About me

Oscar Esteban
Research & Teaching FNS Fellow
Head of AxonLab
Dept. of Radiology, CHUV

(Link to slides)

https://oesteban.github.io/talks/20250313/

I'm a **computational neuroscientist** and **open science** advocate.

Ph.D. (2015) @ Universidad Politécnica de Madrid [ESKAS (2012) @ EPFL], PD (2020) @ Stanford University

***Mental* health—both human and machine—**is becoming the next big challenge.

Hallucinations · Confabulation · Cognitive overload · Forgetting · Delusions · Bias · Attention · Agency · Emergent Behavior

Introducing Oscar Esteban | 13.03.2025

Ph.D. Signal Processing and Electronic Engineering

PD Functional MRI, reproducibility, Open Science

M.Eng. Electronic Systems (2010)
B.Eng + M.Eng. Telecommunications (2009)

(2013)
(2012)
(2011-2012)
ESKAS Award

Industry experience:
MP2P Technologies SA, Madrid
(2004-2008)

Non-formal & continuing education
Workshops (fMRIPrep+CIBM bootcamp)
Hackathons (NiPreps Hackathon x3, BrainHacks +5, etc.)
Online courses (NiPraxis, NeuroHackademy, DIPY)

Junior Lecturer Award (2016)
IEEE Summer School, St. Jacut de la Mer, France

Formal Teaching (since 2024)
Advanced MRI Techniques
(UNIGE 24N23)

Oscar Esteban

FOLLOWING

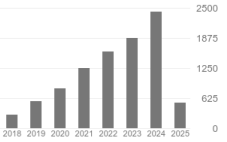
Dept. Radiology, Lausanne University Hospital and University of Lausanne
Verified email at chuv.ch

brain imaging neuroimaging neuroinformatics machine learning MRI

TITLE	CITED BY	YEAR
fMRIPrep: a robust preprocessing pipeline for functional MRI O Esteban, C Markiewicz, RW Blair, C Moodie, AI Isik, AE Aliaga, J Kent, ... Nature Methods 16, 111-116	3196 *	2019
Nipype: a flexible, lightweight and extensible neuroimaging data processing framework in Python O Esteban, DG Ellis, MP Notter, E Ziegler, H Johnson, C Hamalainen, ... Open Source Software (Zenodo record)	2261 *	2019
The challenge of mapping the human connectome based on diffusion tractography KH Maier-Hein, PF Neher, JC Houde, MA Côté, E Garyfallidis, J Zhong, ... Nature Communications 8 (1), 1349	1364 *	2017
MRIQC: Advancing the Automatic Prediction of Image Quality in MRI from Unseen Sites O Esteban, D Birman, M Schaer, OO Koyejo, RA Poldrack, ... PLOS ONE 12 (9), e0184661	899	2017
BIDS apps: Improving ease of use, accessibility, and reproducibility of neuroimaging data analysis methods KJ Gorgolewski, F Alfaro-Almagro, T Auer, P Bellec, M Capotă, ... PLOS Computational Biology 13 (3), e1005209	331	2017
The OpenNeuro resource for sharing of neuroscience data CJ Markiewicz, KJ Gorgolewski, F Feingold, R Blair, YO Halchenko, ... eLife 10, e71774	325	2021
NiBabel: Access a cacophony of neuro-imaging file formats M Brett, CJ Markiewicz, M Hanke, MA Côté, B Cipollini, P McCarthy, ... Open Source Software (Zenodo record)	210 *	2023
Analysis of task-based functional MRI data preprocessed with fMRIPrep O Esteban, R Ciric, K Finc, RW Blair, CJ Markiewicz, CA Moodie, JD Kent, ... Nature Protocols, 1-17	172	2020
Nipype: A flexible, lightweight and extensible neuroimaging data processing framework in Python. Zenodo KJ Gorgolewski, O Esteban, DG Ellis, MP Notter, E Ziegler, H Johnson, ...	120 *	2017

Cited by VIEW ALL

	All	Since 2020
Citations	10001	8567
h-index	24	23
i10-index	34	31



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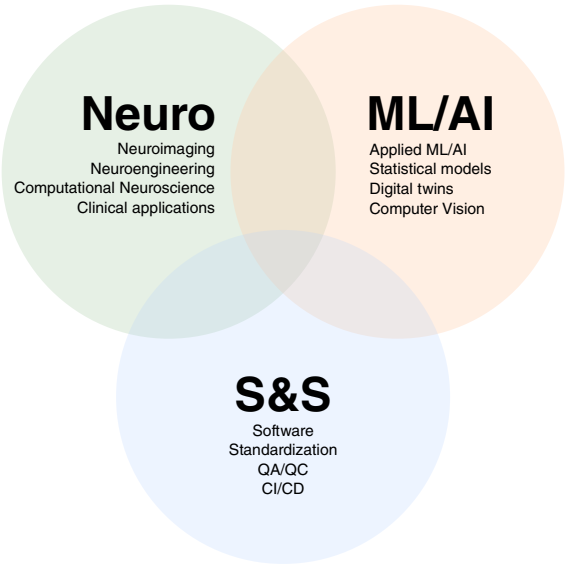
not available available

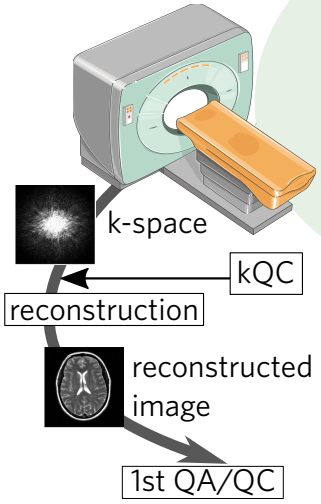
Based on funding mandates

Co-authors EDIT

- Russ Poldrack, Professor of Psychology, Stanfor…
- Christopher J Markiewicz, Stanford University
- Krzysztof J. Gorgolewski, Anthropic
- Satrajit Ghosh, Principal Research Scientist, MIT…
- Mathias Goncalves, MIT

Introducing Oscar Esteban | 13.03.2025





Swiss National Science Foundation
Division II

kQC—MRIQC before reconstruction

- Streamlining QA/QC during MRI acquisition
- Submitted as an R01 to the USA NIH—score 44
- Currently in active preparation, generating preliminary data
- Gaussian Processes, autoencoders, normative models
- Patent potential

Budget: 4 years, 500k CHF/year (2 PIs)
Co-PI: Franceschiello

Hes·so

the sense
innovation and research center

Collaborators:

SIEMENS Healthineers

CIBM
Center for Biomedical Imaging

crr sion
clinique romande de réadaptation

EPFL

erc Consolidator

NETwin—Network digital twins

- Personalized prediction of FC, conditioned on SC in epilepsy
- Scientific part building on two SNSF StG submissions
- Preliminary data from Thompson et al. 2021
- SC, FC, graph signal processing, latent diffusion models, causality

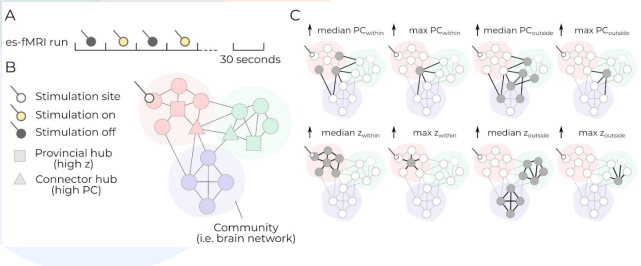
Budget: 5 years, 2M EUR

EPFL

Collaborators:

UNIGE

HUG Hôpitaux Universitaires Genève



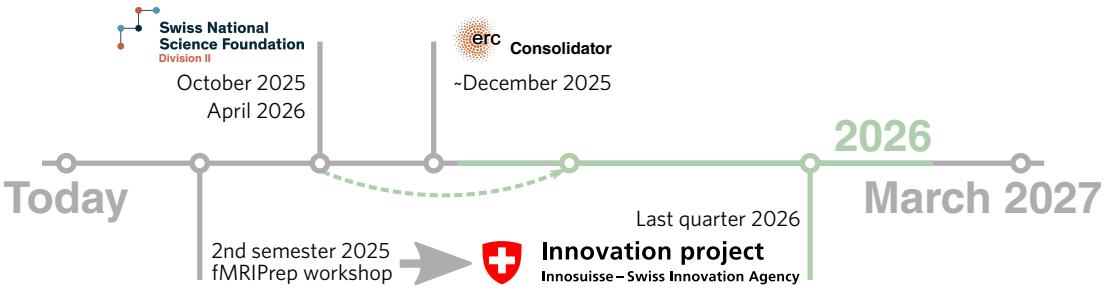
Innosuisse – Swiss Innovation Agency
Innovation project

De Novo fMRIPrep—clinical fMRI, finally

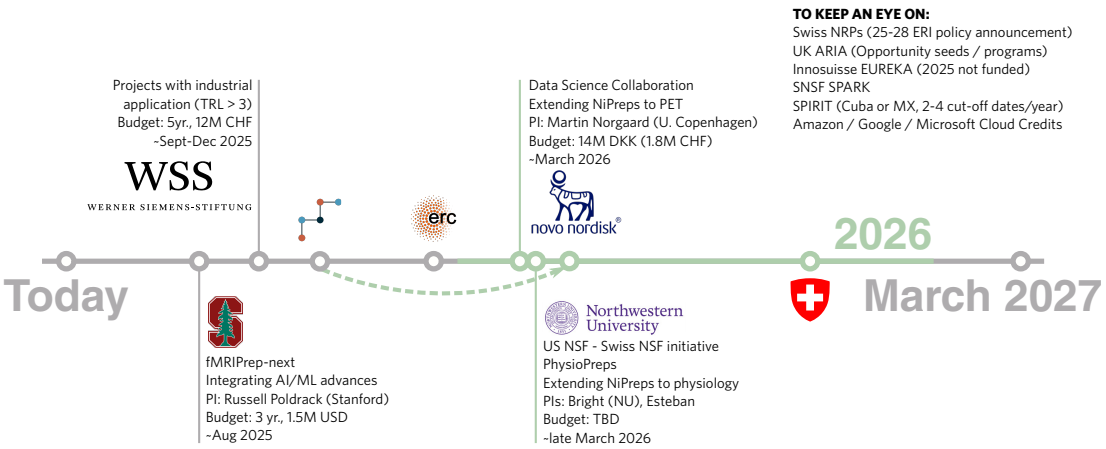
- Clinical application of fMRI remains elusive, unreliability being the crux
- De Novo Classification is an FDA regulatory pathway for moderate-risk medical devices
- Building on the NiPreps framework and industry partners
- Continuing education bootcamp (Sep-Dec 2025) to identify partners

Budget: 2 years, 1M CHF (50% Innosuisse)

Grant roadmap—core grants



Grant roadmap—other



Conclusion & Next Steps

Leadership in Neurocomputing & Neuroimaging

Bridging fundamental science and real-world impact

ML/AI Integration

Defining the next-generation neuro-engineering technology

Software & Standardization (S&S)

Bridging research and real-world deployment by industry

Clear roadmap

Two in-progress proposals building on feedback from previous applications, and additional funding opportunities