PhD studentship   (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Computer Science and Software Engineering
Supervisors	Principle supervisor: Dr. Ka Lok Man (Xi'an Jiaotong-Liverpool University) Co-supervisor: Prof. Steven Guan (Xi'an Jiaotong-Liverpool University) Co-supervisor: Dr. Prudence Wong (University of Liverpool, UK)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Middleware Support for Dynamic Sensing Applications 支持动态感知的中间件研究
Contact	Please email doctoralstudies@xjtlu.edu.cn and copy to ka.man@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 Computer Science, Computer Engineering or Electrical and Electronic Engineering. 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.

<u>Project Description:</u>

Wireless Sensor Networks (WSNs) are composed of embedded computers equipped with sensors, actuators and low-power radios that self-organise to form wireless networks capable of sensing the physical world. WSNs have proven to offer efficient solutions for critical problems such as precision farming, habitat/surveillance monitoring and logistics. Modern WSNs are evolving into multi-purpose platforms that must interoperate in order to achieve sensing application objectives. Despite their proven efficacy, WSNs uptake remains limited. This is primarily due to the complexity of current sensor programming approaches, which are closely integrated with the lowest layers of the software stack and require detailed knowledge of specific WSN hardware and software platforms. We motivate the proposed research from the perspective of logistics and transportation. Contemporary logistics sensor platforms are highly heterogeneous. At the hardware level, platforms offer a wide range of sensing, computing and networking facilities. At the software level, sensor nodes run a variety of operating systems and middleware. Current logistics sensor platforms are also highly distributed with third-party sensing infrastructure deployed in geographically distributed trucks, trailers and warehouses that should come together as required to enact a sensing application. Finally, sensing application requirements are also dynamic, with one WSN being used to support multiple sensing applications, such as location tracking, cold-chain monitoring or ensuring the safe storage of hazardous chemicals. The goal of the proposed research is to streamline the development of WSNs by offering a middleware platform and associated abstractions that support two key stakeholders in the WSN value chain: sensing application developers and sensing platform providers. A unifying network management module connects application developers to sensing platforms, while managing issues such as network dynamism and heterogeneity. As all stakeholders are shielded from concerns outside of their core area of competence, the complexity of developing sensing applications is reduced and barriers to entry are eliminated. The proposed approach will be validated in the application domain of logistics.

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/feesscholarships.html

<u>How to Apply:</u>
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. Ka Lok Man (ka.man@xjtlu.edu.cn), whose personal profile is linked below,
http://academic.xjtlu.edu.cn/csse/Staff/ka-man