



Digital interactive robotic structure-light metrology system
EPSRC funded PhD studentship with full fee waiver and £21,805 pa stipend (2026/27 rate)

Project Code: DLA_DTP_2026_25
Main Supervisor: [Dr Yongjia Xu](#)
Co-Supervisor: [Prof Dame Jane Jiang](#),
[Dr Feng Gao](#)

metrology process and virtual data. Two objectives are established: 1. create a digital twin-driven framework for the metrology robotics system; 2. integrate all physical/virtual elements into the digital twin framework to significantly improve manufacturing efficiency.

Project Introduction

This project aims to create a digital inspection system with intelligent metrology robotics for improving manufacturing productivity and meet net zero. A digital twin-driven framework will be developed for structured-light robotic system by integrating various metrology control information and data to minimise setup time, optimise metrology process, reduce scrap rates, and facilitate the operator's decision-making. Consolidated data will be presented to operators through smart human-machine interfaces to achieve real-time simulation and control. CPT will provide strong support to the proposed project in experiment space, and equipment.

3. Methodology

A digital twin-driven framework will be developed for structured-light robotic system. This would integrate various metrology control information and data to minimise setup time, optimise metrology process, reduce scrap rates, and facilitate the operator's decision-making. A generic framework modelling technique will be developed to accurately collect and stitch multidimensional processing data (e.g. geometric data of metrology robotic system, CAM/CAD models, real-time control signals, and metrology feedback). The consolidated data would be presented to operators through smart human-machine interfaces to achieve real-time simulation and control.

Project Details

1. Background

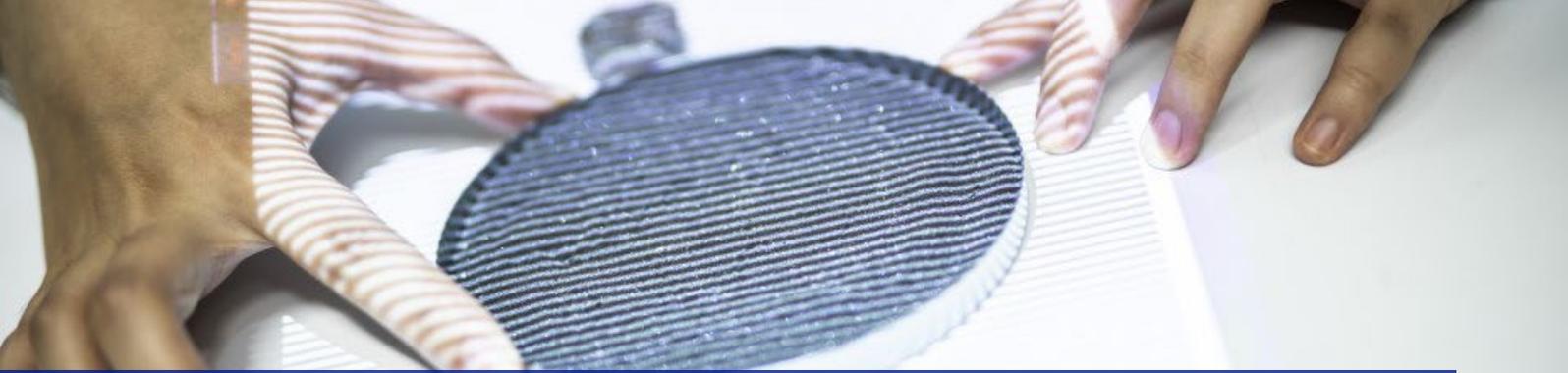
Current robotic metrology methods rely heavily on simulation data and computer aided design (CAD) data. Real-time metrology data and historical data is rarely used, illustrating the lack of convergence and interaction between the physical metrology process and virtual data. This severely limits improvement to processing efficiency.

2. Aim and objectives

This project aims to develop a digital twin-driven metrology robotics framework. This will establish a real-time connection between the physical

4. Research environment

CPT has undertaken leadership of several EU and EPSRC projects, which are equipped with state-of-the-art ultra precision machines and surface metrology equipment. CPT will provide strong support to the proposed project in experiment space, and equipment such as robot platform, optical platform, visible laser devices, precise mobile platform, imaging devices, etc.



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Project-specific entry requirements

Good programming skills, such as Matlab, Python.

Further Information

This call is open to **UK Applicants only**.

Applicants should be of outstanding quality and exceptionally motivated.

The studentships are funded for 3 years (subject to satisfactory annual performance and progression review) and will provide for tuition fees and a tax-free stipend paid monthly.

Please note that there are more projects than funded studentships available and therefore this is a competitive application process which will include an interview. Shortlisted candidates will be contacted for an interview in person or via Teams. After interview the most outstanding applicants will be offered a studentship.

Queries about the application process are welcome and should be emailed to pgrscholarships@hud.ac.uk.

Informal enquiries about this project should be directed to [Dr Yongjia Xu](#).

Type of Award: Doctor of Philosophy (PhD).

Eligibility: UK applicants only. First Class or Upper Second-Class Honours degree or equivalent in a relevant subject area, please refer to the entry requirements on the specific projects being advertised.

Location: Huddersfield.

Funding: 3 years full time research covering tuition fees and a tax-free bursary (stipend) starting at £21,805 for 2026/27 and increasing in line with the EPSRC guidelines for the subsequent years. Funded via the Engineering and Physical Sciences Research Council Doctoral Training Programme.

Duration: 3 years full-time plus 12 months writing up (please note no funding available for writing up period).

Closing date: 28th April 2026

Start date: 1st October 2026

Application details

- Go to the EPSRC webpage and download the [Expression of Interest Form 2026](#).
- Provide copies of transcripts & certificates of all relevant academic and professional qualifications.
- Provide references from two individuals – please contact your referees and ask them to send them directly to pgrscholarships@hud.ac.uk from their email address.
- Proof of eligibility – e.g. scan of passport photo page.
- Completed forms, including all relevant documents should be submitted via-email to pgrscholarships@hud.ac.uk.

Please note: if you do not attach all the relevant documentation prior to the closing date your application will not be considered.