



Course Code & Title	LISS370 Social & Ethical Implications of AI, Big Data & Algorithms				
Convenor(s)	Dr Christine Aicardi				
Institution	KCL	Department		Global Health and Social Medicine	
Academic Year	2021-22	Term		Summer	
Number of sessions	5	Research Platform	Social Theory & Epistemology (STE)	Length of Session(s)	5 hrs
Day, Date		Start : End		Room Location	
Monday 9 May 2022 Tuesday 10 May 2022 Wednesday 11 May 2022 Thursday 12 May 2022 Friday 13 May 2022		10:00-15:00		BUSH HOUSE (SE) 1.01 – King’s College London *MEETS IN PERSON*	
Enrolment Links:	Click here to register on Skillsforge. You may be prompted to log in.				

Course Description:

This one-week intensive teaching module is especially designed to provide students from a range of academic backgrounds with a critical understanding of prime social and ethical implications of AI, big data and algorithms in the wider domain of health and care. In doing so, it will enable students to engage critically with theory, policy and practice associated with multidisciplinary approaches to responsible research and innovation, of key importance at a time when increasingly, embedding principles and practice of collective responsibility into research and innovation becomes a mandatory requirement of major funding bodies and an essential part of corporate social responsibility.

Course Objectives:

The module will use a case-based approach to examine a series of key social and ethical issues associated with artificial intelligence, big data and algorithms, such as transparency, bias, fairness, trust, privacy, accountability, inclusion. It will introduce the students to different conceptual approaches and theoretical standpoints used to anticipate, reflect on, engage with, and act upon, these issues (e.g. sociology of expectations; bioethics; foresight and futures studies; user-led and participatory design; public(s) engagement; gender, intersectionality and disability studies), and it will bring these together to explore critically practice and policy of responsible research and innovation.

Overall, on successful completion the module will enable students to:

- Develop a critical understanding of key social and ethical issues of AI, big data and algorithms (e.g. fairness, bias, transparency, trust, privacy, accountability, inclusion)
- Reflect critically on the social and ethical implications of AI, big data and algorithms for different dimensions and areas of health and health care
- Understand and engage critically with diverse theory, policy and practice associated with responsible research & innovation (RRI).



- Apply theories and insights from the academic literature to engage critically with topical policy issues and practical challenges concerning AI, big data and algorithms in health and health care
- Investigate such issues independently and communicate their thoughts and findings in a variety of ways.

Reading List:

We do not use a textbook of reference in this module. Your module convenor will select key readings (articles, and chapters) for you from a variety of sources. Individual readings will be provided under each day's topic on KEATS and divided as core (you are required to read these in preparation for class) and recommended.

Indicative selection:

Amelang, K., & Bauer, S. (2019). Following the algorithm: How epidemiological risk-scores do accountability. *Social Studies of Science*, 49(4), 476–502

EMERJ (2019) Artificial Intelligence in Healthcare – A Comprehensive Overview. <https://emerj.com/ai-sector-overviews/artificial-intelligence-in-healthcare-a-comprehensive-overview/>

Erlich, Y et al. (2018). Identity inference of genomic data using long-range familial searches. *Science* 09 Nov 2018: Vol. 362, Issue 6415, pp. 690-694. DOI: 10.1126/science.aau4832

Finlayson, S.G., et al. (2019). Adversarial attacks on medical machine learning. *Science* 22 Mar 2019: Vol. 363, Issue 6433, pp. 1287-1289 DOI: 10.1126/science.aaw4399

Ford, D.V. et al. (2009). The SAIL Databank: building a national architecture for e-health research and evaluation. *BMC Health Services Research* 2009, 9:157 doi:10.1186/1472-6963-9-157

Future Advocacy (2018). Ethical, Social, And Political Challenges Of Artificial Intelligence In Health. A report with the Wellcome Trust, April. <https://wellcome.ac.uk/sites/default/files/ai-in-health-ethical-social-political-challenges.pdf>

High-Level Expert Group on Artificial Intelligence (2019). Ethics Guidelines for Trustworthy AI. <https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai>

Hoeyer, K. (2019). Data as promise: Reconfiguring Danish public health through personalized medicine. *Social Studies of Science*, 49(4), 531-555. <https://doi.org/10.1177/0306312719858697>

Hoeyer, K., Bauer, S., & Pickersgill, M. (2019). Datafication and accountability in public health: Introduction to a special issue. *Social Studies of Science*, 49(4), 459–475. <https://doi.org/10.1177/0306312719860202>

Jacobs, B., & Popma, J. (2019). Medical research, Big Data and the need for privacy by design. *Big Data & Society*. <https://doi.org/10.1177/2053951718824352>

Jirotko, M. et al. (2017). Responsible Research and Innovation in the Digital Age. *Communications of the ACM*, May 2017, Vol. 60 No. 5, Pages 62-68. DOI: 10.1145/3064940



Milne, R. (2018). From people with dementia to people with data: Participation and value in Alzheimer's disease research. *BioSocieties* (2018) 13: 623. <https://doi.org/10.1057/s41292-017-0112-x>

Mittelstadt, B. D., P. Allo, M. Taddeo, and S. Wachter (2016). The ethics of algorithms: Mapping the debate. *Big Data and Society* 3 (2).

Moats, D., & McFall, L. (2019). In Search of a Problem: Mapping Controversies over NHS (England) Patient Data with Digital Tools. *Science, Technology, & Human Values*, 44(3), 478–513. <https://doi.org/10.1177/0162243918796274>

Nuffield Council on Bioethics (2018). Artificial intelligence (AI) in healthcare and research. *Bioethics Briefing Note*, May: <http://nuffieldbioethics.org/wp-content/uploads/Artificial-Intelligence-AI-in-healthcare-and-research.pdf>

Sharon, T., & Lucivero, F. (2019). Introduction to the Special Theme: The expansion of the health data ecosystem – Rethinking data ethics and governance. *Big Data & Society*. <https://doi.org/10.1177/2053951719852969>

Sparrow, R. (2019). Robotics Has a Race Problem. *Science, Technology, & Human Values*. <https://doi.org/10.1177/0162243919862862>

Whittlestone, J. Nyrup, R. Alexandrova, A. Dihal, K. Cave, S. (2019) Ethical and societal implications of algorithms, data, and artificial intelligence: a roadmap for research. London: Nuffield Foundation. <https://www.nuffieldfoundation.org/sites/default/files/files/Ethical-and-Societal-Implications-of-Data-and-AI-report-Nuffield-Foundat.pdf>

Wynne, B. (2006). Public engagement as a means of restoring public trust in science – Hitting the notes, but missing the music? *Community Genetics*, 9(3), 211–220.

Eligibility:

Open to all LISS DTP students that would benefit from this training

Pre-course preparation:

Recommended readings listed above. Further information to be shared by the convenor before the course starts.

Number of students:

Maximum number of places available: 10