

## PhD studentship (Full-time)



Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Computer Science and Software Engineering
Supervisors	Principal supervisor: Dr. Jieming Ma (XJTLU, CSSE Department) Co-supervisor: Dr. Hai-Ning Liang (XJTLU, CSSE Department) Co-supervisor: Prof. Frans Coenen (UoL, CS Department) Co-supervisor: Dr. Ji Ge (JITRI, Micro-Nano Automation Institute)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Automated Three-Dimensional Inspection System for Deep Drawing Parts
Contact	Please email <a href="mailto:Jieming.Ma@xjtlu.edu.cn">Jieming.Ma@xjtlu.edu.cn</a> 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, Math 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>) and JITRI (Jiangsu Industrial Technology Research Institute) Micro-Nano Automation Institute (<http://www.jitrimnai.com/>), both of which locate at Suzhou, China. 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. 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 around 40,000~60,000 RMB as a contribution to living allowance.

### **Project Description**

Collaborated company is a Tier One automotive parts supplier and a major manufacturer of large structural assemblies, chassis components and etc., more than 2,000 deep drawing

parts per day were manufactured for customers like BMW, Ford, or GM. Geometry Dimensions & Tolerances (GD&T) of all manufactured parts should meet the customers' accuracy requirements (typically tolerances of hole diameters and spatial coordinate of edge points are less than  $\pm 0.5\text{mm}$ ). Ideally, all parts should be fully inspected before the delivery to the customer. However, manual inspection method is still applied at the collaborated company by mounting parts on customized checking fixtures and thus dimensions are checked with different gauges/feelers. Typically, it could take about 10~30 minutes to fully inspect the required spatial dimensions of one part. Manual inspection method is tedious, time consuming and prone to operational errors. Furthermore, customized stainless steel-made checking fixture is highly costly and incompatible between different customers. Checking fixtures are replaced following new products launch or model upgrades. Hence, the intern will develop an automated 3D dimensional inspection system for deep drawing parts. After manually mounting the part, the system will fully scan the whole part by 3D scanners through 360° rotation of the part. Interested features like primitives, holes, edges, diameters or angles then can be calculated or determined through 3D point clouds data post-processing. Shape and position tolerances will be evaluated if they can meet the customer's requirements. The expected inspection accuracy and speed will be less than 0.3 mm and 1 min/part respectively.

### **How to Apply**

Informal enquiries may be addressed to Dr. Jieming Ma ([Jieming.Ma@xjtlu.edu.cn](mailto:Jieming.Ma@xjtlu.edu.cn)), please find Dr. Ma's personal profile [here](#).

Applicants are required to prepare the following documents to upload onto the [online application system](#) to submit formal application.

- [Research proposal](#)
- Full academic transcripts of university studies and grading system (both bachelor and master)
- University degree certificate or enrollment statement (both bachelor and master)
- Verification report of degree certificate (Chinese students only, both bachelor and master)
- A copy of Master dissertation (or an equivalent writing sample) and examiners reports if applicable
- Certificates of English language qualifications
- Personal statement
- Two formal reference letters
- A copy of your passport (for international students only)

For more information about the application of doctoral scholarship and PhD programme at Xi'an Jiaotong-Liverpool University (XJTLU), please visit:

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