



A QUICK INFORMATION GUIDE

# BCS Lovelace Colloquium



The 17th BCS Women Lovelace Colloquium  
University of Liverpool  
04th April 2024



Poster contests open to all **women and non-binary UG/PGT** taught students of computing in the UK, with categories for:

first year / foundation year  
second year/ industrial year  
final year UG  
MSc / final year MEng/MComp

Conference will also consist of great talks, employer stands, social event, free food...

Travel bursaries and accomodation available (if required)



SCAN FOR MORE  
INFORMATION

To enter submit a 250 word abstract by 5th February 2024 for a chance to win prizes (£300 for 1st place)



# BCS Lovelace Colloquium

HOSTED BY THE UNIVERSITY OF LIVERPOOL

An annual one-day conference for women and non-binary students of Computing and related subjects.

This event aims to

- To provide a forum for undergraduate and masters students to share their ideas and network
- To provide a stimulating series of talks from women in computing, both from academia and industry
- To provide both formal (talks) and informal (networking) advice to undergraduates and masters students about careers in computing from women and non-binary people's perspectives

# What's an abstract?

A 250-word write-up on any on any computing topic you like

Includes points covering these questions.

- What is your paper about?
- Why is it important?
- How did you do it?
- What did you find?
- Why are your findings important

Call for abstracts:

[https://bcswomenlovelace.bcs.org/?page\\_id=92](https://bcswomenlovelace.bcs.org/?page_id=92)

Sample student abstracts:

[https://bcswomenlovelace.bcs.org/?page\\_id=94](https://bcswomenlovelace.bcs.org/?page_id=94)



# What's a poster?

Presents abstract in a visual form

A1 size max, if you can, but A2 is fine or two pieces of A2.

Sample student posters:

[https://bcswomenlovelace.bcs.org/?page\\_id=478](https://bcswomenlovelace.bcs.org/?page_id=478)

## Could IoT Solve the Care Crisis?

### The Crisis in Homecare

Over 950,000 people currently receive formal homecare in the UK. Roughly 6 million further people provide unpaid care to loved ones. This can cause emotional and economic stress for families. It is generally thought that care services are inadequate and oversubscribed. Formal care services can cost around £20 an hour for people who do not qualify for council funding, which often leaves people unable to afford necessary care. Carers are also subject to low pay and long hours. Therefore, homecare provision in the UK can be said to be in crisis.

### What is IoT?

Internet of Things, or IoT, is a technology based on collecting data from numerous devices in a network connected to the internet. These devices collect and share data about their use and environment, which can then be analysed to perform specific actions.

In a homecare setting a network of IoT devices can monitor the wellbeing of the individual and perform some actions that would otherwise require a carer to attend. This allows existing care resources to be better distributed and can increase people's independence at home.

### Examples of Homecare Devices

Fridges keep logs of items and send reminders when they near expiry dates - beneficial for those with memory or vision difficulties.

Sensors and smart meters measure usage of utilities, alerting carers to anomalies.

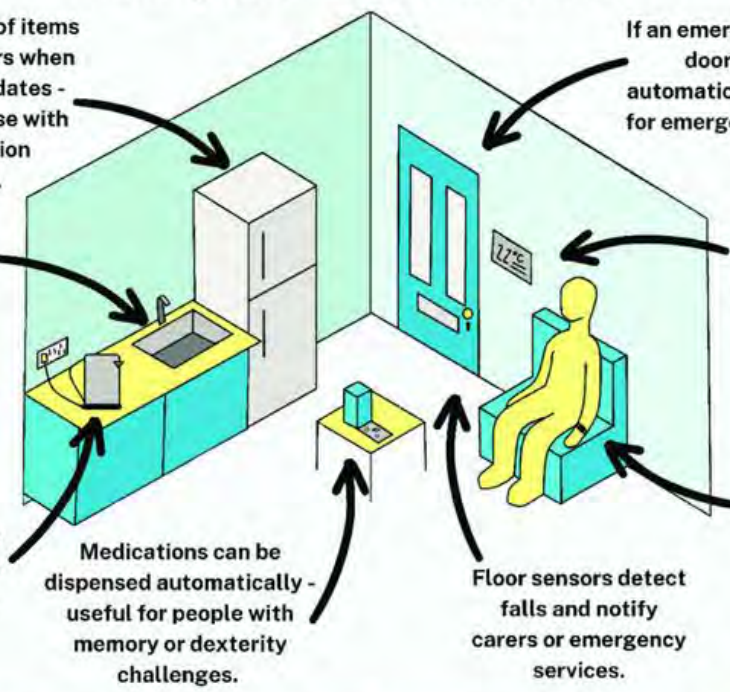
Sensors detect if everyday appliances are used with typical frequency, alerting carers if not.

Medications can be dispensed automatically - useful for people with memory or dexterity challenges.

If an emergency occurs, doors can be automatically unlocked for emergency services.

Heating can be controlled remotely, by both the individual and their carers.

Wearable tech can monitor wellbeing, such as heart rate, blood pressure, and blood sugar.



### What Could Go Wrong? - Areas for Consideration

#### Technical

- The technology and standardisation of IoT networks may not be currently developed enough to provide a solution. Future development is needed.
- People's wellbeing would be reliant on technical devices. Bugs or oversights could be life-threatening in some cases.
- Security vulnerabilities must be carefully considered when controlling a whole home with IoT. How secure can it be for a computer to control a front door lock?

#### Environmental

- Having many electronic sensors and devices in the home would increase energy consumption. A large amount of data needs to be stored in servers, creating a potentially huge carbon footprint.
- Sensors require physical resources which can be environmentally damaging such as lithium and silicon.
- Sensors will eventually generate masses of e-waste which is difficult to dispose of safely.

#### Ethical

- For many people, a visiting carer is the only social contact they have. Reducing this will likely increase feelings of isolation and loneliness.
- Giving carers a high level of control over someone's home could create the potential for abuse, or limit the autonomy of the individual.
- Over-reliance on IoT for homecare could devalue carers in society or discourage proper governmental funding and support for care workers.

### The Future of Care?

The use of IoT in homecare could automate some services provided by human carers. This allows limited care resources to be better distributed and would reduce the workload of unpaid caring family and friends. Many people may prefer the increased independence an IoT care system offers, rather than relying on a carer in their home. However, IoT cannot fully replace all the services and the social aspect of in-person care and should not be a substitute for adequate funding of the care sector. IoT could be a valuable supplement to homecare, but is not a fix-all solution.

References:  
1. The Internet of Things (IoT) - A Guide to the Technology and Its Applications  
2. The Internet of Things (IoT) - A Guide to the Technology and Its Applications  
3. The Internet of Things (IoT) - A Guide to the Technology and Its Applications  
4. The Internet of Things (IoT) - A Guide to the Technology and Its Applications  
5. The Internet of Things (IoT) - A Guide to the Technology and Its Applications  
6. The Internet of Things (IoT) - A Guide to the Technology and Its Applications



# Logistics

- The event is free to attend
- Poster contest finalists will be automatically registered
- Brunel covers poster printing and travel for finalists
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**Tip:** Use links to go to a different page inside your presentation.

**How:** Highlight text, click on the link symbol on the toolbar, and select the page in your presentation you want to connect.

# Brunel @ Lovelace 2023

100% acceptance rate last year for Brunel

MSc, Year 1, and Year 3 students

- DISCRIMIN"AI"TORY ROBOTS
- 1, 2, 3 ... Can you detect my breathing? Use of Machine Learning to classify respiratory breathing types
- Explainable AI for cyber security applications
- Cyberforensics

