

Fully Funded EPSRC PhD Case studentship.

Project Title: Data-driven intelligent micro and nanomanufacturing technologies for functional surfaces

The importance of big data and artificial intelligence is increasingly emphasized in future manufacturing. It offers a tremendous opportunity to transform today's manufacturing paradigm to the data-driven intelligent manufacturing, which allow continuously development of cost-effective manufacturing technologies with improved product quality.

The aim of this PhD research project is to develop data-driven intelligent micro and nanomanufacturing technologies for high value-added functional surfaces. The data lifecycle of functional surfaces includes design, manufacturing, metrology and application. Systematic research work will be conducted to acquire, classify and analyse data measured by embedded sensor nets (dynamometer, accelerometer, optical probe, capacitive sensor etc) in micromachining environment. A production data model will then be established to predict surface quality and to optimise the manufacturing process. Correlation studies will be carried out to identify the links between processing parameters, surface quality, and achievable surface functionalities. Artificial Intelligent algorithms will be employed to optimise the data processing process. The research work will enable improved machining efficiency, surface quality and lead to the development of a self-adaptive micro/nanomachining system.

Eligibility: The student must have a high-grade qualification, at least the equivalent of a UK 1st or 2:1 class degree or MSc with distinction in Physics, Engineering or related disciplines. The student must be proficient in both written and spoken English, and possess excellent presentation and communication skills.

Salary: £15,285 (2020/21 EPSRC Standard)

Contact:

Dr Zhen Tong
Senior Research Fellow
Future Metrology Hub
Centre for Precision Technologies
University of Huddersfield

Tel: 01484 473537

E-mail: z.tong@hud.ac.uk