

### XJTLU-XJTU-UoL Joint Doctoral Supervision Project (Full-time)

|                      |                                                                                                                                                                                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference No.        | SFXJTU2606                                                                                                                                                                         |
| XJTLU School         | Academy of AI and Advanced Technology                                                                                                                                              |
| PhD Programme        | PhD Electrical and Electronic Engineering                                                                                                                                          |
| Supervisors          | XJTLU supervisor: Dr Lurui Fang; Prof Eng Gee Lim<br>XJTU supervisor: Dr Chengcheng Shao<br>UoL supervisor: Dr Christos Zachariades                                                |
| Project Title        | 计及可移动充电基础设施的高速公路沿线电动汽车充电站与配电网协同多阶段规划<br>Coordinated Multi-Period Planning EV Charging station and Power Distribution Networks along Highways with Movable Charging Infrastructure. |
| Application Deadline | Open until the position is filled                                                                                                                                                  |

#### **Requirements:**

A UK first-class or upper second-class honours Bachelor's degree and a UK Master's degree with Merit (or their equivalent) are required for PhD admissions. Exceptional candidates holding only a Bachelor's degree may be considered on an individual basis.

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.

For more information about entry requirements and admission procedures of PhD programme at XJTLU, please visit:

[Entry Requirement - Xi'an Jiaotong-Liverpool University](#)

[How to Apply - Xi'an Jiaotong-Liverpool University](#)

#### **Other Requirements (if any):**

Students should have background in Electrical Engineering or Applied Mathematics.

#### **Programme Structure and Fees:**

Doctoral students in the joint programme are registered with both XJTLU and the UoL. Upon successful completion of the programme, the students will be awarded a PhD degree from University of Liverpool. During their doctoral studies at XJTLU, students are expected to conduct research at XJTU as visiting students. Additionally, students have the opportunity to apply for a short-term research visit to the UoL if the project requires it.

The joint doctoral programme is offered on a full-time basis, with a typical duration of three to four years. The tuition fee is RMB 99,000 per year.

**Project Description:**

Highway EV fast charging faces constraints: demand peaks (holidays), sparse service area stations, limited distribution network capacity, causing queues, congestion, voltage/overload risks. Spatiotemporal mismatch between renewable generation near highways and charging demand causes inefficiency. This project proposes integrated planning: 1) Develop demand scenarios (weekdays, weekends, holidays) for station-level time-series loads; 2) Design bounded flow allocation rules for service area transfers and limited exit detours to charging stations; 3) Coordinate mobile charging station to absorb renewable energy and provide relocatable backup at peaks; 4) Conduct cost-benefit under distribution network power flow constraints. The project aims to establish a framework alleviating peak queuing, enhancing service quality, increasing renewable integration, identifying optimal combination and investment sequence of mobile charging stations, fixed expansion, distribution network reinforcement.

To cultivate research talents with global leadership, interdisciplinary innovation capabilities, and international research collaboration capabilities, Xi'an Jiaotong-Liverpool University (XJTLU) fully leverages its characteristics of international education and builds upon the long-established strategic cooperation among XJTLU, Xi'an Jiaotong University (XJTU), and the University of Liverpool (UoL). This initiative integrates top-tier research resources to launch a Joint Doctoral Supervision Programme across the three institutions.

**Joint Supervisory Team:**

XJTLU supervisor: Dr Lurui Fang; Prof Eng Gee Lim

XJTU supervisor: Dr Chengcheng Shao

UoL supervisor: Dr Christos Zachariades

**How to Apply:**

Interested applicants are advised to email [Lurui.Fang@xjtlu.edu.cn](mailto:Lurui.Fang@xjtlu.edu.cn) the following documents for initial review and assessment (Please include 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