

CONFERENZA GARR 2025  
FRONTIERE DIGITALI

# Web platforms for neuroscience researchers and clinicians: neuGRID2 and NewPsy4U

**Damiano Archetti**

IRCCS Istituto Centro San Giovanni di Dio Fatebenefratelli

# The need for Neuroinformatics platforms

→ Problem: in the era of Big Data, there is an expanding gap between scientists who can «write code» and scientists who «email spreadsheets».

**3V**

→ Volume of data

→ Velocity of processing

→ Variety of data and methods

→ How to make advanced computational tools accessible to a broader public?

# The need for Neuroinformatics platforms

Development of computational models for neuroscience to understand function and diseases

Provide Clinicians with user-friendly second opinion tools based on advanced computational models

## NEUROINFORMATICS

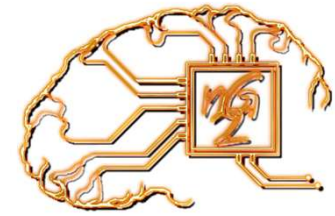
Provide tools and standards for secure data storage

Improve results reproducibility and data interoperability

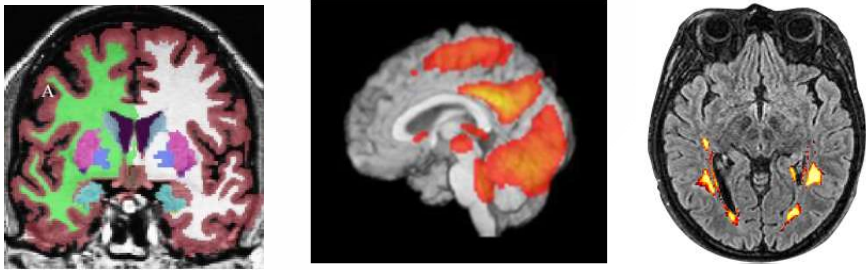
Develop new drugs and treatments and evaluate their efficacy and effects

Redolfi et al. (2022). *Italian, European, and international neuroinformatics efforts: An Overview*. EJM 57(12) 2017-39. doi: [10.1111/ejn.15854](https://doi.org/10.1111/ejn.15854)

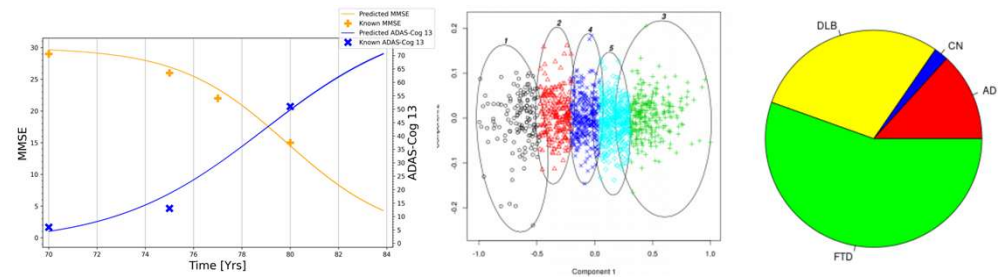
# NeuGRID: a platform for dementia research



→ Brain imaging processing pipelines



Machine learning pipelines ←



→ Repository for retrospective data



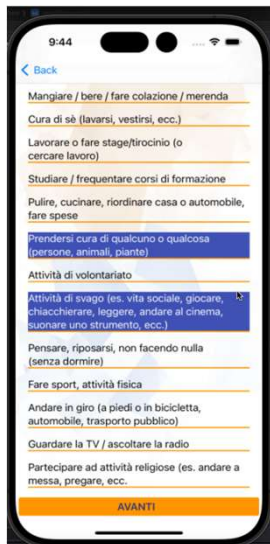
Private sections for ←  
multicentric projects

# NewPsy4u : a platform for psychiatric research



→ Development of web portals and mobile apps for ESM

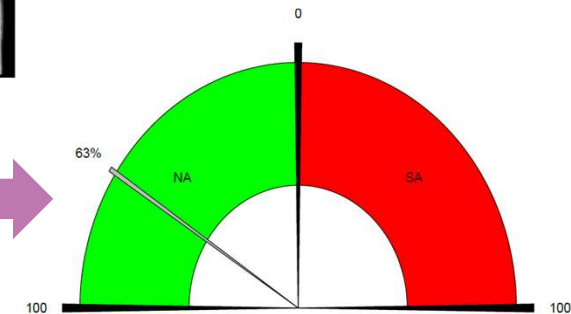
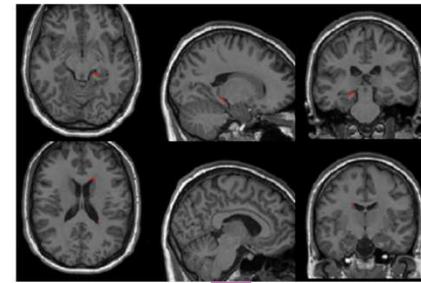
Machine learning pipelines ←



Statistiche

TOTALE:

Tipo soggetto	Soggetti in reclutamento	Soggetti ritirati	Soggetti esclusi	Soggetti completati
Controllo	8	2	1	1/12
Intervento	12	1	3	0/16



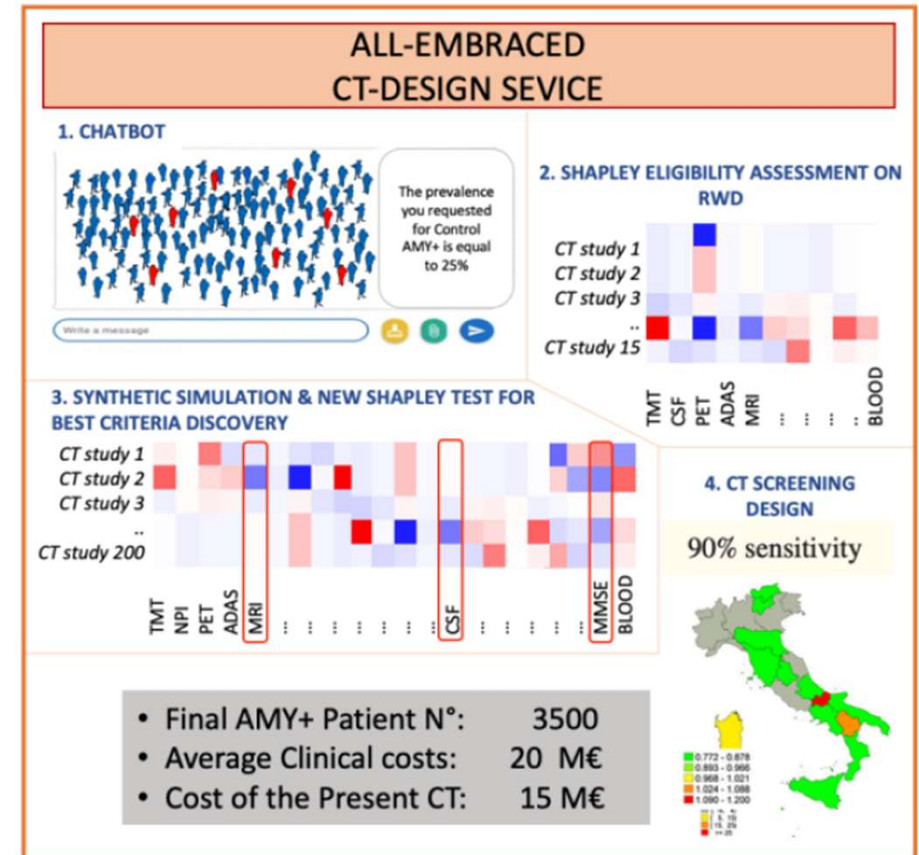
→ Repository of structured retrospective FBF EHR data (soon)

# What is next: All-Embraced



→ Problem: clinical trials are often conducted on participants that are not representative of the general population!

→ Solution: to develop a web platform that exploits AI methodologies (synthetic data, NLP, XAI, LLM) to better inform clinical trial designers by selecting appropriate populations for representative and significant clinical trials



**Thank you!**

**The neuroinformatics lab  
@ IRCCS FBF:**

Alberto Redolfi, PhD

[aredolfi@fatebenefratelli.eu](mailto:aredolfi@fatebenefratelli.eu)

Damiano Archetti, MSc

[darchetti@fatebenefratelli.eu](mailto:darchetti@fatebenefratelli.eu)

Silvia De Francesco, MEng

Claudio Crema, PhD

Cesare M Baronio, PhD

Alberto Boccali, MEng

Neugrid: [www.neugrid2.eu](http://www.neugrid2.eu)

Newpsy4u: [www.newpsy4u.eu](http://www.newpsy4u.eu)