Embedded Intelligence is characterised as the ability of a product, process or service to reflect on its own operational performance, usage load, or in relation to the end-user or environment in terms of satisfactory experience. This self-reflection, facilitated by information collected by sensors and processed locally or remotely to derive insight. These aspects must be considered from the design stage such as to enhance product lifetime and performance, increase quality of process or service delivery, or ensure customer satisfaction and market acceptance.

This new Centre is delighted to offer 15 studentships at Loughborough in the areas related to Embedded Intelligence. An industry sponsored enhanced stipend of £16,863 pa is offered, together with a personal budget of £10,000 per student to support their specific training needs.

The Centre is offering a unique 4-year Ph.D. programme, drawing on expertise in postgraduate teaching and research supervision in the fields of sensors, system design, embedded software and systems, manufacturing systems, novel manufacturing processing, applications engineering and systems services.

The Centre graduates will follow a bespoke, student-centric industry-informed programme of training, comprising:

- A focused, deep technical training and experience in an embedded intelligence thematic area central to their doctoral studies, coupled with group and individual industry-led projects from the first month of studies;
- Translational training in essential underpinning knowledge for embedded systems and technology;
- Transferable skills to fulfil the expectations for future leadership roles in industry, in society and as entrepreneurs.

About the Centre

This £13.6M EPSRC/industry/University jointly sponsored Centre is the first of its kind in Europe and addresses high priority areas such as autonomous complex manufactured products and systems, functional materials with high performance systems, data-to-knowledge solutions (e.g. digital healthcare and digitally connected citizens), and engineering for industry, life and health. This Centre will deliver well-trained, commercially aware, experienced graduates who shall alleviate the shortage of skilled professionals in the following thematic areas:
Device design, specification of sensors and measurement devices (power scavenging, processing, wired & wireless communications, design for low power, condition monitoring);

Packaging and integration technologies (reliability and robustness, physical and soft integration of devices, sub-components and wider system environment);

Software (low-level, embedded, system-level, database integration, service oriented architectures, services design);

Advanced and hybrid manufacturing processes and solutions for embedding, process consolidation technologies, biomimetics, and cradle-to-cradle for sustainable production;

Applications engineering (design and implementation of embedded technologies for in-time, in-line products, processes and supply chains; product and process design for embedded intelligence, requirements capture and implementation validation);

System services: (i) service foundations (e.g., data and process integration and semantic enhanced service discovery); (ii) service composition (e.g. composability analyses, dynamic and adaptive processes,); (iii) service management and monitoring (e.g. self: -configuring, -adapting, -healing, -optimising and -protecting), and (iv) service design and development (e.g. governance across supply chains).

**Added value for our PhD graduates**

Centre graduates will be at the forefront of the latest developments in Embedded Intelligence and be supported by over 45 academic members of staff at the two universities specialised in this field. They will be part of a 20-strong cohort of students recruited every year, working at critical industry research challenges.

Our students will benefit from the EPSRC’s acclaimed “Transition Zone” ethos, a unique Training and Development programme comprising:

1) Leadership, enterprise, innovation management, personal development, impact and social responsibility to facilitate the transition both into the Centre and also the eventual exit as an employable, high-value graduate.

2) Cohort-forming and personal research road mapping: a special feature of ‘Foresight’ activities (specialist, industrial, international as well as student-led peer-to-peer seminars) and a directed Reading Club;

3) Industry-led projects and on-demand industry training packages: group and individual projects with our core industry partners as well as personalised on-the-floor training activities.

4) Technical Foundations: comprising core and elective training packages that will see our students become conversant in all aspects of Embedded Intelligence.
Further information

There are five schools involved in the Centre at Loughborough, each contributing to a broad technical scope. For information on the specific activity in each of the participating schools and research groups please contact as following:

- **Manufacturing Eng.** Prof Paul Conway  
  p.p.conway@lboro.ac.uk
- **Electronics and Electrical Eng.** Prof Yiannis Vardaxoglou  
  j.c.vardaxoglou@lboro.ac.uk
- **Design School** Dr Darren Southee  
  d.j.southee@lboro.ac.uk
- **Aeronautical and automotive Eng.** Dr Lisa Jackson  
  l.m.jackson@lboro.ac.uk
- **Centre for Information Management** Prof Tom Jackson  
  t.w.jackson@lboro.ac.uk

How to apply

Applications are now invited from exceptionally well-qualified students (1st class honours or upper 2nd class honours, or equivalent) who want to embark on a full-time research degree programme commencing in the Autumn Term 2014. Due to funding restrictions each studentship is valued at £16,726 plus tuition fees at the UK/EU rate. Non UK applicants must meet the minimum English language requirements, details available here:

[http://www.lboro.ac.uk/international/englang/index.htm](http://www.lboro.ac.uk/international/englang/index.htm)

For full details please visit the Apply link below.

[https://luis.lboro.ac.uk/web_apx/f?p=100:1](https://luis.lboro.ac.uk/web_apx/f?p=100:1)

For additional information and general enquiries please contact cdt-ei@lboro.ac.uk or visit www.cdt-ei.org

Candidates should use the reference ‘cdtei14’ in the funding section of the application form.

Candidates who wish to nominate a specific school at application may identify the appropriate named contact detailed above.

Deadline for applications: Friday 30th May 2014.

Interviews are planned to take place June/July 2014 and may take place at industrial partners’ sites.