Ethics of Computing

B. Johnson and J. Smith, "**Towards Ethical Data-Driven Software: Filling the Gaps in Ethics Research & Practice**," 2021 IEEE/ACM 2nd International Workshop on Ethics in Software Engineering Research and Practice (SEthics), Madrid, Spain, 2021, pp. 18-25, DOI: 10.1109/SEthics52569.2021.00011.

This paper provides a comprehensive review of the ethical issues surrounding data-driven software. The authors highlight the importance of ethical considerations in the development and deployment of such software, given the potential for significant societal impact.

The paper first provides an overview of data-driven software, including its various applications and the challenges it presents. The authors then explore the ethical issues related to data-driven software, including bias, privacy, transparency, and accountability. They discuss the potential harms associated with these issues, such as discrimination, exclusion, and infringement of individual rights.

The authors then work that has been done to understand and improve the state of the practice in artificial intelligence, machine learning, and software that integrates the former.

They highlight few notable contributions to ethics in the form of frameworks, principles, or guidelines that are relevant to different stages of software development lifecycle. They also review tools that have been developed to improve ethical software practices, many of which focus on increasing fairness in AI software like AI Fairness 360 (AIF360), a Python toolkit for measuring and mitigating bias in machine learning models by IBM.

They conclude that while there has been significant progress in recent years, there are still significant gaps that need to be addressed. For example, there is a lack of consensus on ethical principles and frameworks, and there are limited resources available for developers and practitioners to implement ethical practices.

Erica Neely (2013), "**Moor Food for Thought: 5 Key Issues in Computer Ethics"** at The International Association for Computing and Philosophy's Annual Meeting.

Almost thirty years ago, James Moor's paper "What is Computer Ethics?" was published, arguing for the special status of computer ethics. Several related philosophical questions have either arisen or become more pressing with advances in technology. While Moor argued for the special status of computer ethics thirty years ago, this paper argues that the situation is even more urgent now, with our abilities rapidly outpacing social convention on how to handle relevant ethical dilemmas.

It explores the ethical considerations related to the use of information technology, particularly with respect to privacy and security. Author discusses the ways in which technology has changed our understanding of privacy, and how new technologies have created new threats to individual privacy. The paper also examines the ethical issues such as the balance between security and privacy, and the role of government in regulating security measures. The author raised multiple questions on issues related to privacy, identity, trust, and responsibility back in 2013 and I could see how these questions still remain to be addressed for preventing crimes and for establishing a degree of civility which could enhance many users' experiences online.

For example, we must consider what circumstances justify an invasion of privacy, whether there is a difference between corporate and governmental tracking – are Google and the government equally justified in tracking which websites you visit? And, lastly, to what extent have we tacitly consented to those invasions by entering public spaces, whether real or virtual?

Taherdoost, Hamed & Sahibuddin, Shamsul & Namayandeh, Meysam & Jalaliyoon, Neda. (2013). **Computer and Information Security Ethics -- Models.** Proceedings - 2013 International Conference on Advanced Computer Science Applications and Technologies, ACSAT 2013. 145-149. 10.1109/ACSAT.2013.36.

As we know with advancement in technology, computer resources, software, and assorted output devices have enlightened many unethical activities, privacy invasion and illegal purposes. A lot of research has been done to explore ethical complexities derived from the evolving development and pervasive use of information technologies. They describe Ethics as a key component that can determine acceptance of new technologies as well as legislative and other responses to new technologies. Furthermore, an awareness of social and ethical consequences is increasingly required as a component of funding proposals in which impact statements ask computer scientists to engage with possible and likely consequences of their work.

This paper reviews the different computer ethical conceptions and models from different perspective. It emphasizes on fact that research in computer ethics in general contributes to continuous ethics enhancement with regards to technology developments issues.
Richard Mason, in 1986 proposed a framework composing 4 major areas of ethics in computing: Privacy, Accuracy, Property (Intellectual Property) and Accessibility also called as PAPA. PAPA is the most widely used framework in theoretical studies and second widely used framework in empirical studies after general issues in computer ethics. Authors of this paper also remarked that studies involving PAPA framework mainly adopt scenario-based approach to evaluate the ethical judgment of respondents in various supplied situations which represents one or more combination of PAPA dimensions. However, more recent political and social debates are about (state) surveillance, “Big Data,” intellectual property of digital content, social consequences of widespread use of social media, and many more indicate that ethical issues related to computing have taken center stage. This study reveals that research in computer ethics in general and from scenario perspective in particular, clearly contributes to continuous ethics enhancement with regards to technology developments issues.

Floridi, L. and Mariarosaria Taddeo. “**What is data ethics?**” Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences 374 (2016)

The paper begins by discussing the increasing amount of data being generated and collected by various entities, including individuals, governments, and corporations. The authors note that this data has the potential to be used in ways that can have significant impacts on society, including the potential for discrimination, social exclusion, and infringement of privacy rights.
The authors then define data ethics as "the branch of ethics that studies and evaluates moral problems related to data, algorithms, and corresponding practices." They note that data ethics involves a range of ethical considerations, including privacy, transparency, accountability, and fairness.
The paper then goes on to discuss the various challenges involved in addressing data ethics, including the difficulty of defining and implementing ethical standards in a rapidly evolving technological landscape. The authors suggest that addressing these challenges requires interdisciplinary collaboration between scholars, policymakers, and industry practitioners.
The authors also discuss the importance of establishing a clear ethical framework for data use and suggest that this can be achieved through the development of international standards and guidelines.
The paper provides a clear and comprehensive overview of data ethics and its importance in modern society. The authors emphasize the need for proactive measures to address the ethical challenges associated with data use and highlight the importance of interdisciplinary collaboration in achieving this goal. The paper serves as a valuable resource for those interested in understanding the ethical considerations surrounding data use and provides a roadmap for future research and policy development in this area.

Young, Jacob & Smith, Tyler & Zheng, Shawn. (2020), “**Call Me BIG PAPA: An Extension of Mason's Information Ethics Framework to Big Data.**” in Journal of the Midwest Association for Information Systems, pages 17-41, DOI:10.17705/3jmwa.000059

The paper extends Richard Mason's original framework for analysing ethical issues in the information age to the realm of big data. The authors argue that the ethical issues surrounding big data are distinct from those associated with traditional forms of information technology. They propose an extension of Mason's framework that includes five key ethical issues related to big data: transparency, privacy, accuracy, property, and accessibility.

The paper provides a useful framework for understanding the ethical implications of big data and offers a set of guidelines for managing these issues. In particular, the authors stress the importance of transparency and accountability in the use of big data, as well as the need for clear policies and standards to ensure that the data is collected and used in a responsible and ethical manner.

"Call Me BIG PAPA" is a valuable contribution to the ongoing discussion about the ethical challenges and opportunities posed by big data. The paper provides a clear and concise framework for understanding these issues and offers practical guidance for organizations and individuals seeking to navigate the complex ethical landscape of big data.

Sarah Lamdan “**The Quiet Invasion of 'Big Information'**” published in the Wired on Nov 9,2022.

The article discusses how big tech companies are gathering massive amounts of data on individuals, organizations, and governments, and how this data is being used to influence behavior and decision-making. The author argues that this "big information" is a form of soft power that is increasingly shaping the world in ways that are not fully understood or appreciated.

The author provides several examples of how big tech companies like Google and Facebook are using data to influence political outcomes, including the 2016 US presidential election and the Brexit referendum. The article also explores the role of data in shaping public opinion on issues such as climate change and vaccination.

The author suggests that there is a need for greater transparency and accountability in the way that big tech companies collect and use data. The article argues that policymakers need to take a more proactive role in regulating the use of data and ensuring that individuals have greater control over their personal information.

The article provides a thought-provoking analysis of the growing influence of big information and the need for greater scrutiny and regulation. The author highlights important issues around privacy, democracy, and social control that are likely to become increasingly relevant as data-driven technologies continue to evolve.

Zoom Meeting Discussion

Link to the recording:

https://purdue-edu.zoom.us/rec/share/LLkLfWyX0cXR4FtPI5mo45VEvnIwJR0ZRcUQjLQ5RjY8f0i31bzoPdkpNvXXKc6t.9QOfFIsJRXNxEQ-1
Passcode: &$Ph1Z9C

1. Raymond Muller presented -

Nina, et al. "**Democratising or disrupting diagnosis? Ethical issues raised by the use of AI tools for rare disease diagnosis.**" SSM-Qualitative Research in Health (2023).

He pointed potential benefits and ethical challenges of using AI tools for rare disease diagnosis. Also discussed the need for careful consideration of the ethical implications of AI diagnosis, and the importance of ensuring that individuals are fully informed and involved in the diagnostic process.

2. Sumedh presented -

Borenstein, J., Howard, A. **Emerging challenges in AI and the need for AI ethics education**. AI Ethics 1, 61–65 (2021). https://doi.org/10.1007/s43681-020-00002-7

Here Sumedh talked about AI ethics standards and guidelines and that these standards should be developed in a collaborative and transparent manner, involving a range of stakeholders, including AI developers, policymakers, and civil society organizations.

References:

Mason, Richard. (1986). Four Ethical Issues of the Information Age. Management Information Systems Quarterly - MISQ. 10. 10.2307/248873.

The handbook of information and computer ethics, book published by John Wiley

Moor, James. (2007). “What Is Computer Ethics?” Metaphilosophy. 16. 266 - 275. 10.1111/j.1467-9973.1985.tb00173.x.

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