

PhD studentship (Full-time)



Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Electrical and Electronic Engineering
Supervisors	Principle supervisor: Dr. Sanghyuk Lee (Xi'an Jiaotong-Liverpool University) Co-supervisor: Dr. Tingting Mu (University of Liverpool, UK); Prof. Eng Gee Lim (Xi'an Jiaotong-Liverpool University) Prof. Shouyan Wang (Chinese Academy of Science, China) Prof. Kyu Sung Kim (Inha University Hospital, Korea)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Information Analysis of Multi-channel Data with Measure Theory 基于测度理论的多通道数据的信息分析
Contact	Please email doctoralstudies@xjtlu.edu.cn and copy to Sanghyuk.Lee@xjtlu.edu.cn 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 electrical or electrical engineering/computer science. Evidence of good spoken and written English is essential. The candidate should have an IELTS score of 6.5 or above, or an equivalent qualification, 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 3500 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 three months, if this is required by the project.

Project Description:

Getting information from high dimension and multi-channel data is a big challenge for clustering and pattern recognition problem. In order to process multi-channel data such as multi-channel electromyography (EMG), feature extraction and classification process are needed. Different absolute mean value (DAMV), different absolute standard deviation value (DASDV), mean absolute value (MAV), and Zero crossing (ZC) methodology were used to get feature extraction. For classification, neural network (CNN) and other heuristic approach were applied. However, to get better performance hybrid structure with analytic approach is required. Euclidian or Manhattan distance and heuristic method showed effective, and design of similarity measure with two characteristics was effective in previous research. Research output on multi-channel data can be applied to more complex system such as security business including fingerprint and iris identification, and image processing enhancement, and the others recently. In a broad range of application areas including engineering and business, data is being collected at unprecedented quantity. Program is desired to undertake further investigations on the following research topics:

- Analysis of uncertain data

Data uncertainty analysis needs mathematical backgrounds such as real number analysis, integration, statistics and related topic. Based on these fundamentals, **we aim to provide a general result of data analysis methodology by means of similarity measures and entropy design.**

- Multi-channel data analysis with measure theory, and retrieve characteristics form data sets.

It is evident that the size and the numbers of experimental data sets available are increasing exponentially as the technology advances. In order to solve classification and clustering problems, **similarity measures and data processing techniques are needed.**

- Design of similarity measure and application to data.

Finally, **similarity measure and analyzing identifying measure is verified by applying to multi-channel data or artificial data.**

Research progress and outcomes will be accomplished through providing academic opportunity such as regular seminar, paper submission to conference/journal, and external collaboration.

For more information about doctoral scholarship and PhD programme at Xi'an Jiaotong-Liverpool University (XJTLU): Please visit

<http://www.xjtlu.edu.cn/en/admissions/phd.html>

<http://www.xjtlu.edu.cn/en/admissions/phd/feescholarships.html>

How to Apply:

Interested applicants are advised to email the following documents to Doctoralstudies@xjtlu.edu.cn (please put the project title and primary supervisor's name in the subject line).

- CV
- Two reference letters
- Personal statement outlining your interest in the position
- Proof of English language proficiency (an IELTS score of above 6.5 or equivalent is required)
- 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)

Informal enquiries may be addressed to Dr. Sanghyuk Lee (Sanghyuk.Lee@xjtlu.edu.cn), whose personal profile is linked below, <http://academic.xjtlu.edu.cn/eee/Staff/sanghyuk-lee>