Bettina Berendt, Florence M. Chee and Geoffrey Rockwell

Introduction to Ethics in the Age of Smart Systems

We are excited and grateful to present to the readers of the International Review on Information Ethics this Special Issue on "Ethics in the Age of Smart Systems", a product of an interdisciplinary transatlantic collaboration. In nine articles, the Issue's authors discuss the ethics of a wide range of concepts, functionalities and applications, the novel (and not-so-novel) ethical issues raised by them, and practical steps forward in bringing ethical reflection and considerations into the design of interventions and products.

This IRIE Special Issue grew out of a series of six events hosted online from February to April 2021: the Ethics Dialogues and a Symposium on Ethics in the Age of Smart Systems. The series was developed and held in collaborative partnership with the Weizenbaum Institute for the Networked Society in Berlin, Germany, the AI4Society Signature Area at the University of Alberta, Canada, and the Center for Digital Ethics and Policy (CDEP) at Loyola University Chicago, USA.

The three Ethics Dialogues each revolved around a central theme: 1) the ethics of contact tracing, 2) surveillance and carcerality, and 3) whistleblower protections with regard to the question of whether organizations can self-regulate. For each, one of us chaired a panel in which two invited experts as the starting point for an interdisciplinary dialogue also involving the 148 diverse participants from academia, industry, non-profit and governmental organisations and the cultural sector, who joined the Dialogues and Symposium from a wide range of countries. The Symposium, which coincided with the 10th Annual International Symposium on Digital Ethics at the Center for Digital Ethics & Policy (CDEP), invited submissions for presentations on topics including, but not limited to, the three foci of the Ethics Dialogues, and complemented them with invited keynotes on Responsible Artificial Intelligence;

Veena Dubal spoke on "The New Racial Wage Code", and Virginia Dignum on "Responsible AI." Rafael Capurro was the third keynote, speaking on "Smart Living in the Digital Age." We announced the open Call for Papers on this Special Issue of the IRIE, and encouraged the presenters and others to submit original articles to the Special Issue. All submissions were reviewed by an international and interdisciplinary board compiled specifically for the Special Issue.

Three articles invite the reader to a closer reflection on concepts and terms that are often taken for granted in current discussions on complex technology (especially Artificial Intelligence), their ethics and their legal regulation. Two concepts under particular scrutiny are "smart" and "human-in-the-loop" (and its many variants). The "human-in-the-loop" is complemented by the "machine-in-the-loop", so the second and third of these articles consider human-machine interaction starting from its two poles as perspectives.

Rafael Capurro, in "Smart Living in the Digital Age", investigates the concept of "smart". This involves asking where, for whom, to what extent, and at what price smart systems make sense, studying limits of their use and the notion of "good" (and for whom), looking at their legal regulation and critical reflection.

In "Human Where? A New Scale Defining Human Involvement in Technology Communities from an Ethical Standpoint", Anderson and Fort examine the terms Human-in-the-loop, Human-on-the-loop, Human-out-of-the-loop, and Human-in-command, as used recently in AI development, relative to their history of use, their ethical implications and implicit assumptions. They argue that a more ethical human relation to technology can be recovered through an expansive emphasis on human participation in technology producing communities, and present a flexible new scale, the IGP scale, to rate such participation.

In a counterpart to these two papers focusing on ethics "in and for humans", Murray, Rushby and Sanchez discuss also machine ethics in "Controlling Smart Technology: A Brief Review of Some Ethical Challenges". Starting with Azimov's Three Laws of Robotics, they discuss the tradeoffs in human values, as encapsulated in the 'Trolley Problem'. They review artificial moral agency and phronesis, and the techniques proposed for implementing such agents.

Two articles take a more applied view by investigating the new affordances and opportunities as well as their limitations created by technological "solutions". They pay special attention to two populations that are very different on the surface, but similar in being highly vulnerable to technological malfunction and its exploitations: whistleblowers and children. These articles' focus on implications in concrete domains also lets their authors discuss not only ethical, but also legal challenges.

Berendt and Schiffner investigate "Whistleblower protection in the digital age - why "anonymous" is not enough. From technology to a wider view of governance." They study the promise of anonymity, relating it as such to accountability, fairness and data protection, focusing on opportunities and limitations of the anonymity that can be provided computationally; possible consequences of outsourcing whistleblowing support; and challenges for the interpretation and use of some relevant laws. They conclude that computational, legal, and other governance strategies must be combined to effectively incentivize and protect whistleblowing.

Crepax and Mühlberg suggest "Upgrading the protection of children from manipulative and addictive strategies in online games. Legal and technical solutions beyond privacy regulation". They discuss manipulative and exploitative strategies in the context of online games for children, suggest a number of possible reasons for the failure of the applicable regulatory system, propose an "upgrade" for the regulatory approach to address these risks from the perspective of freedom of thought, and present and discuss technological approaches that allow for the development of games that verifiably protect the privacy and freedoms of players.

Two further articles enlarge our view of ethical issues around AI, which are most often (including in the other seven papers of this Special issue) investigated from scientific, philosophical, and social-/behavioral sciences perspectives. These two articles present two different and complementary broadenings of our vision to one of culture: the arts as well as geopolitical cultures.

Oliver presents "Know Thyself as a Virtual Reality: Navigating the ethics of working creatively with personal data". In developing the project, the team realized that the current standards for ethics review for university-based artists are not adequate for research-creation projects which tend to involve ethical concerns distinct from conventional research and art. As a consequence, much of the focus of the KTVR project (and the content of the VR artworks) has turned to understanding emerging and evolving frameworks for the ethical use of human data in research-creation projects.

Eke und Ogoh study "Forgotten African AI Narratives and the future of AI in Africa". They present insights into our understanding of the reasons why Africa's AI narratives are often missing, the implications this has for the future of AI in Africa, how the situation can be improved and the path to take to achieve responsible AI in Africa.

Finally, two articles discuss a transmission mechanism by which technology (including AI) and ethics enter decision-making (other than through business practices and legislation, covered in the other articles): teaching. The articles are complementary in that the first focusses on the (new and old) ethical issues posed by AI for teaching, while the second focusses on how to teach ethics to the AI scientists and practitioners of the future.

Adams, Pente, Lemermeyer, Turville and Rockwell, in "Artificial Intelligence and Teachers' New Ethical Obligations", turned to posthumanism to grapple with how networked, AI-enhanced digital technologies extend and intermesh with human beings cognitively, affectively, morally, corporeally, spatially, temporally, socially and politically. They catalogued AI technologies used in K-12 education and employed an investigative approach to disclosive ethics and interviewed the human-AI hybrids, thus uncovering complications and conundrums in teachers' professional practices.

Baum and Sterz describe their course series "Ethics for Nerds". They observe that ethical, societal, and practical reasons demand that students of computer science and related subjects should receive at least a basic ethical education to be able to do justice to their ever-growing responsibilities and duties. They describe experiences with and best practices of their teaching approach and offer advice on how to design a successful ethics course as part of a computer science study program.