

PhD studentship (Full-time)



Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Computer Science and Software Engineering
Supervisors	Principal supervisor: Dr. Xiaohui Zhu (XJTLU, CSSE) Co-supervisor: Dr. Yutao Yue (JITRI) Co-supervisor: Professor Yong Yue (XJTLU, CSSE) Co-supervisor: Dr. Andrew Levers (UoL, School of Engineering)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Self-learning Method of Object Detection and Grabbing Process for Robot Intelligent Grabbing in Unstructured Environment
Contact	Please email xiaohui.zhu@xjtlu.edu.cn (XJTLU principal supervisor's email address) or yueyutao@idpt.org (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 Computer Science 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, 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 (<http://www.idpt.org/>) in Wuxi. The student will be registered as an XJTLU PhD student but is expected to carry out the major part of his or her research at the Institute in Wuxi. Tripartite agreement will be signed among student, XJTLU and institute.

The PhD scholarship 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 an annually stipend at a standard around 60,000 RMB as a contribution to living, meal and accommodation allowance.

Project Description:

Grasping operation is the basic task of many robot operation tasks, which requires the robot to have the ability to perceive the environment, to process and understand the acquired sensing information, and finally to make decisions and complete the grasping operation. At present, the robot can quickly pick up and sort the rules in a single and structured environment similar to the factory assembly line. In this kind of structure environment, the rule item grabbing has been widely used in industry, logistics and other fields related to sorting, and has achieved good application results. Unstructured environment refers to the unstable, unrecognizable and indescribable environment in which the robot is located, and the characteristics of the object being grabbed are unknown in advance. In the unstructured environment, the object grabbing involves the technology of environment perception, perceptual information processing and understanding, irregular object grabbing and so on. The technology is far from mature, especially in the case of unknown object related characteristics and irregular object shape in advance, which has become the bottleneck restricting the wide application of many robot operations. In this paper, robot intelligent grasping in unstructured environment is taken as the research object, and systematic research is carried out around two challenging problems: robot flexible hand grasping and robot perception of unstructured environment, processing and understanding of sensing information, and mapping of sensing information to operation space. In this project, the deep learning method is applied to the recognition of the captured objects and the detection of the captured points. The method based on the deep learning is used to self-study the process of human grabbing, and the parallel grabbing method based on the digital simulation model is studied.

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:**

Xiaohui Zhu: https://www.researchgate.net/profile/Xiaohui_Zhu11

Dr. Xiaohui Zhu received his BSc from Soochow University in 1999, MSc from Jiangxi Normal University in 2007 and PhD from the University of Liverpool in 2019. He is currently a Lecturer at the Department of Computer Science and Software Engineering, Xi'an Jiaotong-Liverpool University (XJTLU). Before joining XJTLU, he was an associate professor at Nantong University, China. From 2011 to 2017, he visited several European universities for academic exchange such as the University of Bedfordshire in the UK, the University of Edinburgh in the UK, the Tampere University of Technology in Finland and the University of Oldenburg in Germany. Dr. Zhu's

research interests include Artificial intelligence and its application, especially in multi-objective optimization, autonomous navigation and collision avoidance, fast path planning, and USV-related algorithms and applications.

Yong Yue: <https://www.xjtlu.edu.cn/index.php?cultureKey=en&q=staff&department=computer-science-and-software-engineering&alias=yong-yue>

Andrew Levers: <https://www.liverpool.ac.uk/engineering/staff/andrew-levers/>

JITRI co-supervisor:

Yutao Yue: https://www.researchgate.net/profile/Yutao_Yue

Dr. Yutao Yue got his PhD in Computational Physics from Purdue University, United States in 2010. He was a senior researcher, Scientist, Senior Scientist and Division Director at Kuang-Chi Institute of Advanced Technology from 2011 to 2017. He was also the team leader of “Guandong Introduced Innovation and Scientific Research Team” between 2012 and 2017 and an associate professor at Southern University of Science and Technology between 2017 and 2018. Since 2018, he has been the President of JITRI Institute of Deep Perception Technology. His research interests are in perception technologies such as radar, antennas, computational electromagnetics, vision, sensor fusion, etc.

How to Apply:

Interested applicants are advised to email xiaohui.zhu@xjtlu.edu.cn (XJTLU principal supervisor's email address) or yueyutao@idpt.org (JITRI supervisor's email) 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