PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	Principal supervisor: Dr Kyeong Soo (Joseph) Kim (XJTLU) Co-supervisor: Dr Ye Liu (XJTLU) Co-supervisor: Professor Jeremy S. Smith (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	High-Accuracy and Energy-Efficient Time Synchronization Immune to Floating-Point Precision Loss in Wireless Sensor Networks
Contact	Please email Kyeongsoo.Kim@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/KyeongsooKim

Requirements:

The candidate should have a master's degree or a bachelor's degree with first-class or upper second-class honors in Electrical Engineering, Computer Science/Engineering, or a field closely related to Communications and Networking.

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:

High-accuracy and energy-efficient time synchronization is important to asymmetric wireless sensor networks (WSNs), where a head node is equipped with high-end processor(s) and supplied power from outlet, but sensor nodes are equipped with low-end processors and battery-powered; their applications include fine-grained localization/tracking and distributed surveillance/sensing in civil and military applications. Through our prior works, we have established a theoretical foundation for high-accuracy and energy-efficient time synchronization for asymmetric WSNs based on the reverse two-way message exchange, but the experimental results based on a real testbed show the negative effect of limited floating-point precision on time synchronization. In this project, we investigate and propose time synchronization algorithms that can avoid the effect of limited floating-point precision and thereby provide high-accuracy time synchronization even at resource-constrained platforms like WSN sensor nodes and Internet of things (IoT) devices.

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 Kyeongsoo.Kim@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