

Four-year PhD Scholarship on Genetically Evolving Models in Science

LSE Philosophy seeks to recruit two research students for a fully funded 4-year PhD degree, contributing to our exciting ERC project on Genetically Evolving Models in Science (GEMS), awarded to Professor Fernand Gobet. Applications close **Thursday 29 April 2021**.

The GEMS project

The development of scientific models suffers from two related problems: ever-growing number of experimental results and scientists' cognitive limitations (including cognitive biases). This multidisciplinary project (philosophy, psychology, computer science and cognitive neuroscience) addresses these problems by developing a novel methodology for generating scientific models automatically. The methodology is general and can be applied to any science where experimental data are available.

The method treats models as computer programs and evolves a population of models using genetic programming. The extent to which the models fit the empirical data is used as a fitness function. The best models – potentially modified by crossover and mutation – are selected for the next generation.

In this project, the GEMS methodology is used both with simple and complex datasets, and both with psychology and neuroscience data. In addition to extending the methodology and creating techniques to understand and compare the evolved models, it applies it to explain a wide range of data on human cognition (e.g. attention, memory and learning) and animal behaviour.

The GEMS PhD scholarship

The GEMS project seeks to recruit two PhD students. The students will contribute to the project by using the GEMS methodology to generate models of animal behaviour in the fields of classical conditioning and categorisation; they will thus develop new successful models in animal behaviour and a better theoretical understanding of the cognitive mechanisms used in this domain. The students will also address a philosophical question of their choice raised by the GEMS methodology. The students should have an excellent undergraduate degree and a completed Master's degree in philosophy, experimental psychology and cognitive modelling or another relevant subject, such as comparative psychology and cognitive science.

The primary supervisor of the PhD project will be Professor Fernand Gobet, with co-supervision from another member of the LSE Philosophy Department. If you have any questions, please write to f.gobet@lse.ac.uk. Fernand will share the project description with potential applicants to help you develop appropriate research proposals.

The successful applicant will receive full funding for a 4-year PhD at LSE, including full payment of tuition fees AND a maintenance stipend of £18,000 per annum. This is an exceptionally generous PhD scholarship.

How to apply

To apply, please apply to the MPhil/PhD in Philosophy at LSE (<http://lse.ac.uk/graduateapplyonline>), carefully following all the requirements described on the LSE website. When you apply, please indicate clearly in your application (in both your Statement of Academic Purpose AND your Research Proposal) that you wish to be considered for the GEMS scholarship. You should include, in your research proposal, a substantial description (of at least 1,500 words) of a research project addressing a philosophical question relevant to GEMS.