

### PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of ...Civil Engineering.....
Supervisors	<p><i>Please list all the names in the supervisory team. It should be consistent with the information on your approved PGRS proposal.</i></p> Principal supervisor: Professor/Dr...Wei Zhang... (XJTLU) Co-supervisor: Professor/Dr...Lei Fan.....(XJTLU) Co-supervisor: Professor/Dr...Ming Li.....(UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	...Mechanisms of horizontal bearing properties of bridge piers during scour process.
Contact	Please email...wei.zhang01...@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: <a href="http://www.xjtlu.edu.cn/en/faculty/wei-zhang01.....">http://www.xjtlu.edu.cn/en/faculty/wei-zhang01.....</a>

#### **Requirements:**

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in ...fluid mechanics or structure engineering.....  
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:**

...This project intends to develop a three-dimensional numerical method for coupling pier-soil-water interactions for bridges under flood peaks. It can be used to accurately reflect the dynamic coupling effects between local scour and deformations of bridge piers, which occur simultaneously. The bending moment and cyclic vibration response of bridge piers, the maximum horizontal displacement of the associated pile top, and the bearing capacity of the pile foundation will be studied. The project will reveal the mechanism of local erosion and bridge collapse in exceptionally heavy rainstorms, providing theoretical guidance and technical support for bridge erosion resistance evaluation and structural safety design, which has essential scientific and engineering significance for bridge safety.

Current research only focuses on the study of bridge scouring, which is pure hydrodynamics; or only focus on the bridge collapse, which is pure structure stability analysis. This research aims to do a solid-fluid coupling analysis to understand the mechanism of high-speed flood interaction with structure deformation; develop a three-dimensional numerical model to describe scour erosion and bridge pier deformation by capturing the bending moment and cyclic vibration response of bridge piers, the maximum horizontal displacement of the pile top, and the bearing capacity of the bridge piers during scouring. This project will help to derive optimized diagnostics, early warning, and management methods for the safety of bridge piers.

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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.....@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