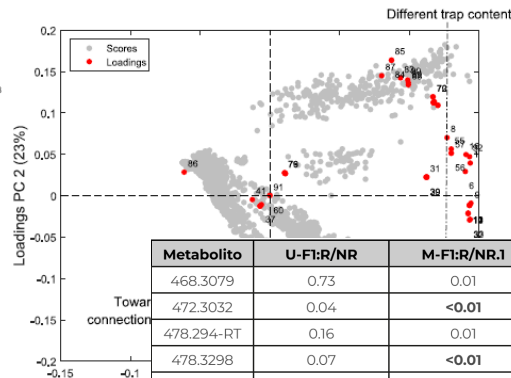
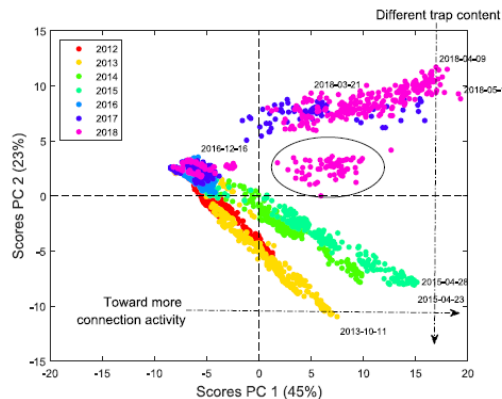
Machine Learning

Regression, classification,
optimization, anomaly
detection

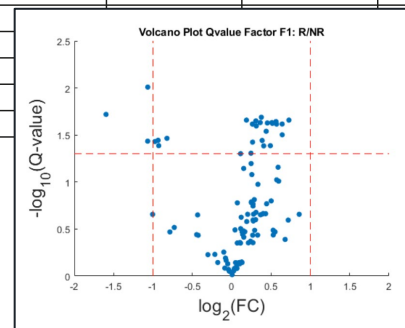
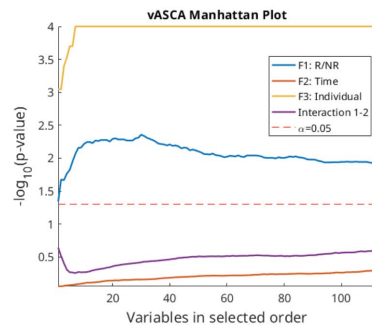
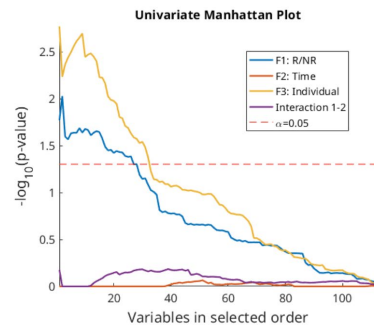
Advanced Inference

Biomarker Discovery,
Permutations, FDR, Q-
values, Multivariate
(vASCA)

Output



Metabolito	U-F1:R/NR	M-F1:R/NR.1	U-F2:Time	M-F2:Time	U-F3:Individual	M-F3:Individual
468.3079	0.73	0.01	1	0.51	0.03	<0.01
472.3032	0.04	<0.01	1	0.51	0.49	<0.01
478.294-RT	0.16	0.01	0.98	0.51	0.1	<0.01
478.3298	0.07	<0.01	1	0.51	0.9	<0.01
480.3073	0.34	0.01	0.93	0.51	0.4	<0.01
482.3222	0.89	0.01	0.97	0.51	0.03	<0.01
482.3613	0.45	0.01	0.91	0.51	0.19	<0.01
490.2917	0.72				0.07	<0.01
494.3247-RT	0.83				0.17	<0.01
494.3248-RT	0.74				0.17	<0.01
496.3381	0.02				0.67	<0.01
496.3404	0.17				0.38	<0.01

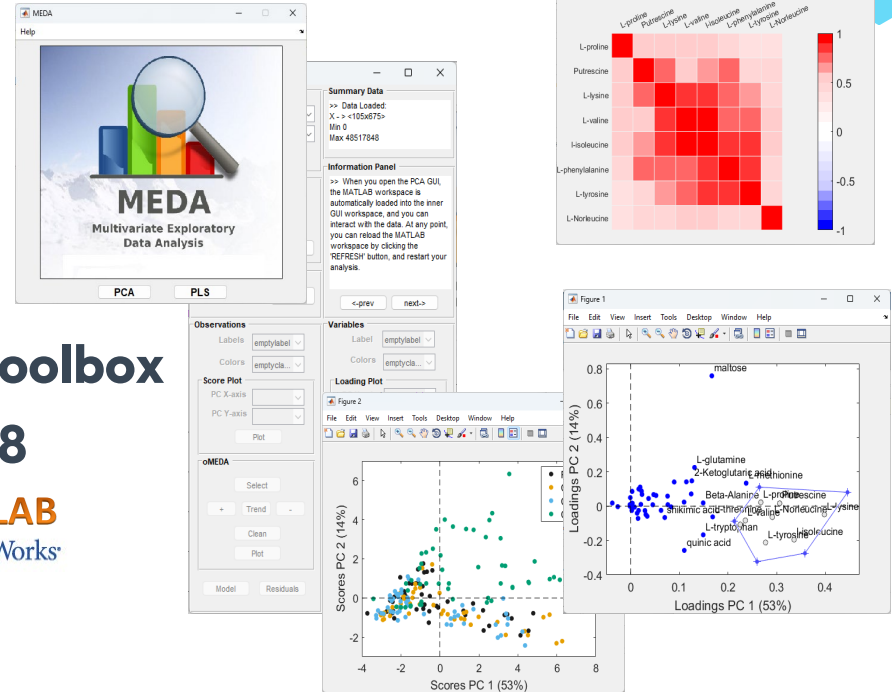


Open Software

- ✓ Models: PCA, (O)PLS-DA, SPCA, SPLS, GPCA, GPLS, ASCA, VASCA, GASCA, XCAN
- ✓ Dimensionality:
 - Scree plots
 - CV & D-CV
 - SVI Plots
- ✓ Structure in Variables:
 - Loading plots
 - MEDA plots
- ✓ Distribution of Observations
 - Score plots
 - MSPC: D-st, Q-st
 - Covariance MSPC: ADICOV
- ✓ Observations vs Variables
 - oMEDA plots
- ✓ Data simulation

MEDA Toolbox

v1.8





DATHARSIS
DATA SPEAKS, WE INTERPRET

Spin-off UGR





Maximize the potential of your data

Software, consulting and training, in interpretable data science for businesses and researchers

📞 [Schedule a call](#)

BUSINESSES

Useful data from day one

We design data collection strategies that save costs and prevent irrelevant data. Faster decisions with fewer resources.

Advanced, clear models

We turn your data into practical knowledge, with robust and scalable models that are easy to interpret and ready to grow your business.

Impactful Training

Technical training for teams eager to innovate, uncover hidden potential in their data, and apply it immediately.





Thanks!

Do you have any questions?

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