



LabTrace

powered by **Algorand**



A blockchain-based system for the secure, GDPR compliant, immutable notarisation of digital data

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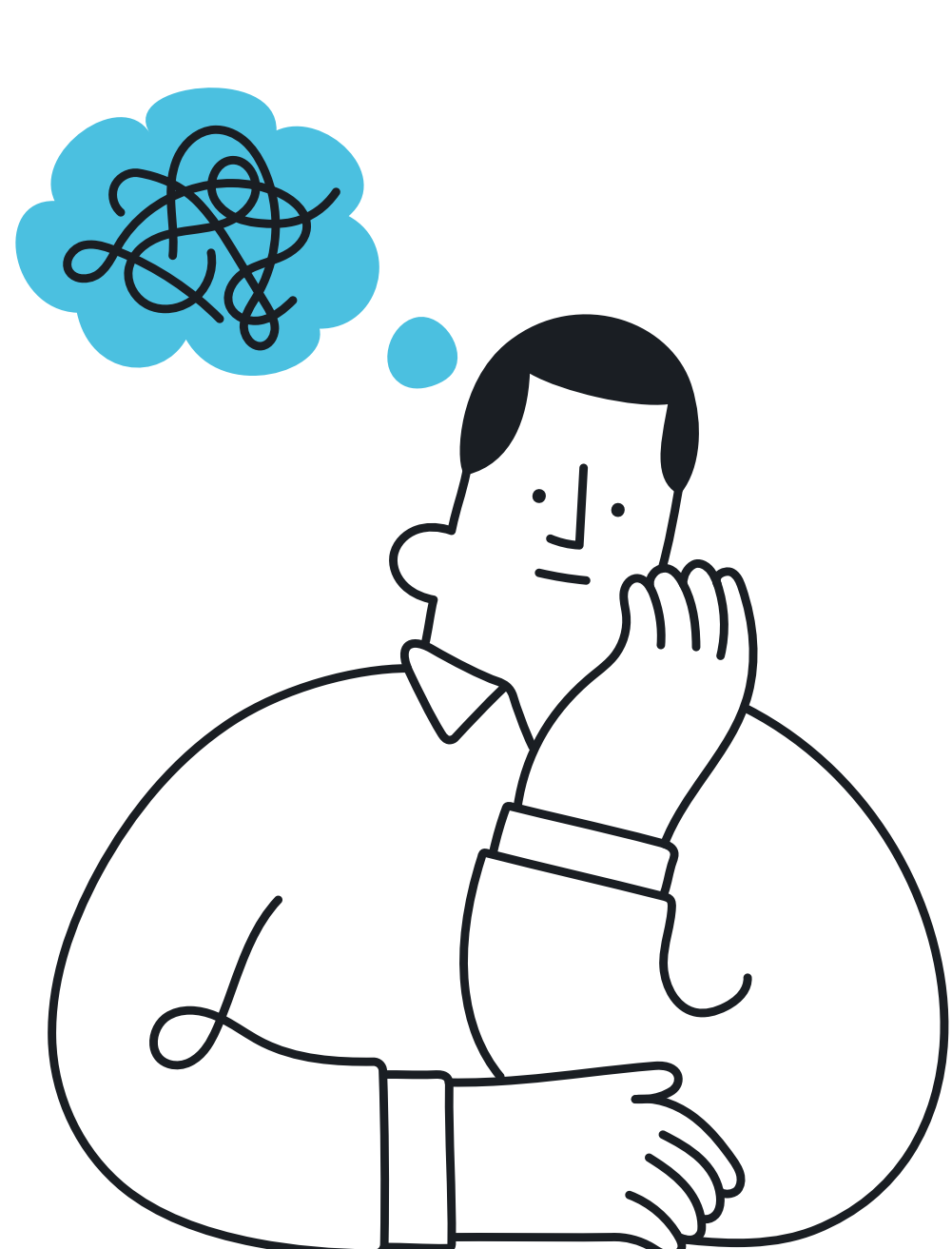
Problem

Lack of reproducibility in science is embedded in the complexity of data and of digital pipelines. The problem is discipline independent and affects our ability to deliver innovation; it is particularly severe in medicine and hampers the flow of innovative biomarkers and treatments into clinics.

Data integrity and analysis traceability across the entire scientific process still cannot be guaranteed¹.

There is an urgent need for a trustable system capable of guaranteeing a transparent and certified analytical process for experimental science.

¹Baker, Monya. "1,500 scientists lift the lid on reproducibility." *Nature* (2016).



Solution

LabTrace provides a transparent and trustable notary system for digital records.

In the modern scientific environment, LabTrace will be used by all those that work in a scientific experimental setting and either formally shape the scientific project (e.g. *investigators*), monitor it (e.g. *project managers*) or collect the data (e.g. *experimentalists, students*). The LabTrace records then enable *Sponsors* and *Forensic investigators* to conduct a swift digital audit of the project and data flow that will be secure for both those who conduct it and those who submit it (no tampering allowed on either side).

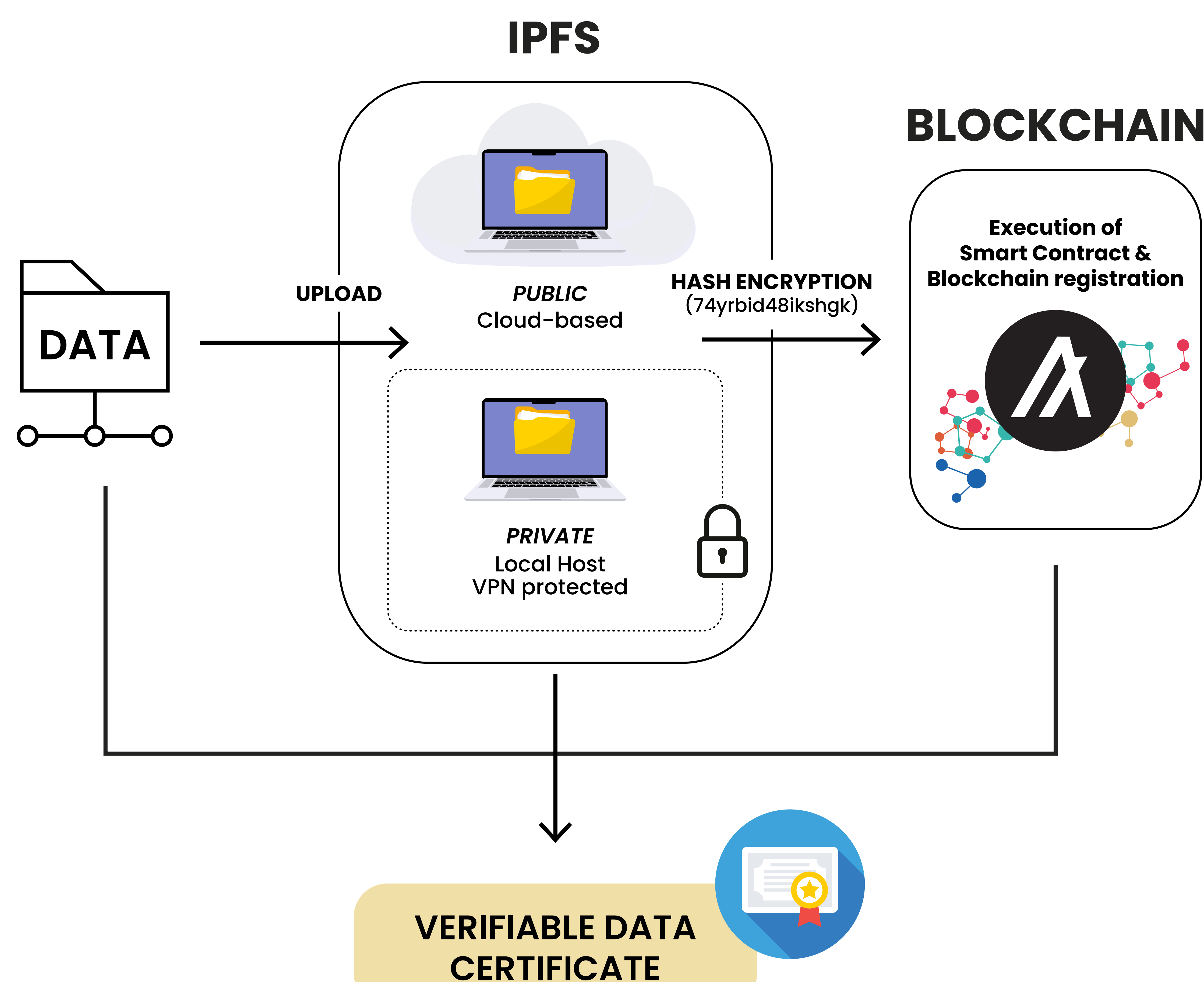
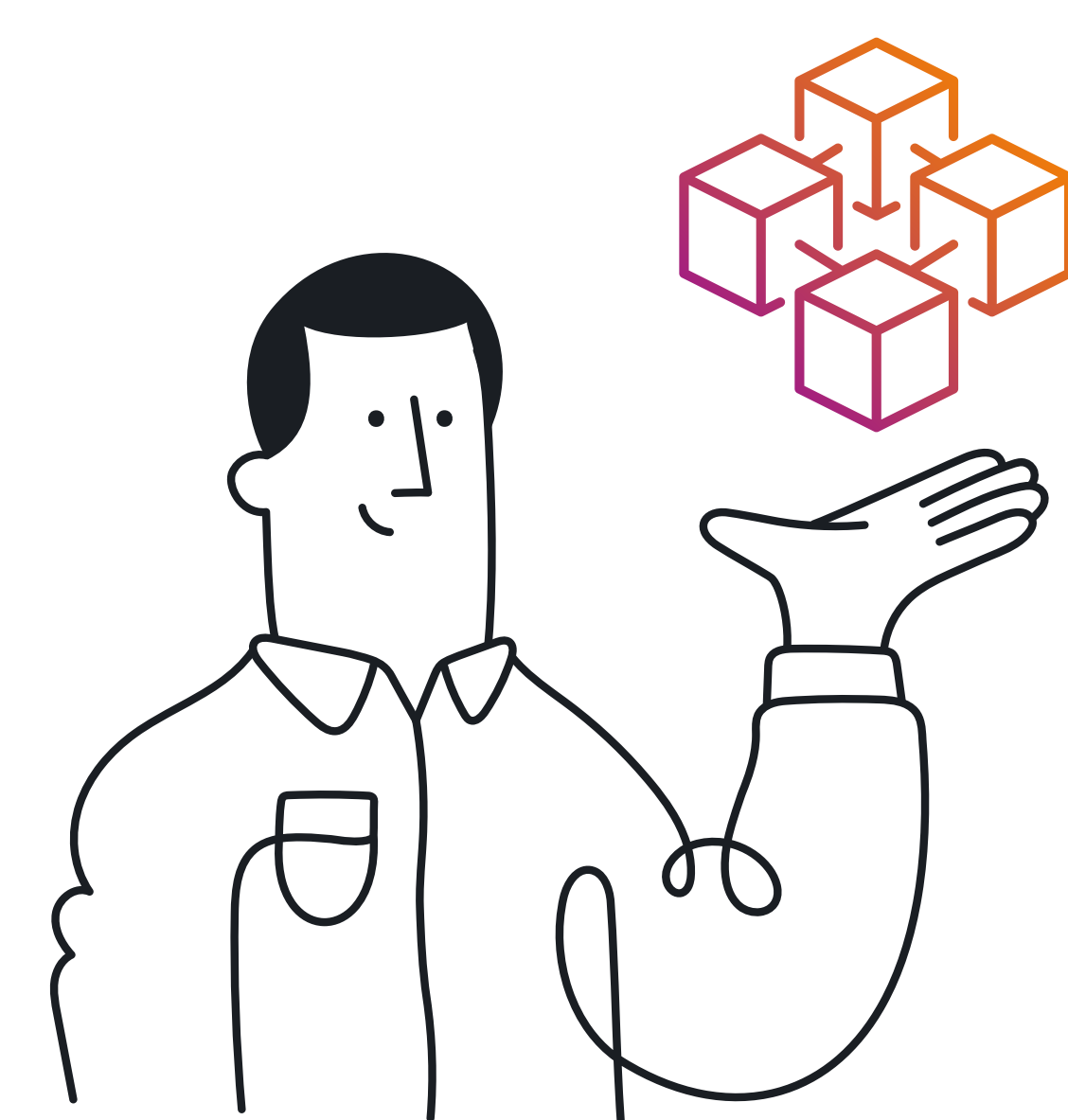
LabTrace allows the preservation of the chain of evidence which is key to the scientific endeavour.



Technology

Element 1: An Interplanetary File System (IPFS) that secures in a distributed architecture any digital format with hash-based addressing protocol which points to content rather than location.

Element 2: A Blockchain/Smart Contract System that notarizes all transactions in the IPFS system within a transparent and tailored regulatory framework.



Uniqueness

Simple to use and implement, no training required

Intuitive upload of digital data (any format) either primary or secondary

The **Algorand Blockchain**, the brainchild of Prof Silvio Micali (2012 Turing Prize)

Minimal carbon footprint: guaranteed no file duplication and a green blockchain ($\times 10^8$ times more energy efficient than Bitcoin or Ethereum)²

Secure: access is controlled by your organization only through digital smart contracts and is protected by your VPN.

Transparent because the record is easily traceable and public

²Platt, Moritz, et al. "Energy footprint of blockchain consensus mechanisms beyond proof-of-work." *University College London* (2021).

People

More than 30 years of experience in the acquisition, processing and analysis of scientific data from clinical trials.



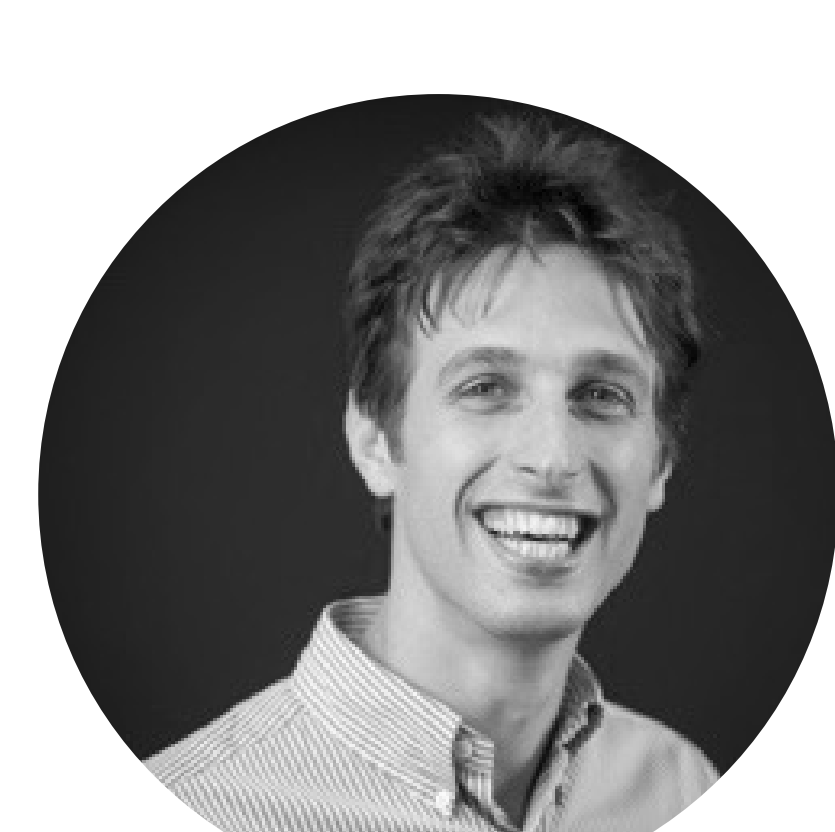
Director – Federico Turkheimer PhD

is Chair in Neuroimaging (Analysis and Statistics) at the Institute of Psychiatry, King's College London. He has spent the last 30 years in US and UK Higher Education Institutions (N.I.H, University of Cambridge, Imperial College London) and worked as a consultant with pharma and financial partners in the areas of data analysis and modelling.



Director – Giovanna Nordio PhD

is Research Associate at the Department of Neuroimaging, King's College London. Giovanna is a biomedical engineer with a PhD in Life Sciences and has previously worked on the development of imaging technology for the cardiovascular system. She is now focusing on the development of imaging pipelines for novel imaging biomarkers in psychiatric disorders.



Co-founder – Mattia Veronese PhD

is Associate Professor in Bioengineering at the University of Padova and Honorary Senior Lecturer at the Institute of Psychiatry, King's College London. He has previously worked at the National Institute of Mental Health, in Bethesda, and at the Clinical Imaging Centre – GSK in London. He has extensive collaborations with the pharma and imaging diagnostic industry.