PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	Principal supervisor: Dr Thomas Selig (XJTLU) Co-supervisor: Professor Ka Lok Man (XJTLU) Co-supervisor: Dr. Erick Purwanto (XJTLU) Co-supervisor: Dr Viktor Zamaraev (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	New combinatorial perspectives on parking functions and their variations
Contact	Please email Thomas.Selig@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/ThomasSelig

Requirements:

The candidate should have a first class honours degree, or a master's degree (or equivalent qualification), in Mathematics, Computer Science, or a related subject. They should have a reasonably good background in Discrete Mathematics, some knowledge of Combinatorics, and at least basic programming skills. Prior knowledge of parking functions is not expected. 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:

In parking problems, a given number of cars enter a one-way street sequentially, and try to park according to a specified preferred spot in the street. Various models are possible depending on the chosen rule for collisions, when two cars have the same preferred spot. In classical parking functions, if a car's preferred spot is already occupied when it enters the street, it drives on to find the first available spot, and parks there. Parking functions were originally introduced by Konheim and Weiss (1966) in their study of hashing functions. Since then, parking functions and their variations have been widely studied in Mathematics and Theoretical Computer Science, with rich combinatorial connections to diverse fields such as graph theory, representation theory, hyperplane arrangements, discrete geometry, and statistical physics. The goal of this project is to deepen combinatorial studies of existing parking function families, and define and study new variations on the parking problem.

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 the principal supervisor (Thomas.Selig@xjtlu.edu.cn) with 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

Informal enquiries about the position are also welcome.