Information on Postgraduate Research Scholarship - Ref: VC 2022-FES-NRI-3			
Faculty:	**Engineering and Science**	**Department:**	Natural Resources Institute
Lead Supervisor:	Baqir Lalani		
Project Title:	Identifying neural correlates: A multi-disciplinary approach to examining systems thinking. Implications for climate-smart agriculture practice		
Project Description:	Future climate change scenarios have increasingly highlighted the negative effects on agricultural productivity worldwide (e.g. Nelson et al., 2014) and this is likely to be especially acute in low income countries, particularly in the Global South (e.g. Morton et al., 2007). The significant role of agriculture in climate change has increased the importance of Climate Smart Agriculture (CSA) practices. CSA is broadly defined as farmer practices that contribute to sustainable increases in agricultural productivity, build climate adaptation and resilience for farmers, and reduce greenhouse gas (GHG) emissions (Khoza et al., 2020). Systems thinking can be defined as a mental construct that recognises patterns and connections in a particular system to make the "best decision" possible given a particular goal. Recent research has identified that higher degrees of systems thinking are thought to be associated with 'knowledge intensive' CSA practice and "better" environmental decision making in a number of country settings (e.g. Church et al., 2020; Lalani et al., 2021). But do farmers who use CSA practices have individual thinking patterns that are unique from those that do not? Maan et al. (2019) have noted more research is needed to explore the causal mechanisms of systems thinking/ CSA usage and the role of gender/other demographic dimensions. Yet defining and measuring "systems thinking" remain challenging (Gray, 2019). Social science methods have refined the study of "systems thinking" by exploring mental models. These methods, such as fuzzy cognitive mapping, rely upon participants to represent their thinking process. Thus, tacit knowledge, emerging realizations, and subconscious cognitions remain inaccessible, even though they may play important roles in systems thinking and/or the use of CSA practices. Past research from psychology that has measured systems thinking through cognitive mapping can be enhanced by integrating novel neuroscience brain imaging research using "mobile" data collection methods. Moreover, the ability to measure neural correlates (i.e. defined as a specific pattern of brain activity that correlates with particular conscious experiences) 'in the field' with current social science methods is of particular importance in low-income countries where climate change is likely to have the most impact.		

	This studentship seeks to understand the underlying mechanisms of systems thinking and how this relates to the use of CSA practices. More specifically it aims, using a novel multi-disciplinary lens, to examine whether neural correlates of systems thinking exist by pairing the network measures from cognitive mapping/mental models (cognitive psychology methodology), observational learning (learning theory), theory of planned behaviour (psychology/behavioural economics framework) with the brain activity (e.g. network analysis/imaging) revealed by the use of mobile neuroscience data collection tools. Indicative research questions are as follows: 1. To what extent are systems thinking/neural correlates mediated by existing beliefs, practices and/or other factors including gender/biophysical factors? 2. Do specific neural correlates exist that correlate with higher use/adaptation of CSA practices? 3. Do those with higher forms of systems thinking/neural correlates exhibit more pro-social behaviour/practice of CSA practices when 'nudged'? 4. What are the implications for learning given current extension/farmer centred approaches?
Duration:	3 years, Full-Time Study or 6 years, Part-Time Study

Bursary available (subject to satisfactory performance):

Year 1: £20,780 (FT) or pro-rata (PT) Year 2: In line with UKRI rate Year 3: In line with UKRI rate

In addition, the successful candidate will receive a contribution to tuition fees equivalent to the university's Home rate, currently £5,006 (FT) or pro-rata (PT), for the duration of their scholarship. International applicants will need to pay the remainder of the tuition fee (currently £x) for the duration of their scholarship.

This fee is subject to an annual increase.

Person Specification of Essential (E) or Desirable (D) requirements:

Criteria:	**E or D**
Education and Training:	
• 1st Class or 2nd class, First Division (Upper Second Class) honours degree or a taught master's degree with a minimum average of 60% in all areas of assessment (UK or UK equivalent) in a relevant area to the proposed research project	**E**
• For those whose first language is not English and/or if from a country where English is not the majority spoken language (as recognised by the UKBA), a language proficiency score of at least IELTS 6.5 (in all elements of the test) or an equivalent UK VISA and Immigration secure English Language Test is required, if your programme falls within the faculty of Engineering and Science a language proficiency score of at least IELTS 6.5 overall with a minimum of 6.0 in all elements of the test or an equivalent UK VISA and Immigration secure English Language Test is required. Unless the degree above was taught in English **and** obtained in a majority English speaking country, e.g. UK, USA, Australia, New Zealand, etc, as recognised by the UKBA.	**E**

Experience & Skills:	
• Previous experience of undertaking research (e.g. undergraduate or taught master's dissertation)	**E**
• Experience of mixed (qualitative and quantitative research methodologies	**E**
• An understanding of climate-smart agriculture/principles of agroecology/previous research experience	**D**
• Previous experience of conducting/participating in field experiments/protocols used in behavioural economics/neuro-economics or similar field	**D**
• Knowledge/experience of neuroeconomics, behavioural economics and/or interest in cognitive neuroscience/psychology	**D**
• Able to, under guidance, complete independent work successfully	**E**
Other Requirements:	
• This scholarship may require Academic Technology Approval Scheme approval for the successful candidate if from outside of the EU/EEA	**E**
• The scholarship must commence ***ASAP***	**E**
Closing date for applications:	***midnight UTC on 12th September 2025***
For further information contact:	Dr. Baqir Lalani: **b.lalani@greenwich.ac.uk**

Making an application:

Please read this information before making an application. Information on the application process is available at: https://www.gre.ac.uk/research/study/apply/application-process. Applications need to be made online via this link. **No other form of application will be considered**.

All applications **must include** the following information. **Applications not containing these documents will not be considered.**

- **Scholarship Reference Number (*VC 2022-FES-NRI-3*)**– included in the personal statement section together with your personal statement as to why you are applying
- **a CV including 2 referees** *
- **academic qualification certificates/transcripts and IELTs/English Language certificate if you are an international applicant or if English is not your first language or you are from a country where English is not the majority spoken language as defined by the UK Border Agency** *

**upload to the qualification section of the application form. Attachments must be a PDF format.*

Before submitting your application, you are encouraged to liaise with the Lead Supervisor on the details above.