

The Alan Turing Institute

The Role of Public Engagement in Mitigating Bias and Unfairness

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Overview

- Data Ethics
- Forms of bias and unfairness
- The importance of representation
- Public Engagement: Why, When and How
- Concluding Remarks

Data Ethics

- Ethics requires going beyond legal compliance;
- Ethics considers not what we can do but rather what we *should* do – and what we *should not* do;
- There are no simple solutions to ethical challenges, rather ethical approaches require continual negotiation and judgement.
- Ethics is not just about avoiding negative impacts, but also about maximising the value of digital innovation.

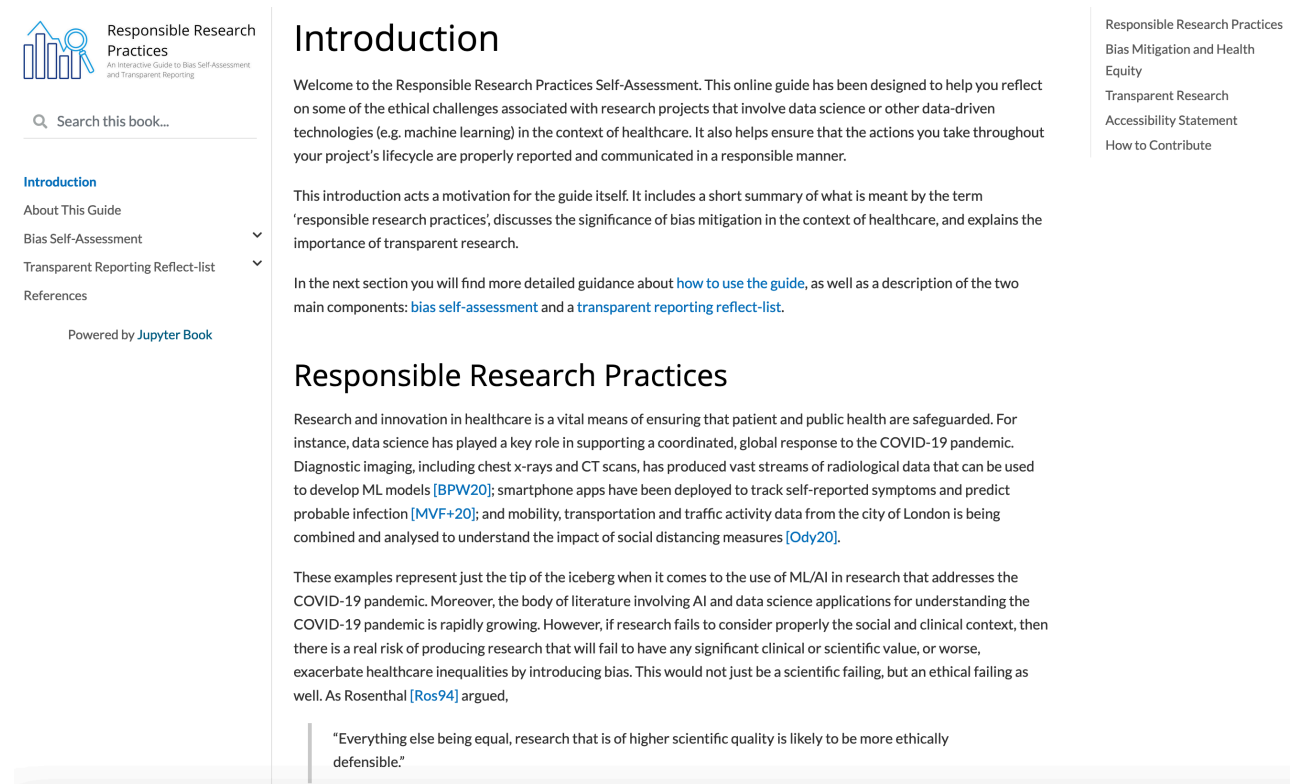
Responsible Research Practices Guidebook

The purpose of this guide is two-fold:

1. To provide project teams with a means for reflecting upon the steps taken to mitigate the effects of social, statistical, and cognitive biases throughout the project lifecycle, and
2. To report and communicate these methods in a systematic, transparent, and accessible manner.

It has two main components:

- Bias Self-Assessment
- Transparent Reporting Reflect-List



The screenshot shows the introduction page of the Responsible Research Practices Self-Assessment guidebook. The page features a navigation sidebar on the left with a search bar and a list of sections: Introduction, About This Guide, Bias Self-Assessment, Transparent Reporting Reflect-list, and References. The main content area is titled 'Introduction' and contains the following text:

Welcome to the Responsible Research Practices Self-Assessment. This online guide has been designed to help you reflect on some of the ethical challenges associated with research projects that involve data science or other data-driven technologies (e.g. machine learning) in the context of healthcare. It also helps ensure that the actions you take throughout your project's lifecycle are properly reported and communicated in a responsible manner.

This introduction acts a motivation for the guide itself. It includes a short summary of what is meant by the term 'responsible research practices', discusses the significance of bias mitigation in the context of healthcare, and explains the importance of transparent research.

In the next section you will find more detailed guidance about [how to use the guide](#), as well as a description of the two main components: [bias self-assessment](#) and a [transparent reporting reflect-list](#).

Responsible Research Practices

Research and innovation in healthcare is a vital means of ensuring that patient and public health are safeguarded. For instance, data science has played a key role in supporting a coordinated, global response to the COVID-19 pandemic. Diagnostic imaging, including chest x-rays and CT scans, has produced vast streams of radiological data that can be used to develop ML models [\[BPW20\]](#); smartphone apps have been deployed to track self-reported symptoms and predict probable infection [\[MVF+20\]](#); and mobility, transportation and traffic activity data from the city of London is being combined and analysed to understand the impact of social distancing measures [\[Ody20\]](#).

These examples represent just the tip of the iceberg when it comes to the use of ML/AI in research that addresses the COVID-19 pandemic. Moreover, the body of literature involving AI and data science applications for understanding the COVID-19 pandemic is rapidly growing. However, if research fails to consider properly the social and clinical context, then there is a real risk of producing research that will fail to have any significant clinical or scientific value, or worse, exacerbate healthcare inequalities by introducing bias. This would not just be a scientific failing, but an ethical failing as well. As Rosenthal [\[Ros94\]](#) argued,

"Everything else being equal, research that is of higher scientific quality is likely to be more ethically defensible."

On the right side of the page, there is a vertical list of links: Responsible Research Practices, Bias Mitigation and Health Equity, Transparent Research, Accessibility Statement, and How to Contribute.

<https://alan-turing-institute.github.io/rrp-selfassessment/introduction.html>

Forms of Bias: Epistemic and Normative Concerns

- Epistemic concerns relate to the data and algorithms used (i.e. Are there biases in the data? Is the data used accurate and up to date? Is it possible to scrutinise the data or decision-making process?)
- Normative concerns relate to outcomes and impacts on society.

Mittelstadt, B.D., Allo, P., Taddeo, M., Wachter, S. and Floridi, L., 2016. The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2), p.2053951716679679.



Example:

- Predictive policing algorithms are controversial partly because the data used are often biased due to historic prejudices shaping their collection (an epistemic concern) but also because of value-laden decisions about the particular contexts and purposes for which these algorithms are used (e.g. street crime, but not white collar crime), with important social implications (a normative concern).





Why, When and How of Public Engagement

A background image showing a crowd of people with their hands raised, suggesting a public engagement or voting event. The image is slightly blurred, focusing attention on the text overlay.

Why engage the public?

- Normative: It's the right thing to do.
- Instrumental: As a means to a particular goal.
- Substantive: To improve projects and their outcomes, leading to benefits for participants and wider society – establishing a social licence for data practices.

Wilsdon, J. and Willis, R., 2004. *See-through science: Why public engagement needs to move upstream*. Demos.

When to engage the public?

- Public Engagement relating to data-intensive health research takes place at many different scales, including:
 - Wide-scale public conversations about uses or potential uses of data in health research;
 - Informing or co-designing the development of policies or governance practices relating to uses of data in health research;
 - Engagement or involvement of members of the public in governance decisions about data access and use;
 - Engagement or involvement of members of the public at different phases in particular research projects (e.g. setting research questions, reviewing methods, reviewing choices about which data to use, reviewing findings);
 - Analysing and disseminating the results of research using data in ways which will support improvements in health care and systems.

How to engage the public?

- **Awareness Raising:** information being disseminated to the public.
- **Consultation:** information (including ideas, preferences or concerns) is sought from the public
- **Empowerment:** can occur through developing skills, capacities and social capital and enhancing democracy



Aitken, M., et al. "Consensus statement on public involvement and engagement with data intensive health research." *International Journal of Population Data Science* 4.1 (2019).

Concluding remarks

- Ethical challenges relating to data practices require consideration of diverse interests and perspectives;
- Addressing challenges relating to bias and unfairness requires engagement with impacted – or potentially impacted – groups to ensure the data collected and used, and innovations produced reflect their needs and do not exacerbate existing inequalities;
- Public Engagement is an opportunity to strengthen research projects, inform ethical practices and establish a social licence for data practices.





Thank you

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