Ethics and aesthetics of technologies

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1 General introduction to the theme

Human life is thoroughly mediated by technologies and instruments. Contemporary life is a “technologically mediated life.” We rely on what we make in order to survive, to thrive and to live together in societies. Sometimes the things we make improve our lives, and sometimes they make our lives worse. Technological devices shape our culture and the environment, alter patterns of human activity, and influence who we are and how we live. (Kaplan 2009, 2008, 2007).

“Philosophers of technology tend not to celebrate technological achievements, because they get celebrated all the time”, says Albert Borgmann by emphasizing the problem of how to tame the technological development. Borgmann further elaborates, “Philosophers point out the liabilities, what happens when technology moves beyond lifting genuine burdens and starts freeing us from burdens that we should not want to be rid of.”

Technological mediation is precisely this capacity of technology: technologies can mediate between humans and reality, by establishing specific relations between both. This phenomenon of technological mediation has two dimensions, each of them pertaining to one aspect of the relations between humans and reality. [Verbeek paper **Persuasive Technology and Moral Responsibility Toward an ethical framework for persuasive technologies** addresses the ethical aspects of persuasive technologies. By integrating the concept of ‘persuasive technology’ with the concept of ‘technological mediation’, as developed in theoretical

frameworks from the field of persuasive technology and from the philosophy of technology, it will be possible to identify three such points of application. Cf. Verbeek (2010)] (Fig. 1).

Human–Computer Interaction (HCI) is concerned with the design, implementation and evaluation of interactive computer-based systems, as well as with the multi-disciplinary study of various issues affecting this interaction. The aim of HCI is to ensure the safety, utility, effectiveness, efficiency, accessibility, and usability of such systems. In recent years, HCI has attracted considerable attention by the academic and research communities, as well as by the Information Society Technologies industry. The ongoing paradigm shift towards a knowledge-intensive Information Society has brought about radical changes in the way people work and interact with each other and with information. Computer-mediated human activities undergo fundamental changes, and new ones appear continuously, as new, intelligent, distributed, and highly interactive technological environments emerge, making available concurrent access to heterogeneous information sources and interpersonal communication. The progressive fusion of existing and emerging technologies is transforming the computer from a specialist’s device into an information appliance. This dynamic evolution is characterized by several dimensions of diversity that are intrinsic to the Information Society. These become evident when considering the broad range of user characteristics, the changing nature of human activities, the variety of contexts of use, the increasing availability and diversification of information, knowledge sources, and services, the proliferation of diverse technological platforms, etc. HCI plays a critical role in the context of the emerging Information Society, as citizens experience technology through their contact with the user interfaces of interactive products, applications, and

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Fig. 1 Technological mediation

services. Therefore, it is important to ensure that user interfaces provide access and quality in use to all potential users, in all possible of contexts of use, and through a variety of technological platforms. The field of HCI is now experiencing new challenges. New perspectives, trends, and insights enrich the design, implementation and evaluation of interactive software, necessitating new multidisciplinary and collaborative efforts.

Aesthetics is a domain with an extensive genealogy, which is reflected throughout the historical developments in design practice. In the context of this research, we are specifically concerned with the aesthetics of interaction, in which we see a broad distinction between the analytic, emphasizing a view of humans as disembodied processors able to construct independent realities in the mind, and the pragmatic, which instead emphasizes how people experience the world dialogically as embodied subjects. (Fiore, Salvatore; Wright, Peter and Edwards, Alistair “A pragmatist aesthetics approach to the design of a technological artefact” in *Proceedings of the 4th decennial conference on Critical computing: between sense and sensibility*, Aarhus, Denmark pp. 129–132, 2005, ACM Publisher, New York.)

Today’s users know that Information Technology can be visually appealing and entertaining. At the same time, the HCI research community, besides aesthetics, becomes more and more interested in the roles of affect and emotion in addition to the “pure” cognitive processes. Steven Crowell (2010) argues that one of the important reasons why we value art—why art matters to us—is that it can provide (as Aristotle put it) “insight into the meaning of things.”

2 Ethics, aesthetics, and technologies

The easiest way to understand the non-neutrality of a technology is to follow Don Ihde’s suggestion (1990) that we consider how experience is mediated by the technologies we use. How the use of a particular technology mediates and transforms the nature of experience can be understood, to start with the simplest example, by looking at what aspects of experience are amplified and reduced when we use a pencil (Bowers 1988). As Chet Bowers explains “Use of a pencil amplifies the ability to express our thoughts in written form, and because of the characteristics

of this technology, we have the time to reformulate our thoughts in the process of writing them down. Technologies always mediate and transform human experiences with the world” (Bowers 1988). The user awareness is affecting the embodiment of a person through human–computer interaction. The characteristics that make us human will continue to be manifest in our relationship with technology. There are now shifting boundaries between computers and everyday world. The more we depend on technologies to carry out or mediate our everyday activities, the more we will need to trust than to do so. The “digital crowd” likely to play a more influential role in shaping the human values of the future. The bottom line is that computer technologies are not neutral; they are laden with human, cultural and social values. It is often argued (Ted Friedman, *Electric Dreams: Computers in the American Culture*, NYU Press, 2005) that learning to use a computer may seem like a daunting task for many—but to use a pen and paper one need to have learned how to read and write, a far more complex, and still far more universal skill!

The aesthetics and ethics of human engagement come together in the feeling that the communication is working well and that the communication makes sense and has a natural flow (Gill 2008). As societies become increasingly technologized, the need for careful and critical assessment rises. However, attempts to assess or normatively evaluate technological development invariably meet with an antinomy: both structurally and historically, technologies display multistable possibilities regarding uses, effects, side effects, and other outcomes. Philosophers, usually expected to play applied ethics roles, often come to the scene after these effects are known. But others who participate at the research and development stages find even more difficulties with prognosis (Ihde 1999).

Ethics is about knowing how and when to act and involves social judgment about appropriate behaviour. The relationship of aesthetics and ethics in our everyday interactions carries in its timed movements and modularity, the past, present, and future possibilities of meaning (Gill 2008).

Michael Wheeler is the proponent of the extended cognition hypothesis. Andy Clark’s book *Natural-Born Cyborgs* chronicles the rise of cognitive technologies. The book consists of eight chapters covering, roughly, six distinct areas of emerging cognitive technologies, an introduction and a brief meditation on the promise of a ‘post-human’ future. Andy Clark in his visionary book “*Natural-Born Cyborgs*” argues that mind-expanding technologies come in a surprising variety of forms. They include the best of our old technologies: pen, paper, the pocket watch, the artist’s sketchpad, and the old-time mathematician’s slide rule. They include all the potent, portable machinery linking the user to an increasingly responsive World wide web. Very soon, they will include

the gradual smartening-up and interconnection of the many everyday objects that populate our homes and offices. Evan Selinger and Timothy Engstroem's paper "On Naturally Embodied Cyborgs: Identities, Metaphors, and Models" examines a "specific appeal to philosophical anthropology—Andy Clark—and the role it plays in shaping his account of our fundamental cyborg humanity." By focusing on the theme of (human) embodiment, authors also enquire into how phenomenology might benefit from Clark's account as well as how Clark's account might benefit from further engagement with phenomenology of *human embodiment*. [See Selinger, Evan. *On Naturally Embodied Cyborgs: Identities, Metaphors, and Models* (with Tim Engstroem). *Janus Head* 9, 2 (2007): 553–584. (Andy Clark's reply, *Negotiating Embodiment: A Reply to Selinger and Engstroem*, appears in *Janus Head* 9, 2 (2007): 595–587.)]

Leal (1995) describes the history of philosophical thinking as having been about the attainment of certainty and perfection (Dewey 1929), where practice and experience are accidental and too variable for this purpose. The twentieth century threw this picture out as we became used to theories being fallible and replaceable. "If technology is neutral, then ethics, under the pressures and powers of new technologies, is increasingly fragile—where ethics denotes both the theory and the moral structures and the inbuilt values of technology" (Gill 2008).

Ethical concerns are linked to the environment in which technology is applied. The interaction between technology, human, and environment needs to be understood, and this is an ethical requirement (Gill 2008).

Durbin (2005) approach is the most effective way that is rooted in the ethics of American Pragmatism—of dealing with conflicting ethical claims (old or new). Durbin thesis is that in every "new technology" case, mere philosophizing—no more than mere "professional ethics" on the part of experts—will not solve our ethical or social problems. Only activism has a chance of doing so.

For the actual discussion on ethics and technologies, Irrgang (2007) in his new book "Hermeneutics Ethics: Pragmatically and ethical orientation in technological societies" is proposing a philosophical and pragmatic approach of "hermeneutics of lifeworld." Irrgang tries to connect the traditions of hermeneutics and the moral philosophy, which makes the ethical problems of contemporary world (which is mostly technologically mediated) intelligibly understandable. Irrgang is offering an introductory approach for ethical judgments, which facilitates and motivates the human beings to overcome their complex everyday lifeworld and understand technically embedded everyday situations to act responsibly. At the same time, for technological world, he has also left the new possibilities of understanding to master the everyday lifeworld, whereas human beings need competence (Irrgang 2007).

According to Don Ihde (1990) and Robert Rosenberger (2009a, 2009b), everyday users of computers come to embody their devices in significant ways. Rosenberger explains "These embodiment relations often become deeply transparent and deeply sedimented. When a person uses the computer to perform everyday tasks such as typing, reading emails, or surfing the Internet (of course which tasks qualify as "everyday" depends on the individual), she or he may grow barely aware of bodily interactions with the device. The bodily, conceptual, and perceptual habits this person has developed enable conscious attention to be directed to the tasks being performed with the computer, rather than on the technological mediation that makes those tasks possible" (Rosenberger 2009a).

Borgmann wants us to pry ourself free and grasp actual reality. With its uniqueness and great in weight and 'burden', it will command our serious attention. On the other side, Virtual Reality merely requires our fast-fingered manipulation. To encounter a thing is to engage it fully and to participate in its "world"—all of the social dimensions of using and experiencing something. A device is merely an instrument for producing a commodity and what the device is for. The device, in principle, functions inconspicuously by disburdening us and making a commodity available. Thus, the "promise of modern technology" Borgmann explains is that the use of devices will free us from the misery and work imposed on us by nature and social pressures, and in return, will make our lives better by liberating and enriching our experience. However, Borgmann point out that technology has failed to live up to its promise of liberation, because it is silent as to the ends, purposes, and goods that we desire. Like Heidegger, Borgmann invites us to see through the pervasiveness and self-reinforcing patterns of technology. But he moves beyond Heidegger—by setting up an original voice, Borgmann pleads, to reform technology, we need to revive *focal things* and *focal practices*.

3 On the contributions to the special issue

Albert Borgmann (2006) proposes as an alternative to both the determinist and instrumentalist positions, that, we may call the paradigmatic view on technologies. The basic idea is simple. Borgmann says, "Technology is defined by a pattern or paradigm we have agreed to follow in dealing with reality". Borgmann's suggestion is that for a proper understanding of our cultural malaise, we have to get a grip on technology as a cultural force. But what is technology? In its narrow sense, it is an ensemble of machineries and procedures. Take its most recent instance—information technology. This special issue on "ethics and aesthetics of technologies" consists of thirteen original articles including

two open forum articles and two book reviews by Borgmann and Rosenberger. The purpose of this special issue on “Ethics and Aesthetics of Technologies” broadly defined, is to bring together a range of views from different disciplines such as in the human-computer interaction, E-Learning, architecture, and pervasive & ubiquitous computing.

Albert Borgmann’s “Enclosure and disclosure on content and form in architecture” discusses the technology as a cultural force, where Borgmann discusses the need of architects to understand the cultural force of technology, the ways buildings shape the conduct of our lives, and the responsibilities that follow from the comprehension of contemporary culture. Albert Borgmann’s second article for this special issue “... or is the question of being at once the most basic and the most concrete?” On the ambitions and responsibilities of contemporary American philosophy” argues that philosophy does matter to the everyday life. Borgmann says, “it won’t unless it reaches the concreteness of everyday life. A theory of commodification can get us closer to the things that matter to us in everyday life.”

Anna Croon Fors’ paper, “The beauty of the beast: the matter of meaning in digitalization”, reveals the world in new varieties and forms. She explores experience design and the aesthetic turn in contemporary research in human-computer interaction and interaction design. Fors’ paper concludes that it is crucial to conduct more thorough studies of the relationship between aesthetics and digitalization if we are truly interested in exploring the potential of digitalization in our lives.

Rafael Capuro’s paper, “Digital hermeneutics: an outline”, gives an outline of digital hermeneutics understood as the encounter between hermeneutics and digital technology, particularly the Internet. Capuro raises the attention of IT researchers and hermeneuticists to the theoretical and practical relevance of the encounter of their areas of research that are sometimes considered as incompatible to each other.

Daniel Fallman’s article, “Mobility as involvement: on the role of involvement in the design of mobile support systems for industrial application”, examines the concept of mobility theoretically, from a phenomenological perspective, as well as empirically, through two design case studies. Based on the Borgmann’s philosophy of technology, Fallman’s second article, “A different way of seeing: Albert Borgmann’s philosophy of technology and human-computer interaction”, argues that people and users need to be cautious and rethink the relationship as well as the often-assumed correspondence between what we consider useful and what we think of as good in technology. Fallman argues that Borgmann’s work is relevant and makes a valuable contribution to HCI in at least two ways: first, as a different way of seeing that raises important social,

cultural, ethical, and moral issues from which contemporary HCI cannot escape; and second, as providing guidance as to how specific values might be incorporated into the design of interactive systems that foster engagement with reality.

Diane P. Michelfelder’s article, “Philosophy, privacy, and pervasive computing”, argues for the existential autonomy: the right to decide for ourselves at least some of the existential conditions under which we form and develop our ways of life, including our relations to information technology.

Paul Durbin’s essay, “Philosophy, activism, and computer and information specialists Revisited”, argues for the activism of the computer professionals, who are activists, joining with others to solve the technosocial problems that vex our society, including problems of the computer and information professions.

Norm Friesen’s article, “Ethics and the technologies of empire: e-learning and the US military”, discusses that instructional technology, and the cognitivist and systems paradigms that underpin it grew out of the military-industrial complex during the Cold War. Friesen’s article concludes by stressing that the end of the Cold War, along with more recent developments concerning the US military, presents a juncture offering both opportunity and challenge to the evolving field of educational technology or “e-learning.” Norm Friesen’s second article “Mind and Machine: Ethical and Epistemological Implications for Research” argues that technologies are significant in research not only as instruments for gathering data and analysing information, but they also provide a valuable resource for the development of theory—in terms of what has been called the “tools to theory heuristic.” Focusing on the specific example of the fields of educational psychology and instructional technology and design, Friesen’s second article begins by describing how the workings of the “tools to theory heuristic” are evident in the metaphors and descriptions of behaviourism, cognitivism and constructivism. Friesen argues that in applied disciplines like educational technology and human-computer interaction, technology plays two important but conflicting roles.

Anthony Crisafi & Shaun Gallagher’s article, “Hegel and the extended mind”, argues that an unusual combination of theories raises the question of how far one can extend the notion of extended mind and whether cognitive processing can supervene on the operations of social practices and institutions.

Lucas Introna’s article “The ‘measure of a man’ and the ethos of hospitality: towards an ethical dwelling with technology” argues for the impossible possibility of an ethical dwelling with technology. In arguing for an ethical comportment in our dealing with technology, Introna not only argues for the consideration of the ethical implications

of technology (which we already do) but also, and more importantly, for an ethics of technological artefacts qua technology. To develop the argument, Introna uses an episode in *Star Trek* where the fate of the highly sophisticated android Commander Data is to be decided. Thereby Introna demonstrates how the moral reasoning about Data remains anthropocentric but hints to other possibilities.

Mihai Nadin's article, "Anticipation and the artificial: aesthetics, ethics, and synthetic life", argues for anticipation—which is at work even at levels of existence where we cannot refer to intelligence. The prospect of artificially generating aesthetic artefacts and ethical constructs of relevance to a world in which the natural and the artificial are coexistent cannot be subsumed as yet another product of scientific and technological advancement.

In order to address practical questions in philosophy of technologies, philosophers such as Hans Lenk, Walther Zimmerli, and Bernhard Irrgang have been developing a hermeneutic understanding of both technology and ethics. The structures of technological practice, professional activity, and everyday life, together with the background of an implicit technological knowledge, are the basis of collective technological action in a cultural context. The meaning of a technology does not necessarily have to be linguistically articulated in order to be present in a culture. The ways technological practices themselves structure actions include different forms of meaningfulness. This leads to a kind of existential pragmatics of technological action and its models of representation (Irrgang and Corona 1999).

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