**PhD studentship (Full-time)**

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| Institution | Xi’an Jiaotong-Liverpool University, China |
| School | School of Advanced Technology |
| Supervisors | Principal supervisor: Professor Steven Guan (XJTLU)  Co-supervisor: Dr Yutao Yue (JITRI)  Co-supervisor: Professor Eng Gee Lim (XJTLU)  Co-supervisor: Professor Prudence Wong (UoL) |
| Application Deadline | Open until the position is filled |
| Funding Availability | Funded PhD project (world-wide students) |
| Project Title | **Neuron-Symbolic Technology of Dynamic Transportation Perception**  **动态交通感知的神经符号技术研究** |
| Contact | Please email Steven Guan (Steven.Guan@xjtlu.edu.cn) and Dr Yutao Yue (yueyutao@idpt.org) 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 Mathematics, physics, computer, automation and other related professional background (数学、物理、计算机、自动化等相关专业背景)

Strong knowledge background in machine learning (有较强的机器学习领域知识背景)

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:**

This PhD project is a collaborative research project between XJTLU (<http://www.xjtlu.edu.cn>) at Suzhou and JITRI (Jiangsu Industrial Technology Research Institute) Institute of Deep Perception Technology (IDPT) at Wuxi. The student will be registered as an XJLTU PhD student but is expected to carry out the major part of his or her research at the Institute at Wuxi.

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). In addition, during the period of undertaking main research at institute in Wuxi, the PhD candidate will be provided with monthly living allowance at a standard RMB 3000-6000 by Institute of Deep Perception Institute.

**Project Description:**

Cameras can perceive the appearance, color and shape information of objects in the environment, and are widely used in target classification, target detection, target segmentation, target tracking and other fields. With the development of deep learning, although significant progress has been made in general target detection, the detection of vehicles and pedestrians in autonomous driving is different from general target detection, so there are still many challenges in the detection of vehicles and pedestrians in the driving environment. Based on the video or image captured by road conditions, the scale distribution range of vehicles and pedestrians is very wide, and small and medium-sized targets account for a large proportion. The existing target detection algorithms have low accuracy in detecting small and medium-sized vehicles and pedestrian targets. It is necessary to study the multi-scale vehicle and pedestrian detection under real road conditions, and study the detection algorithm that is suitable for multi-scale targets and can significantly improve the detection effect of small and medium-scale targets.

摄像头可以感知所处环境中物体的外貌、颜色和形状信息，被广泛应用在目标分类、目标检测、目标分割、目标跟踪等领域。随着深度学习的发展，通用目标检测虽然取得了显著的进展，但是由于自动驾驶中车辆和行人的检测与通用目标检测不同，所以在驾驶环境下的车辆和行人检测仍旧存在很多挑战.。基于路况拍摄的视频或者图像，车辆和行人的尺度分布范围很广，中小尺度目标占比很大，现有的目标检测算法对中小尺度的车辆和行人目标检测精度很低。需要针对真实路况下多尺度的车辆与行人检测进行了研究，研究适用多尺度目标，对中小尺度目标检测效果有显著提升的检测算法。

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

<http://www.xjtlu.edu.cn/en/study-with-us/admissions/entry-requirements>

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

**Supervisor Profile:**

**Principal Supervisor:**

Steven Guan (Sheng-Uei Guan) received his BSc. from Tsinghua University and M.Sc. & Ph.D. from the University of North Carolina at Chapel Hill.  
  
He is currently an Honorary Professor at University of Liverpool & also a Professor at Xi'an Jiaotong-Liverpool University (XJTLU). He served the head of department position at XJTLU for 4.5 years, creating the department from scratch and now in shape. Before joining XJTLU, he was a tenured professor and chair in intelligent systems at Brunel University, UK.  
  
Prof. Guan has worked in a prestigious organization for several years, serving as a design engineer, project leader, and department manager. After leaving the industry, he joined the academia for three and half years. He served as deputy director for the Computing Center and the chairman for the Department of Information & Communication Technology. Later he joined the Electrical & Computer Engineering Department at National University of Singapore as an associate professor for 8 years.  
  
Prof. Guan’s research interests include: machine learning, computational intelligence, big data analytics, mobile commerce, modeling, networking, personalization, security, coding theory, and pseudorandom number generation. He has published extensively in these areas, with 140+ journal papers and 200+ book chapters or conference papers. He has chaired, delivered keynote speech for 100+ international conferences and served in 190 international conference committees and 20+ editorial boards.

**JITRI co-supervisor:**

Dr. Yutao Yue received his Bachelor's degree of applied physics from University of Science and Technology of China, master and PhD degrees of computational physics from Purdue University of USA. He then served as team leader of Guangdong “Zhujiang Plan” 3rd Introduced Innovation Scientific Research Team, senior scientist and Chief Human Resources Officer of Shenzhen Kuang-Chi Group, etc.  
  
His research interest include computational modeling and artificial intelligence, radar vision fusion, electromagnetic fields, etc. He has been engaged in frontier technology research and development and industrialization for 20 years. He has co-invented 354 granted Chinese patents, 18 USA patents, and 7 EU patents. He has led 6 major research projects with a total funding of nearly 150 million RMB. He has advised 13 postdoc research fellows, published over 20 papers, and received multiple awards including Wu Wenjun Artificial Intelligence Science and Technology Award. He has been received by General Secretary Xi Jinping due to outstanding achievements.

**How to Apply:**

Interested applicants are advised to email Steven.Guan@xjtlu.edu.cn and (yueyutao@idpt.org) 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