Foreword: Cyborg Ethics We Must

It is a pleasure to write the Preface for Ivana Greguric's book *Philosophical Issues of Human Cyborgization and the Necessity of Prolegomena on Cyborg Ethics.* I first met the author at the 2013 Computer Ethics: Philosophical Enquiry (CEPE) on *Ambiguous Technologies: Philosophical Issues, Practical Solutions, Human Nature* held in Lisbon. At that time I was struck by the timeliness and importance of her work on cyborg ethics. Over the last five years, her philosophical inquiry into this new area has deepened and evolved. The may stones uncovered in this current volume attest to the dedication and thoroughness of a young scholar whose work has truly blossomed, making a contribution to Philosophy of Technology, Technoethics and other areas of research scholarship and practice that revolve around the challenging intersection of humans and new emerging technologies.

How do we go about questioning the essence of our emerging cyborgised reality of the age of *scientific humanism?* This is a both a challenging and popular topic at a time where controversial technological changes are outpacing our ability to navigate their possible impact on human life and society. This helps situate the discussion on the transtechnical essence of technology and changing assumptions humanism and transhumanism which the author contends, "show that the cyborgisation of man through actions for improving and reshaping his body and mind has the goal of establishing the man as the appropriate means of *scientific work* and the life boundaries of the cyborgised community of *scientific humanism* as *naturalism* set forth by it." The author builds a strong case for the necessity of cyoborgoethics to help guide moral actions and protocols for preserving the vitality of life within a rapidly changing technologically society.

The book begins with a retracing of Hegel's system of philosophy and Marx's criticism of the absolute notion of Hegel's system of philosophy. Of particular importance is the emphasis placed on the nature of historical reality and the essence of alienation that arises in humans during periods of societal change. Chapter 1 and Chapter 2 in this volume draw attention to the important role of philosophy in guiding society to rethink the ontological and anthropological importance of human and the creation of new forms of life with a unique non-biological ontological basis to deal with. This sets the stage the discussion (Chapter 3) on the dialectic transformation of machine into machinery with an eye towards transhumanist perspectives. This early ground work helps situate the contemporary treatment of cyborg ethics within a historical and philosophical framework. This is important in guiding researchers in exploring the essence of *scientific work with an eye towards the* cyborgisation movement which is reshaping human life and society.

Following the historical and philosophical grounding of the cyborg, Chapter 4 begins drawing attention to what it means to be living in a cyborg era and what variations and applications are out there. This chapter covers key considerations including: Conceptualizations of cyborgs, replacement procedures,

normalization procedures, improvement procedures, reshaping procedure, and types of cyborgs (animo cyborgs, cyborg insects, other animal cyborgs, homo cyborgs). It also deals with targeted areas of human-cyborg enhancement including: Bionic arms, bionic fingers, bionic legs, bionic ear, bionic eyes, bionic hearts, bionic skin, bionic tongues, bionic brains, and bionic clothes. The chapter coverage extends to discussing the importance of computer interfaces and key applications that brought undergraound cyborg research into the mainstream, namely, Kevin Warwick's cybernetic projects, cyborg popularization in the arts, Steve Mann's portable computers, augmented reality goggles, and robo-cyborg.

What volume on the topic of cyborg ethics would be complete without address concerns about hacking human beings. The book discusses the various areas of human enhancement application where such concerns arise including physical enhancements (self-identification via chip, payment via chip, hearing enhancement via magnetic headsets, infra-red spectre vision enhancement, and chips for monitoring bodily functions), cognitive enhancement (deep brain stimulation, memory chips, neuron manipulation, and neuron dust), and mood enhancements (mood improvement, neuroprosthetics) and life extension technologies (cyborg digital mind, cyborg digital body, and cryonic body preservation). This rapidly evolving landscape of ethical hacking possibilities maps out one of the most promising areas of Technoethics on the horizon.

The later chapters (Chapter 6-9) deepen the discussion and extend the case for cyberethics. The importance of virtual reality in human life, avators, and communicating with digital characters demonstrates the pervasiveness of technology's penetration into our lives, not only physically, cognitively, and emotionally, but also environmentally. The 'cyborgisation' of humans in virtual space in Chapter 6 extends the landscape of the discussion on cyborgethics. Following a popular trend in current Philosophy of Technology and Technoethics (see *Techne Journal* for more), the body is revisioned as a cybernetic organism in Chapter 7 as the text delves into cyborg anthropology and the new types of information, matter, and energy exchanges taking place that need to be appreciated. This harkens back to the pioneering cybernetic work of Norbert Weiner and extends and extends into current and future reconfigurations of man-machine relations that are shaping human life and society from human enhancement to driverless cars. The discussion of cyborgization in the arts, increasing integration of robots in society, and future possibilities covered in the remaining chapters entrenches the case for cyborg ethics by demonstrating the popularization of cyborgs in areas of life and society. This helps show that cyborg normalization may be just over the horizon. The expert interviews from internationally acclaimed leaders in the field, Richard Walker, Kevin Warwick, and Amal Graafstra, provide additional insight into how cyborgization came from and where it is, or can be going. Overall, the book makes a strong case for the necessity of cyborgethics.

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