PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	Principal supervisor: Professor/Dr. Suneel Kumar Kommuri (XJTLU) Co-supervisor: Professor/Dr. Huiqing Wen (XJTLU) Co-supervisor: Professor/Dr. Jiafeng Zhou (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Sliding mode based fault diagnosis and tolerant control in PMSM drives for electric vehicles
Contact	Please email Suneel.Kommuri@xjtlu.edu.cn 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/electrical-and-electronic-engineering/staff/suneel-kommuri

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. 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 80,000 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:

Most of the permanent magnet synchronous motor (PMSM) drive-based applications such as electric vehicles (EVs), high-speed trains etc, are equipped with sensors and actuators. Unexpected failures/malfunctions in any of these components will degrade the overall system performance or make the system unstable. Therefore, it is extremely important for the drives-based applications to be robust against the faults (like demagnetization, load imbalance/misalignment, rotor eccentricity etc,) to provide uninterrupted drive system operations. Unlike existing researches, which are limited to diagnosis of above faults, this project aims to not only detect, but also provide fault-tolerant control (FTC) simultaneously. Therefore, novel robust FTC techniques based on advanced sliding mode techniques will be developed to achieve continuous and reliable PMSM drive operations. The designed FTC scheme compensates the fault dynamics (disturbance terms) accurately with minimized chattering phenomenon under practical conditions.

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 Suneel.Kommuri@xjtlu.edu.cn with 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