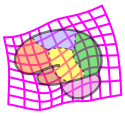
Antoine Legouhy

PhD



alegouhy (at) pasteur.fr
https://alegouhy.github.io/
iV_JtqIAAAAJ

Education and employment

2025–now **Postdoc**, *lab. de Neuroanatomie Appliquée et Théorique, Institut Pasteur*, Paris.
- Construction of a developmental atlas of the ferret brain combining MRI and microscopy (including PLI) for the study of cortical folding.

Supervision: Roberto Toro.

2021–2025 **Postdoc**, *Hawkes Institute (formerly CMIC), University College London*, London.
- Diffusion MRI for the study of sudden unexpected death in epilepsy.
  collab with UCL Queen Square Institute of Neurology, London.
- Diffusion MRI for the study of learning and memory consolidation.
  collab with Center for Research in Cognition and Neuroscience, ULB, Bruxelles.
- EPI distortion correction with deep-learning.
- Anatomically-grounded image registration.
  collab with AInostics ltd, Manchester.
- Surface mesh registration with deep-learning.

Supervision: Hui (Gary) Zhang.

2017–2020 **PhD in Signal Image Vision**, *Empenn lab (CNRS)*, Rennes.
Methods for morphological spatio-temporal brain modeling through atlasing and registration [link]. Supervision: Olivier Commowick, Christian Barillot and François Rousseau.

2016 **Internship**, *Empenn lab (CNRS, Inria, Inserm)*, Rennes.
Spatio-temporal atlas creation under the stationary velocity field framework.

2014–2016 **Master's in applied mathematics (M1, M2)**, *Université de Bourgogne*, Dijon.
Master MIGS: Mathematics, Computer Graphics, Statistics. Including: Optimization, Probability / Statistics, Differential Equations, Geometry.

2011–2014 **Bachelor's in Science, Technology and Health**, *Université de Bourgogne*, Dijon.
Specialty Mathematics.

Teaching experience

Guest lecturer, *University College London*, London.

2025 Information Processing in Medical Imaging (IPMI), various MSc in imaging - 3h.

Chargé de TP/TD, *Université de Rennes 1*, Rennes.

2018–2019 Biostatistics workshop 1 (AB1), L2 Biology - 28h.
2018–2019 Advanced R for data Analysis (ARA), L3 Biology - 16h.
2018–2019 Optimisation and Operations Research (OPRO), M1 Mathematics - 16h.
2017–2018 Biostatistics workshop 1 (AB1), L2 Biology - 28h.
2017–2018 Mathematics analysis (MAT1), L1 Biology - 36h.
2016–2017 Biostatistics Workshop 1 (AB1), L2 Biology - 12h.

Supervision experience

Master's projects

2024–2025 Jingheng Peng, MSc Artificial Intelligence and Medical Imaging, *UCL*.
Deep learning based synthesis of diffusion-weighted magnetic resonance images.

2024–2025 Nicholas Morrison, MSc Computer Vision, Graphics, and Imaging, *UCL*.
Estimating dMRI from T1-w MRI images using diffusion models.

2023–2024 Xiaoze Chen, MSc Artificial Intelligence for Biomedicine and Healthcare, *UCL*.
Deep-learning for correcting geometric distortion in echo-planar imaging.

Master's internships

2024 Nolah Mazet, option Digital Imaging, *ESIR engineering school, Rennes*.
Geometric deep learning for the registration surface meshes of anatomical regions.

2024 Vivien Julienne, option Digital Imaging, *ESIR engineering school, Rennes*.
PointNet-based registration of surface point clouds of anatomical regions.

Other scientific activities

Software

Anima / Anima-scripts: library and python scripts for medical image processing.
contributor - `https://anima.irisa.fr/`

Eddeep: Fast eddy-current distortion correction for diffusion MRI
lead developer - `https://github.com/CIG-UCL/eddeep`

Polaffini: Anatomically-grounded affine and polyaffine registration
lead developer - `https://github.com/CIG-UCL/polaffini`

Reviewer

Medical Image Analysis, Pattern Recognition, MICCAI.

Selected talks

2026 Invited speaker, MIND team (Inria/CEA)
2025 Oral presentation, ISMRM conference
2025 Monthly speaker, Hawkes Institute (UCL)
2022 Invited speaker, Martinos Center for Biomedical Imaging (Harvard/MIT)
2022 Oral presentation, CDMRI workshop (MICCAI conference)
2019 Oral presentation, ISBI conference

Events organisation

2025 Summer school of the UCL Hawkes Institute.
MedICSS 2025: Medical Image Computing and Surgical Sciences summer school.

2023 Hackathon of the UCL Center for Medical Image Computing (CMIC).
CMIC Hacks 2023.

2022 Hackathon of the UCL Center for Medical Image Computing (CMIC).
CMIC Hacks 2022.

Outreach

2019 Semaine du Cerveau
2019 Sciences en Cour[t]s (popular-science short film competition)

Skills

Languages

French: ■■■■■ (mother tongue), English: ■■■■■, Spanish: ■■■□□.

Programming skills

Languages: Python, Matlab, C/C++, R, Bash, LaTeX.

Libraries: ITK/VTK, TensorFlow/PyTorch/JAX.

Software: FreeSurfer, FSL, MRtrix, ParaView/MedInria, Anima.

Others: Git, Docker, CMake, SLURM.