PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Design
Supervisors	Principal supervisor: Dr. Iasef Md Rian (XJTLU) Co-supervisor: Dr. Rosa Urbano Gutierrez (UoL) Co-supervisor: Dr. Shu Tang (XJTLU)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Computational design and optimization of internal porous scaffold and skeleton morphology for designing and making extra-light 3D-concrete printed precast facade components
Contact	Please email iasef.rian@xjtlu.edu.cn (XJTLU principal supervisor's email address) with a subject line of the PhD project title

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in Architecture/Architectural Technology/Civil 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 80,000 per annum) and provides a monthly stipend of 5,000 RMB as a contribution to living expenses. It also provides up to RMB 16,500 to allow participation at international conferences during the period of the award. It is a condition of the award that holders of XJTLU PhD scholarships carry out 300-500 hours of teaching assistance work per year. 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 of up to six months, if this is required by the project.

Project Description:

This research project aims to develop an 'extra-light' precast concrete façade or wall component through geometrically configuring and structurally optimizing the internal porous scaffold or inner skeleton morphology using the computational morphogenesis method. Making precast concrete component lightweight and porous is exercised for weight reduction, fast installation, and acoustic and environmental reasons. Traditional precast concrete panels are solid and heavy. Making the concrete blocks porous by manipulating the concrete mixture during the casting is a common way to reduce the weight. In this research project, we aim to use a geometry-supported and force-based form-finding approach for designing and making architected porous concrete components that are 'extra-light' with reference to the maximum void-to-solid ratio and strength-to-weight ratio. 3D concrete printing (3DCP) will be an integral part of this 'material-by-design' project, from its initial design and form-finding process to prototype making.

For this project, we are looking for a candidate with an educational or research background in architectural technology (mainly structural, material, and construction) with digital design skills (Rhino + Grasshopper). Skilled or familiar with structural simulation tools like Karamba3D, Ameba Pro, ABAQUS, etc., will be perfect but not mandatory. Experience or basic knowledge in 3D concrete printing (3DCP) would be ideal but not compulsory.

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 iasef.rian@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 reference letters with company/university letterhead
- Personal statement outlining your interest in the position
- Proof of English language proficiency (an IELTS score of 6.5 or above)

- Verified school 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

Informal enquiries may be addressed to Dr. Iasef Md Rian (iasef.rian@xjtlu.edu.cn), whose personal profile is linked below, https://www.xjtlu.edu.cn/en/study/departments/design-school/architecture/department-staff/academic-staff/staff/iasef-rian