

PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology (SAT)
Supervisors	Principal supervisor: Dr Nanlin Jin (XJTLU- Department of Computing) Co-supervisor: Dr Xiaohui Zhu (XJTLU- Department of Computing) Co-supervisor: Dr Xue Zhang (UoL - School of Engineering)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Deep learning transform for drift detection in noisy data stream 深度学习降噪-实时而准确地在数据流中检测变化
Contact	Please email: Nanlin.Jin@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/zh/departments/academic-departments/computer-science-and-software-engineering/staff/nanlin-jin

Requirements:

The candidate should have a first class or upper second class honours degree (BSc), or a master's degree MSc (or equivalent qualification), in Computer Science, Software engineering, AI, Mathematics, or Engineering. The candidate should have solid backgrounds in algorithms and in programming in Python.

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:

Online analysis of data stream is important in enabling timely response and forecasting, yet it is challenging, as upcoming data is unknown. The research area to detect changing patterns in an online data stream is called drift detection. In many real-world domains, noise or error in data is inevitable and prevalent. Robustness of machine learning methods against noise remains one of the main challenges in AI.

This PhD project aims to propose new algorithms of deep learning transform to achieve accurate and timely drift detection in noisy data streams.

The key problems to be tackled are (1) the inefficiency on the performance (accuracy, timeliness, and complexity) of the existing drift detection methods; (2) The learning and modelling of noise in the data stream, using machine learning approaches, including both the deterministic and heuristic ones; and (3) enabling the learned noise models to be adaptive to upcoming data. Here we focus on the scenarios where the signal-to-noise ratio is higher than 1.

This PhD project will evaluate the proposed algorithms into two real world applications: (a) an operating unmanned surface vehicle (USV) systems for environment monitoring; and (b) an IoT system for landslides prediction.

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/doctoral/entry-requirement-phd/>

<https://www.xjtlu.edu.cn/en/admissions/doctoral/postgraduate-research-scholarships>

How to Apply:

Interested applicants are advised to email: Nanlin.Jin@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