

## **Research Associate in Physical Computing - Designing personalized gifts by combining physical things with digital contents (EPSRC Hybrid Gifts project)**

**REQ200208**

**As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.**

### **School summary**

Loughborough Design has a strong, internationally recognised research community and is now a major constituent of the newly formed School of Design & Creative Arts. Research in Loughborough Design aims to discover and develop new concepts and ideas in areas related to design, ergonomics and human factors. Loughborough Design has particular research strength in the design of experiences and this opportunity relates to this area. Annually we attract over £4 million in funding from external investors and businesses. This funding helps us undertake a number of research projects which aim to have a real impact on the world around us.

### **Project Description**

Hybrid Gifts is a recently awarded EPSRC project in collaboration with Loughborough Design School (Co-I) and the School of Computer Science in University of Nottingham (PI). This 30-month project (starting 1<sup>st</sup> of November 2019) aims to develop new kinds of hybrid products that can flexibly support powerful and engaging new gifting experiences. To achieve this, we will engage in two phases of work. Firstly, we will explore different mechanisms for combining the physical and digital into hybrid artefacts and map out the opportunities to create meaningful personalised gifts. This spans immersive augmented reality applications to run on a mobile phone to Internet-of-Things technologies embedded in new physical objects. By working 'in the wild' with real users, we will refine our designs to derive principles and guidelines to understand how the physical and digital facets of a thing can be combined and customised to add value to one another. Secondly, we will explore how to facilitate the creation and sharing of hybrid gifts with various stakeholders over their lifetime. Throughout the project, we will support producers to make hybrid artefacts; retailers to initially configure them; givers to make and personalise these as gifts for their recipients to unwrap them, enjoy them, reciprocate and ultimately pull them from obsolescence by re-gifting, recycling or repurposing.

Our work aims to create opportunities for UK companies to innovate new products and services in the global marketplace. Through collaboration with our industrial partners, we will explore how a range of different types of product might become hybrid gifts: fast-moving-consumer-goods such as bath product gift sets that could be coupled to a music track to create a multisensory experience; hand-crafted high-value artisan products such as jewellery that are enriched with stories about how a piece was made, reflections on why it was chosen by the giver and images of it in use by the receiver; and luxury food gifts such as chocolate that include information about the ingredients, but also a personal message from the giver to create an enhanced unwrapping experience. We will explore, create, enable and study these new products to understand their use and value, and generate a gifting toolkit to support this process for use by the community.

## Job Description

**Job Grade:** Specialist and Supporting Academic Grade 6

### Job Purpose

To undertake research into Interaction Design as a human-centred practice that acknowledges the power of technology to shape human experience and enhance the lived environment. The role will primarily focus upon exploration and design of “IoT products” and embrace emerging practices in developing hybrid products. The role also involves designing and testing prototypes, as well as engaging with users in the real-world context.

### Job Duties

- Conduct a literature review, leading to idea generation and development through iterative discussion.
- Work with other researchers in an interdisciplinary team.
- Collaborate with industrial partners to explore a range of different types of possible hybrid products.
- Explore, create, enable and study these new products to understand their use and value.
- Design a gifting toolkit to support this process.
- Implement functional prototypes using physical computing tools (e.g. Arduino, Raspberry Pi)
- Be responsible for conducting the day to day running of the project.
- To formulate detailed plans for the project based on broad guidance from the project team.
- To feed back to the project team on progress, to make recommendations for next steps.
- Write up regular progress reports and present outcomes to all Investigators and Collaborators.
- Travel to attend meetings and make presentations both within the project partners working group and to external stakeholders.
- To support the project team by enhancing relationships with existing collaborators and by assisting the establishment of relationships with new collaborators.
- To write research papers suitable for publication in high quality academic journals.
- To attend and contribute to conferences.
- Maintain confidentiality at all times and ensure that intellectual property (IPR) agreements are not violated.
- To assist the academic staff in the project team with the supervision of undergraduate MSc and PhD project work and day-to-day supervision and support of other researchers.
- Where appropriate, to deliver teaching, tutorial and laboratory sessions to students.
- Engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project and those of the School.
- Undertake other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

### Points To Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

### Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

### Organisational Responsibility

Reports to Dr Hyosun Kwon, Lecturer in Product Design and Technology

## Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below. Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

- 1 – Application
- 2 – Test/Assessment Centre/Presentation
- 3 – Interview

### Essential Criteria

| Area                 | Criteria                                                                                                     | Stage   |
|----------------------|--------------------------------------------------------------------------------------------------------------|---------|
| Experience           | Background in Product Design, HCI, Computer Science, or Electrical Engineering                               | 1,3     |
|                      | Experience in designing interactive products                                                                 | 1,3     |
|                      | Strong prototyping experience                                                                                | 1,3     |
| Skills and abilities | Knowledge of programming Arduino and/or Raspberry Pi software                                                | 1, 2, 3 |
|                      | Physical prototyping using 3D printing (with various materials)                                              | 1, 2, 3 |
|                      | Ability to embrace emerging practices.                                                                       | 1,3     |
|                      | Excellent written and oral communication skills                                                              | 1,3     |
|                      | Self-motivated with ability to meet deadlines                                                                | 3       |
|                      | Excellent interpersonal, and organisational skills                                                           | 1,3     |
|                      | Working knowledge of qualitative and quantitative research methods (Interview, Probe study, Field Study)     | 1, 2, 3 |
|                      | Ability to write project reports and make technical presentations to industrial and academic research groups | 1, 3    |
|                      | Ability to work independently and as part of a team.                                                         | 3       |
|                      | Confident to work in an interdisciplinary team.                                                              | 1,3     |
|                      | Knowledge of relevant Health & Safety issues                                                                 | 1       |
| Training             | Demonstrate evidence of having undertaken further training                                                   | 1       |
| Qualifications       | PhD (or near completion) in a relevant subject                                                               | 1, 3    |
| Other                | Commitment to observing the University's Equal Opportunities policy at all times.                            | 1, 3    |
|                      | Willingness to travel nationally and internationally in relation to Hybrid Gifts and other work requirements | 3       |

### Desirable Criteria

| Area       | Criteria                                                                                     | Stage   |
|------------|----------------------------------------------------------------------------------------------|---------|
| Experience | Experience of working in the area of gift exchange, IoT design, Tangible interaction Design. | 1, 2, 3 |
|            | Authoring original work for academic journal papers, conference papers or technical reports. | 1, 3    |
|            | Developing proposals for funding from external agencies                                      | 1, 3    |
|            | Working in a high-quality academic research environment                                      | 1, 3    |
|            | Experience of teaching and / or supervision of students in relevant areas                    | 1, 3    |

|                      |                                                                                                                                                        |      |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------|
|                      | Previous experience working on EPSRC projects                                                                                                          | 1, 3 |
| Skills and abilities | Advanced levels of knowledge of qualitative and quantitative methods and analysing data.                                                               | 1, 3 |
|                      | A strong publication track record                                                                                                                      | 1    |
| Qualifications       | PhD (or near completion) in subject related to Design in HCI, Pervasive Computing, and Ubiquitous Computing.<br><br>Recognised teaching qualifications | 1    |
| Other                | Able to travel independently and adapt working patterns                                                                                                | 1    |

## Conditions of Service

This offer of appointment is **full-time** and **fixed-term** for 15 months (*term length will be reduced if candidate commences role post January 2021 due to funding restrictions*). Requests for part time working will also be considered and should be highlighted in your application.

Salary will be on Specialist and Supporting Academic Grade 6, (£30,942 to £40,322 per annum), at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's Terms and Conditions of Employment for Grade 6 and above details of which can be found [here](#).

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which can be found [here](#).

The University offers a wide range of employee benefits which can be found [here](#).

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: <http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html>)

In addition, the University is supportive, wherever possible, of flexible working arrangements. We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see <http://www.lboro.ac.uk/services/hr/athena-swan/>