“Trust me I’m a RoboDoc”: An investigation into the ethical, social and technology implications in next-generation autonomous healthcare robots.

Type of award  PhD Research Studentship

Department  Engineering Mathematics

Scholarship Details  Minimum £15,285 p.a. (£15,609 in 2021/22) subject to confirmation of award.

Duration  3.5 years

Eligibility  Home (UK) and EU citizens who have confirmation of UK settlement or pre-settlement status under the EU Settlement Scheme.

Start Date  From July 2021

PhD Topic Background/Description

Robotic assisted surgery is becoming more common, in which the surgeon uses a robot as an extension of themselves to enhance the precision of the work, reduce cognitive load and reduce the need for large incisions. Robots are also becoming increasingly explored for supportive physiotherapy, long term mobility assistance of older and disabled people, and as companions to support mental health. Such close and fundamental robot-human physical interactions are not without risks, and problems may occur because of human error, misuse, or limitations in the underlying technologies – sometimes with fatal consequences. As autonomy in healthcare robotics increases, the connection between the clinician and the patient becomes more distant and complex. For example, the autonomous surgical robot may perform surgical procedures even without a surgeon present, and an assistive robot at home may decide on its own how to treat a frail and vulnerable patient.

This project will explore the exciting new and complex world of autonomous robotics in healthcare. The scope of this PhD is wide and will consider the intersection and interplay of ethics, societal implications, human factors and state-of-the-art robotic technology, including soft, wearable and surgical robots.

We welcome applications from students with any disciplinary background who can show they have an aptitude for interdisciplinary working across engineering, ethics, and society.

URL for further information: https://tasfunctionality.bristol.ac.uk/

Further Particulars

Candidate Requirements

Applicants must hold/achieve a minimum of a Masters degree (or international equivalent) in a relevant discipline. Applicants without a Masters qualification may be considered on an exceptional basis,
provided they hold a first-class undergraduate degree. Please note, acceptance will also depend on evidence of readiness to pursue a research degree.

Basic skills and knowledge required:

- **Essential:**
  Excellent analytical skills with a background understanding in one or more of the following:
  - Engineering ethics
  - Medical ethics
  - Soft Robots
  - Autonomous systems

- **Desirable:**
  Experience of interdisciplinary working

**Informal enquiries**
For questions about the research topic please contact Prof Jonathan Rossiter at jonathan.rossiter@bristol.ac.uk or Dr Jonathan Ives at j.ives@bristol.ac.uk

For questions about eligibility and the application process please contact SCEEM Postgraduate Research Admissions sceem-pgr-admissions@bristol.ac.uk

**Application Details**
Prior to submitting your application, please contact the academic listed to discuss your research proposal and see if it aligns with their current research. No indication of an offer can be made until we receive your completed application.

To apply for this studentship, submit a PhD application using our online application system [www.bristol.ac.uk/pg-howtoapply]

Please ensure that in the Funding section you tick “I would like to be considered for a funding award from the Engineering Mathematics Department” and specify the title of the scholarship in the “other” box below along with the name of the supervisor. In addition to the documents requested as part of the online application process, applicants should submit a research proposal (maximum two sides of A4) outlining how they would approach the topic. This should include a brief background, clear research question(s) and proposed methodology.

Interested candidates should apply as soon as possible. Applications from self-funded non-UK students are also welcome.

Deadline for applications: **17 May 2021.**

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