

Editorial Preface

Special Issue on Engineering Ethics: Bridging the Theory-Practice Gap

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Over the course of the last several decades scholars and practitioners have been motivated to deepen reflection on engineering through philosophy that interrogates the evolving social meaning and value of inventions and innovations so as to anchor their use in social reality. While many engineers love to build things and have an innate sense of wanting to help society, in individual contexts it can be unclear what the ethical thing to do is and how an engineered system will affect society.

Philosophers and other scholars try to offer practical and ethical advice for engineering, but such advice can be disconnected from how engineering systems are actually developed and managed. Ethical dialog on engineering benefits and possible side effects form a sense of how institutions work and what knowledge gets brought to bear in the design and operations process.

As a consequence, various approaches that center around stakeholders, human values and the environment have been proposed as methodologies to adopt early on and through design practices. Although some of these approaches have been more successful than others, or more widely adopted, the literature on their continued sustainability and their resulting products has yet to be widely disseminated. This is particularly important in designing for value change across sociocultural boundaries.

Bringing engineers and philosophers into deeper conversation allows for harmonization (constructing common knowledge) and synergy, and can serve as a community to guide and inform on society's broader approach toward engineering and its governance. In this way, this special issue aims to gather high-level research at the intersection of philosophy and engineering domains to comprehensively index the current state-of-the-art research in the field of engineering ethics and engineering design as well as what future trends have made themselves apparent.

The aim of this special issue is to provide a platform for the researchers, scholars, academicians, and practitioners from different parts of the globe to discuss various methods, disciplines, and traditions across both philosophy and engineering in order to explore what current conceptual frameworks have shown the most potential, and how we can saliently move from theory to practice in a world of exponential technological advancement.

Naomi Jacobs and Wijnand IJsselsteijn begin this special issue with their aptly titled paper "Bridging the Theory-Practice Gap: Design-Experts on Capability Sensitive Design." Their project builds on recent years work within the domain of *designing for values* also known as 'values at play' by proposing capability sensitive design (CSD) as a means of meeting the objectives of this larger project. They bridge the theory-practice gap by engaging directly with designers to determine both the strengths and weaknesses of designing for values more generally, and CSD specifically to evaluate the potential adoptability of their CSD approach.

In “Value-Sensitive Design of Unmanned Aerial Systems: Using Action Research to Bridge the Theory-Practice Gap,” Tabitha Andersen and Dylan Cawthorne take a similarly empirical approach through action-research engagement to determine the viability of VSD in real-world design domains. In bridging the theory-practice gap the authors uncover some of the barriers inherent to VSD adoptability in design domains and provide recommendations for how to overcome them.

Vitaly Pronskikh follows up in “Engineering Roles and Identities in the Scientific Community: Toward Participatory Justice” by taking the group of particle accelerator scientists and engineers as the objects of analysis to determine their identities and how these identities can create inherent injustices between their inclusion/exclusion by one another. Pronskikh argues that lack of mutual cooperation between scientists and engineering in this field creates epistemic gaps that is consequentially mutually destructive.

In “George the Chemist: A Dilemma about Sabotage, Disaster Prevention, and Justification of Duplicity,” Sergei Talanker takes on a controversial case of arguing how sabotage may be a moral imperative if engineers and scientists are asked to partake in dangerous scientific and technical work. In his case, he argues that sabotaging one’s work on chemical and biological weapons is tantamount to increasing safety and can be construed as a direct moral imperative even if it contravenes the employers demand and at economic costs.

Fabio Tollon in his paper “Designed to Seduce: Epistemically Retrograde Ideation and YouTube’s Recommender System” builds on decades long research against the neutrality of technologies and argues that technologies not only implicate values, but can influence our valuation, and thus what we come to value over time. Borrowing from ecological psychology, Tollon appropriates the concept of affordance to demonstrate how this nudging in favour or against certain valuations can take place.

In “A Method for Rapid Ethical Deliberation in Research and Innovation Projects,” Marc Steen, Martijn Neef, and Tamar Schaap address the challenges that engineers face even when they desire to explicitly design technologies with values in mind. They propose Rapid Ethical Deliberation as an approach to help overcome these obstacles. Through direct engagement with stakeholders, they tested the viability of this novel approach. They determined that Rapid Ethical Deliberations allowed for revisioning and novel solutions to tough ethical tensions that arose in those design domains, thus permitted greater probability of adopting explicit orientation to designing *for* values.

Nicola Liberati in his paper “Phenomenology and Sex Robots: A Phenomenological Analysis of Sex Robots, Threesomes, and Love Relationships” shifts focus from the direct and prescriptive ethical considerations that mark the other papers in this issue, and the applied ethics of robotics more generally by looking at the phenomenological effects of robotics in constituting subjects in relationships of love. Through textual analysis of Husserl and Merleau-Ponty, Liberati shows the dichotomy of relationships between those who are in a love relationship while their partner simultaneously engages with a sex robot.

Marc Steen concludes this special issue with a timely book review of Carissa Véliz’s *Privacy is Power*. Steen provides a traditional book review that moves through each of the major theoretical parts of Véliz’s volume while also allowing his own position to emerge therein. Although never explicitly mentioned, Steen situates Véliz’s work firmly within the philosophical tradition of virtue ethics. As such, those scholars or interested parties of both technology and its relation to virtue ethics may find this particular volume enticing.

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