PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Electrical and Electronic Engineering
Supervisors	Principle supervisor: Fei Xue (Xi'an Jiaotong-Liverpool University) Co-supervisor: Lin Jiang (University of Liverpool, UK); Shaofeng Lu (Xi'an Jiaotong-Liverpool University)
Application Deadline	January 2021
Funding Availability	Funded PhD project (world-wide students)
Project Title	Planning and Operation of Smart Grid Based on Complex Network Approach / 基于复杂网络的智能电网规划与运行
Contact	Please email fei.xue@xjtlu.edu.cn (principle supervisor's email address) with a subject line of the PhD project title

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in electrical engineering. Evidence of good spoken and written English is essential. The candidate should have an IELTS score of 6.5 or above, or an equivalent qualification, 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 80,000 per annum) and provides a monthly stipend of 5,000 RMB as a contribution to living expenses. It also provides up to RMB 16,500 to allow participation at international conferences during the period of the award. It is a condition of the award that holders of XJTLU PhD scholarships carry out 300-500 hours of teaching assistance work per year. The scholarship holder is expected to carry out the major part of his or her research at XJTLU in Suzhou, China. However, he or she is eligible for a research study visit to the University of Liverpool of up to three months, if this is required by the project.

Project Description:

This project will apply the theory of complex network for planning and operation of smart grid. This project firstly evaluates the impacts of network structure on performance and allocation of Energy Storage System (ESS) in power transmission networks. Furthermore, to eliminate fluctuation and intermittency of power supply by wind or solar power in distribution network, an upgraded betweenness will be used to make ranking of all buses between power generation and loads for ESS allocation. Secondly, conventional distribution networks will be partitioned into different Virtual Microgrids (VM) by upgraded community detection algorithms, and then Distributed Generation (DG) and ESS will be allocated by considering partitioned boundaries as constraints to make each VM self-sufficient. Thirdly, by considering power flow as weight of each line, dynamic weighted complex network model can be used to analyze system operation, such as to detect inverse-community structures to detect critical transmission sections.

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

http://www.xjtlu.edu.cn/en/admissions/phd.html

http://www.xjtlu.edu.cn/en/admissions/phd/feesscholarships.html

How to Apply:

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

- CV
- Two reference letters
- Personal statement outlining your interest in the position
- Proof of English language proficiency (an IELTS score of above 6.5 or equivalent is required
- Verified school 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

Informal enquiries may be addressed to Dr. Fei Xue (fei.xue@xjtlu.edu.cn), whose personal profile is linked below,
https://www.xjtlu.edu.cn/en/departments/academic-departments/electrical-and-electronic-engineering/staff/fei-xue