DECISION DESIGN ECOLOGY

Human-machine interaction and deciding whether or not to treat

Detailed overview

This is an exciting opportunity for an outstanding candidate to lead research into medical ‘treat/don’t treat’ decisions involving human-machine interaction in the specific context of kidney dialysis.

What is the project about?

New information technologies are an intrinsic part of today’s complex decision-making. Across all spheres of human activity, qualitative and quantitative changes are being made to decision support systems—and to the ways that humans decide. The ‘Decision Design Ecology’ project will examine an important frontier of these changes, studying how transparent, explainable, ‘good’ decisions can be made in a critical and complex area of medical treatment.

Decisions whether or not to treat kidney disease using dialysis have been carefully selected as the clinical context for this study. They are a domain of medical decision making in which trajectories of illness are unpredictable, knowledge is indeterminate, practice is highly variable, and new data technologies are widely used. This makes for a complex and revelatory case through which to develop generalisable principles. The successful applicant will have access to fieldwork sites via a confirmed industry partner at the forefront of relevant clinical practice across a network of UK hospitals.

Awareness is growing of the notion that an ‘ecology’ underlies individual human decisions. Yet greater attention is needed to understand how the elements of specific ecologies interact to shape decision-making. Adopting a critical and historicising perspective, the project will investigate the contemporary ecology on which ‘treat/don’t treat’ decisions rest, and examine how its ecological elements inter-relate. It will seek a better understanding of how interests are shaped and embedded, and how particular presumptions and biases are prioritised through specific technologically-mediated knowledge practices such as risk profiling and modelling.

This doctoral project will broaden and contextualise the current focus of data science on machine transparency and explainability. It will generate new understandings of what we mean by ‘good’ decision ecology design—where ‘good’ attends not only to safe and effective decisions but ethical, inclusive and just ones. It will generate timely insights applicable across multiple fields of more-than-human decision-making, culminating in the identification of desirable design principles and participatory knowledge practices. By mapping and analysing the ecology of an existing decision system, drawing on research paradigms from ethnography and the history of ideas, it will offer an innovative new approach to understanding the entanglement of past, present, and future in health decision making.
What will the role of the PhD student be?

Within this broad framing, the right candidate will enjoy substantial autonomy in designing and carrying out a project which brings their own distinct interests and histories to bear upon the problems. Candidates will benefit from the support and experience of an inter-disciplinary supervisory team, who between them bring a diverse conceptual and methodological expertise with which to help the candidate orient themselves in the research area and develop a novel and ambitious project.

This PhD project will equip a junior researcher to undertake the multi-disciplinary research on human-machine decision ecologies that will be increasingly important in the future. Competitive candidates will be able to demonstrate the ability to reflect upon and move beyond disciplinary limits, and to engage creatively with the complexity, contradiction and ‘mess’ that will be encountered in the inquiry.

Candidates are free to design the study however they choose to and select methods that they feel are appropriate for the topic. We anticipate qualitative methods being the most suitable fit for this topic, however, within this we encourage candidates to be creative, considering combinations of different methods (e.g. historical, ethnographic, etc), in order to take account of the multiple ‘sites’ of investigation, which might include: human and non-human participants, together with historical archives, risk profiles, and operations models, among others, and the tracing of connections between them. The research will play an active role in identifying and analysing sensitive relationships between these sites, which will include medical patients and practitioners. Research designs will need to be adaptive and immersive, permitting open exploration, and sensitive to the unexpected.

We encourage candidates to consider the complexities of healthcare decisions involving human-machine interaction, which cannot be grasped within the bounds of a single discipline. Candidates should also consider both the practical and philosophical implications of the idea of a decision ecology and the need for responsible decision-making within this context. Lastly, we encourage candidates to reflect upon their own role within the research and how this might shape the proposed investigation and methods. This might include asking what knowledge, experience and interests candidates bring to the study, and how they envisage positioning themselves in relation to those they will encounter through the research.

Who should apply?

This award is open to candidates with experience in at least one field relevant to the topics under investigation. We welcome applicants from any disciplinary area across the arts & humanities, and/or the human, social, medical and computer sciences. Relevant fields and disciplines include, but are not limited to:

- Decision ecology (decision systems, design, and support, philosophy of knowledge, history of ideas)
- Human-machine interaction (computer science/software engineering, data science, science and technology studies, ethics of AI)
- Medical care (history of medicine, medical humanities, medical sociology/anthropology, health and social care practice, social policy, political economy)
Candidates must also meet the entry requirements for postgraduate study at the University of Kent. Applicants to a PhD programme should normally hold a good Honours degree (First or 2:1) or a Master’s Degree (at Merit or Distinction) in a relevant field, or the equivalent from an internationally recognised institution. The University of Kent requires all non-native speakers of English to reach a minimum standard of proficiency in written and spoken English before beginning a postgraduate degree. The successful candidate will be supported to acquire technical knowledge and additional expertise in particular research methods and theoretical frameworks as required.

What support will the successful applicant receive?

Reflecting the central role of interdisciplinarity in the University of Kent’s signature research themes and in this PhD project, the candidate will receive supervision and support from a team of five academics with expertise across the fields relevant to the proposal. This team shares a long experience in undertaking and supervising interdisciplinary work. Supervision will not impose prior understandings of the issues involved in the research, or fixed ideas about how the successful applicant should orient themselves in the field. The right candidate will be given the space and autonomy to define their own approach to the problem under investigation, drawing on a range of conceptual and methodological resources in order to support their development.

The successful applicant will have access to additional training and support beyond the supervisory team. They will be enrolled in the postgraduate research programme within the School of Social Policy, Sociology and Social Research, through which they will have the opportunity to undertake the PGCert in research methods for free.

Within the school, they will join an interdisciplinary cohort of around 10 PhD students based in the Centre for Health Services Studies, as well as be among the first members of a new cohort of PhD students associated with the Future Human signature research theme, which will provide access to a wide range of training and support through the Graduate Research College. Additionally, the supervisory team will be able to provide access to a wide range of training and development resources from across any of the academic divisions at Kent.

The scholarship is funded by the Future Human signature research theme, which supports multidisciplinary collaborative research on the use of science and technology for human enhancement and its wider social and ethical implications. Research in this field explores the opportunities, limits, challenges, and risks of using science and technology for human advancement. Four sub-themes provide a shared focus for a range of disciplines to explore the ways in which human enhancement will affect our lives in the areas of health (the Healthy Human), society (the Everyday Human), work (the Working Human), and performance (the Super Human). The research and innovation activities embraced by Future Human focus on priority areas for society and industry.

Scholarship details:

The successful applicant will receive the following:

- Annual stipend at UKRI rates (£15,609 in 2021/22; pro-rata for part-time students);
- Annual tuition fees at Home rate

All applications will be assessed by the supervisory team and successful candidates invited for an interview to be held in Canterbury in April 2022 (provisions will be made for remote interviews, if required by candidates or by COVID regulations).
**How do I apply?**

New students wishing to be considered for these scholarships must apply for a PhD place at the University of Kent **by 22nd February 2022**.

Applicants should follow the University of Kent’s [online application process](#). As part of the process, you should include the following:

- Your reasons for study;
- Proposed research topic: **candidates should enter ‘Decision design ecology’**;
- Research proposal: **candidates should use ‘Decision design ecology’ as the title**;
- Details of your qualifications;
- Two academic references;
- Other relevant personal information and supporting documentation.

**When will I hear if I have been selected?**

All applications will be assessed by the supervisory team and successful candidates invited for an interview to be held in Canterbury in April 2022 (provisions will be made for remote interviews, if required by candidates or by COVID regulations).

Candidates invited for an interview will be asked to prepare a presentation in which they will respond to the project proposal, describe how it fits with their knowledge and experience, and identify three potential challenges they anticipate in carrying out the research. Further details will be provided as part of the interview invitation.