

PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	Principal supervisor: Professor/Dr. Tianru Zhang (XJTLU) Co-supervisor: Professor/Dr. Huiqing Wen (XJTLU) Co-supervisor: Professor/Dr. Xuchen Wang (XJTLU) Co-supervisor: Professor/Dr. Zhongbei Tian (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Enhanced Sensorless Control of Permanent Magnet Synchronous Motors
Contact	Please email Tianru.Zhang@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://www.xjtlu.edu.cn/en/departments/academic-departments/mechatronics-and-robotics/staff/academic-staff/staff/tianru-zhang

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in electrical and electronics engineering, automation or control engineering. Should have knowledge on the 1) MATLAB software, 2) basic control theory topics, and 3) electrical motors. Candidates who already have publications in international journals/conferences are highly preferred.

Evidence of good spoken and written English is essential. The candidate should have an IELTS 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 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 up to six months, if this is required by the project.

Project Description:

Permanent magnet synchronous motor (PMSM), a popular type of permanent magnet AC motor, is widely used in the AC drive applications, including electric propulsion, robots, traction systems, etc. The closed-loop field-oriented control of PMSM requires the position of rotor flux angle, which is usually measured by a position sensor. The position transducer tends to be replaced by sensorless operations considering that the position transducer could increase the overall costs and volumes and reduce the robustness of the drive systems. However, the estimation accuracy and robustness cannot be guaranteed which degrade the overall sensorless performance and limited its widespread application. This project will focus on the performance enhancement of the sensorless control. An optimized sensorless control structure, a novel modelling method and observer design techniques will be developed to improve the dynamic response, robustness, implementation complexity.

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/global/entry-requirements/>

<https://www.xjtlu.edu.cn/en/admissions/global/fees-and-scholarship>

How to Apply:

Interested applicants are advised to email Tianru.Zhang@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