PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	Academy of Artificial Intelligence and Advanced Technology
Supervisors	*Please list all the names in the supervisory team. It should be consistent with the information on your approved PGRS proposal.* Principal supervisor: Professor/Dr Jieming Ma (XJTLU) Co-supervisor: Professor/Dr Jie Zhang(XJTLU) Co-supervisor: Professor/Dr Meng Fang(UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Physics-Guided Causal-Volatility Modelling for Renewable Power Forecasting
Contact	Please email Jieming.Ma@xjtlu.edu.cn (XJTLU principal supervisor's email address) with a subject line of the PhD project title. The principal supervisor's profile is linked here: https://scholar.xjtlu.edu.cn/en/persons/JiemingMa/

Requirements:

A Master's degree with Merit and a Bachelor's degree with first-class or upper second-class honors are required for PhD admissions. Exceptional candidates holding only a Bachelor's degree may be considered on an individual basis in certain disciplines.

Evidence of good spoken and written English is essential. The candidate should have an IELTS (or equivalent) score of 6.5 or above, if the first language is not English. This position is open to all qualified candidates irrespective of nationality.

Degree:

The student will be awarded a PhD degree from the University of Liverpool (UK) upon successful completion of the program.

Funding:

The PhD studentship is available for three years subject to satisfactory progress by the student. The award covers tuition fees for three years (currently equivalent to RMB 99,000 per annum). It also provides up to RMB 16,500 to allow participation at international conferences during the period of the award. The scholarship holders are expected to conduct the majority of their

research at XJTLU in Suzhou, China. However, they may apply for a short-term research visit to the University of Liverpool if the project requires it.

Project Description:

The rapid growth of renewable energy has made electricity systems cleaner but also more variable and harder to predict. Unlike traditional power plants, renewable generation depends heavily on changing weather conditions, leading to sudden fluctuations and large ramp events that challenge grid stability. Many existing forecasting methods treat these variations as random noise and provide limited explanation of their underlying causes. This project develops a physics-guided and causally informed forecasting framework powered by advanced time-series foundation models. By embedding physical energy conversion laws into scalable machine learning architectures, the research aims to identify the key drivers of power variability and quantify their impact. Multiscale volatility modelling and probabilistic prediction techniques will generate reliable uncertainty estimates. The result will be interpretable and robust forecasting tools to support renewable-dominated power systems.

For more information about doctoral scholarship and PhD programme at Xi'an Jiaotong-Liverpool University (XJTLU), please visit

https://www.xjtlu.edu.cn/en/admissions/doctoral/entry-requirement-phd
https://www.xjtlu.edu.cn/en/admissions/doctoral/postgraduate-research-scholarships

How to Apply:

Interested applicants are advised to email Jieming.Ma@xjtlu.edu.cn (XJTLU principal supervisor's email address) the following documents for initial review and assessment (please put the project title in the subject line).

- CV
- Two formal reference letters
- Personal statement outlining your interest in the position
- Certificates of English language qualifications (IELTS or equivalent)
- Full academic transcripts in both Chinese and English (for international students, only the English version is required)
- Verified certificates of education qualifications in both Chinese and English (for international students, only the English version is required)
- PDF copy of Master Degree dissertation (or an equivalent writing sample) and examiners reports available