# Investigating and Modelling Brain Dynamics Across Species

**DPhil in Computational and Translational Neuroscience, Department of Psychiatry, University of Oxford · October 2027**

The ERC-funded ROSETTA project introduces a 'functional coordinate system' for the brain, to describe brain function comprehensively and integrate neuroimaging findings systematically across experiments, disorders, and species.

## The Group

You will join Dr Andrea Luppi's research group, which charts how cognitive disorders, pharmacological interventions, and brain stimulation reposition the brain within a shared functional space, revealing principles for prediction and control. We combine multi-modal neuroimaging and consciousness science with information theory, network science, and whole-brain biophysical modelling. We triangulate fMRI data across humans, macaques, and mice to understand species differences and cross-species translation. The group is affiliated with the Oxford Centre for Eudaimonia and Human Flourishing and collaborates with Cambridge, Imperial College London, the Italian Institute of Technology, NeuroSPIN (Paris), Pompeu Fabra University (Barcelona), and Montreal Neurological Institute.

## The DPhil

The focus, refined with the candidate, centres on Dr Luppi's ERC Starting Grant, mapping causal interventions from anatomy to function across species. You will analyse brain dynamics from fMRI datasets of targeted brain perturbations, such as pharmacology (anaesthetics, psychedelics) or brain stimulation, primarily in macaques, emphasising cross-species comparison and whole-brain computational modelling.

## Training/supervision

You will gain skills in complex systems analysis of neural dynamics and networks, consciousness neuroscience, cross-species neuroimaging, whole-brain computational modelling, and NeuroAI, working with extensive in vivo databases combining whole-brain neuroimaging with causal interventions. Funded travel supports regular collaboration visits to the Italian Institute of Technology. You will also train in presenting science to varied audiences. Dr Luppi is committed to developing trainees' careers; see his Editorial, "Ten simple rules for aspiring graduate students": https://doi.org/10.1371/journal.pcbi.1009276.

## Candidate profile

We welcome ambitious applicants with at least an upper second-class honours degree (or equivalent) and/or a relevant Master's degree in neuroscience, physics, computer science, engineering, or related fields. Applicants should demonstrate experience of relevant independent research (dissertation or substantial research project). Experience with large neuroimaging datasets (e.g., fMRI), data science, and strong computational/statistical skills in Python or MATLAB are essential, as are excellent communication and collaboration skills. Interdisciplinary interests are particularly welcome. We are committed to equality, diversity, and inclusion and encourage applications from all backgrounds.

## Funding/application

The scholarship covers course fees up to the value of home fees*, a tax-free stipend at the UKRI standard rate (£21,805 per annum), plus additional support for research expenses and conference attendance.

*Applicants with overseas fee status would need to fund the fee difference from alternative sources.

Applications must be submitted via the University's online graduate application form. To access the application form and guidance please visit our website at www.graduate.ox.ac.uk/apply. The application form, all supporting materials (including references), and £20 application fee must be received by the submission deadline. Fee waivers may be available for eligible applicants.

**For informal enquiries please contact**: andrea.luppi@psych.ox.ac.uk
**Submission deadline:** 12:00 noon UK time on Friday 6th November 2026 (NOTE: this is earlier than the University's December deadline)
**Interview date:** w/c 23rd November 2026
**Studentship code for application:** 27PSYCH02WEB