Data-Driven Drug Repurposing in Brain Health using Generative AI

DPhil (PhD) — Department of Psychiatry, University of Oxford · Start: October 2026

Brain conditions including psychiatric disorders and dementia are leading causes of disability. Yet treatment discovery remains slow, costly and risky. Drug repurposing offers an attractive solution. Oxford's Brain Informatics Group analyses electronic health records (EHR) from 200M+ patients to identify drug repurposing opportunities. This strategy has already highlighted the dementia-prevention potential of shingles vaccination, the role of GLP-1 receptor agonists (e.g., Ozempic) in addiction, and more.

About the Group

The Brain Informatics Group's mission is to improve brain health by building AI and advanced analytics and applying them to very large health-records datasets. Our work spans disorders from psychosis to dementia and methods from prediction to causal inference. Our research on drug repurposing and the physical-mental health interface has been featured by major outlets (BBC, CNN, The Guardian, Scientific American, TIME, The New York Times, The Economist, Nature, Science, etc) and has informed guidelines and policy (including those of the WHO, NICE, US CDC, and World Bank).

Focus of the DPhil

You will help drive our repurposing programme with a focus on symptom instability—rapid fluctuations in symptom severity. Symptom instability predicts poorer outcomes across major psychiatric conditions, yet no treatment targets it directly. Your work will identify repurposing opportunities to address instability, with clear potential for patient impact.

Training and supervision

Under the supervision of Associate Professor Max Taquet, with day-to-day mentoring from experienced postdoctoral researchers, you will gain skills in causal inference and trial emulation, machine learning, and LLM-supported scientific reasoning. You will work with secure, very large EHR datasets and have the opportunity to collaborate with partners at the Big Data Institute and SMARTbiomed Pioneer Centre.

Candidate profile

We welcome ambitious applicants with at least an upper second-class honours degree (or equivalent) in computer science, epidemiology, statistics, mathematics, engineering, bioinformatics or related fields. Strong Python and/or R skills and clear communication are essential; experience in causal inference, machine learning and/or EHR analysis are desirable.

Funding & how to apply

The scholarship will fund course fees up to the value of home fees*, a tax-free stipend in line with UKRI standard rate (not less than £22,442 per annum), plus additional support for research expenses, conference attendance, and consumables.

*Students with overseas fee status should be advised that they would need to fund the remainder of their fees from alternative sources

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You will need to apply for this studentship via the main University online graduate application form, and pay an application fee of £20. The application form, all supporting materials required for the programme (including references) and payment must be submitted by the appropriate studentship deadline. To access the application form and application guide please visit our website at www.graduate.ox.ac.uk/apply.

For Informal enquiries please contact: maxime.taquet@psych.ox.ac.uk.
Deadline for submission of applications: 12:00 noon (UK time) on Tuesday 2nd December 2025
Interview date: w/c 12th January 2026
Studentship code to be entered on application: 26PSYCH02WEB