

PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of AI and Advanced Computing
Supervisors	Principal supervisor: Dr Chin Poo Lee (XJTLU) Co-supervisor: Professor Angelos Stefanidis (XJTLU) Co-supervisor: Dr Jionglong Su (XJTLU) Co-supervisor: Professor/Dr Mario Gianni (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Enhancing Vision Transformers for Gait Recognition: A Focus on Temporal Encoding and Model Optimization
Contact	Please email ChinPoo.Lee@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/ChinPooLee

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in Computer Science or in a related subject.

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 50% tuition fee reduction for three years (RMB 148,500 total value). 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.

Project Description:

Gait recognition identifies individuals based on their unique walking patterns, but current models often struggle to effectively capture the dynamic nature of gait due to limitations in temporal modeling. By developing Vision Transformers (ViTs) specifically tailored for gait analysis, this project will introduce temporal encoding mechanisms to model the temporal dynamics, enabling a better understanding of the continuous motion involved in walking. Additionally, the research will implement techniques to reduce the complexity of ViTs without sacrificing performance.

Research Objectives:

1. To develop Vision Transformer-based models with temporal encoding for gait recognition.

To design and implement Vision Transformer architectures tailored for gait recognition. These models will be optimized to capture both spatial and temporal information, which is crucial for analyzing walking patterns.

2. To propose enhancements to Vision Transformers for reduced model complexity.

To propose architectural enhancements, such as temporal encoding mechanisms and model efficiency techniques like knowledge distillation, pruning, and quantization, to reduce computational complexity while maintaining or improving performance.

3. To evaluate the proposed model on gait recognition datasets that present multivariate and large population challenges.

To assess the developed models on established gait recognition datasets, such as CASIA-B and OU-ISIR, which present challenges related to population diversity, occlusion, clothing variations, and other multivariate factors.

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 ChinPoo.Lee@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