PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	Principal supervisor: Dr. Limin Yu (XJTLU) Co-supervisor: Prof. Baojiang Li (JITRI) Co-supervisor: Prof. Fei Ma (XJTLU) Co-supervisor: Dr. Linglong Yuan (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Research on artificial intelligence algorithms for radar and vision fusion technology 面向雷达与视觉融合技术的人工智能算法研究
Contact	Please email limin.yu@xjtlu.edu.cn (XJTLU principal supervisor's email address) or nuaalbj@163.com (JITRI supervisor's email) 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 Signal Processing, Telecommunications, Computer science and Machine Learning. 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) in Suzhou and JITRI (Jiangsu Industrial Technology Research Institute) Institute of Deep Perception in 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 in 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 of 3000-7000RMB by JITRI Institute of Deep Perception.

Project Description:

Cameras can perceive the appearance, color, and shape information of objects in the environment and are widely used in object classification, object detection, object segmentation, object tracking and other fields. However, it has drawbacks in recognizing the distance and speed of an object. Radar (refers to millimeter-wave radar in this project) uses the Doppler principle to measure the distance and speed of the object, and is not affected by external factors in the weather. Therefore, the combination of camera and radar can realize the perception of all-round attributes of the object and can meet the needs of working in all-weather conditions. At present, with the rapid development of deep learning technology, multi-sensor fusion has attracted more and more attention. However, the technology of radar-camera fusion is far from mature, especially the multi-modal object association, object detection and tracking technology in the moving environment, which has also become a bottleneck restricting the wide application of radar-camera fusion technology. This project takes radar-camera fusion as the research object and conducts systematic research on the perception of the environment by the radar-camera, the processing and understanding of sensor information, and the mapping of perception information to the decision. Besides, this project applies the method of deep learning to the fusion of radar and camera to establish a unified deep learning model to analyze the data of radar and camera. In addition, this project will also be combined with actual scenarios to develop products of radar-camera integration in intelligent transportation, assisted driving, consumer electronics, security monitoring, robots and other industries.

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。然而，其在识别物体的距离和速度方面存在缺陷。雷达（本课题指的是毫米波雷达）利用多普勒原理可以测得目标的距离和速度，并且不受天气外界因素的影响。因此，摄像头和雷达的组合可以实现目标全方位属性的感知和满足全天候工作的需求。目前，随着深度学习技术的快速发展，多传感器融合也越来越受关注。但雷达-摄像头融合的技术远未成熟，特别是多模态的目标关联以及运动环境中的目标的检测与跟踪技术，这也成为制约雷达-摄像头融合技术广泛应用的瓶颈。本课题以雷达-摄像头融合为研究对象，围绕雷达-摄像头对环境的感知、传感信息的处理与理解、以及感知信息到决策映射等方面展开系统的研究。课题将深度学习的方法应用于雷达-摄像头的融合，从而建立统一的深度学习模型来分析雷达与摄像头的数据。本课题还将与实际场景结合起来，开发雷达-摄像头融合在智能交通、辅助驾驶、消费电子、安全监控、机器人等行业里的产品。

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:

Link of Profile: https://www.xjtlu.edu.cn/en/departments/academic-departments/communications-and-networking/staff/limin-yu

JITRI co-supervisor:、

Link of Profile: https://www.xjtlu.edu.cn/zh/staff?department=jitri&alias=baojiang-li

江苏省产业技术研究院深度感知技术研究所

无锡市新吴区软件园天鹅座 C 座 22-23 层

How to Apply:

Interested applicants are advised to email: limin.yu@xjtlu.edu.cn (XJTLU principal supervisor's email address) or nuaalbj@163.com 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