

# **Spiritualities, ethics, and implications of human enhancement and artificial intelligence**

Edited by

**Christopher Hrynkow**

University of Saskatchewan

Series in Philosophy



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**Setting the stage for conversations  
about human enhancement,  
artificial intelligence, and spirituality**



# 1.

## **Engaging issues at the intersection of human enhancement, artificial intelligence, and spirituality**

Christopher Hrynkow

*University of Saskatchewan*

The majority of the papers in this volume have their origins in the inaugural conference of the Saskatchewan Center for Science and Religion, held in Vancouver BC in November 2017. This gathering was generously supported by the center's founding benefactor Wei Lei. The goal of the conference was to initiate and deepen interdisciplinary conversations about human enhancement, artificial intelligence, and spirituality. Those able to attend were treated to papers, given by academics working from diverse perspectives including scientists and scholars of religion, who considered the spiritual implications of issues surrounding human enhancement and artificial intelligence. A wide-ranging dialogue ensued concerning topics like how artificial intelligence may augment spirituality or make it obsolete, the challenge of transhumanism for world religions, the religious-ethical implications of artificial intelligence, faith traditions' reactions to efforts to engineer human enhancement, and the opportunities and significant tensions emerging for religious traditions in light of recent developments in artificial intelligence research.

The conference opened with a memorable keynote address from Ray Kurzweil, a transcribed and edited excerpt of which performs the same function for this volume. Herein, Kurzweil situates his contribution in the area commonly named as transhumanism with references to religiosity and spirituality that will be of great interest to scholars in the field of religion and science. The interweaving of elements of his life story and family history with his views on the transformative potential of various information and intelligence technologies is fascinating. The keynote elicited some interesting questions for the audience and poignant responses from Kurzweil, a selection of which are also presented in edited form for the readers' consideration.

The subsequent chapters engage and contribute to the academic discourse surrounding human enhancement, artificial intelligence, and spirituality with foci on the authors' respective areas of expertise. These body chapters begin with a sharp contrast to the perspective represented in Kurzweil's contribution. Irene Dabrowski and Anthony Haynor compare their articulation of a Catholic worldview with what they illustrate, building upon the work of the Jesuit thinker Henri de Lubac, as atheist humanism's foothold within transhumanism. Their chapter is helpful in setting the stage for the reader to ponder ethical undercurrents circulating among transhumanists. It also names an alternative bound together with their articulation of a Catholic worldview. Next, in this section, Mark Graves calls our attention to some of the ethical issues that come into play when AIs interact with models of human morality and spirituality. Graves shares a particular concern with how these models offer a space for AIs to undertake tasks in support of human flourishing, while navigating the thorny area of suffering. He also poignantly identifies some of the tensions that accompany efforts to construct models of shared human values that could be employed by AIs who will have a different embodiment than *Homo Sapiens*. These models can, in turn, allow them to interact morally with humans. Graves raises the possibilities of a modeling or morality that can integrate shared memories and hope along with social, religious, and shifting interpretative elements building upon the contributions of an already existing community of interpretation concerned with AI spirituality. Employing cutting edge methodologies for analyzing moral content, he draws our attention to the possibilities of AIs ability to process texts quickly as a potentially fruitful path to establishing such models, a path he frames as analogous to formal human study of morality and religiously significant texts.

The present volume then turns to consider the implications of human enhancements within contemporary societies. It begins with Una Stroda employing Apple's well-known Siri aid as an entry point to consider the place of humor in a transhumanist future. The body of her chapter considers how laughter is treated in diverse faith and cultural traditions through a comparative lens. Stroda then intriguingly considers how select aspirations of transhumanists will shift laughter and its manifestations as we know them. This section of the book ends with Tracy Trothen's fine piece addressing the intersections amongst spirituality, religion, sport, and human enhancements. She presents several moral dilemmas in order to bring some of the latest developments and issues in human enhancement into dialogue with the theological concept of hope. Moreover, she relates both areas to the experiential elements of sport, from (1) performances that appear 'perfect' to external viewers to (2) the emic achievement of 'flow'. Trothen leaves her reader contemplating the importance of hope for framing and shifting debates concerning the ethics of human enhancements in sport.

Michael Caligiuri opens the section on technology and the moral human body with his impressive survey of Roman Catholic perspectives on the philosophical and ethical consequences of cyborg technology as they extend outwards from both lay and clerical bodies. In the process, he skillfully weaves together both secular and religious antecedents to such discussions in a manner that is sure to peak reader interest. Caligiuri concludes by articulating six principles for guiding human enhancement, which he positions as congruent with Roman Catholic moral teaching and thought. Next, Jacob Boss turns to look at the situation of what he informatively names as the '*petite cyborg*', who is distinguished by a fusing of the human with cybernetics that remains dependent on the global energy and capitalist systems. With reference to the diverse discourses drawn from sources including science fiction and the thought of Bruno Latour, he considers some possible futures that can arise from the horrors and possibilities of cybernetics. This section closes with a chapter typed by myself that employs the thought of Pope Francis on integral ecology and articulates its relationship to scientific endeavor. The results of that conversation are applied as a lens through which to consider both the promises and perils of radical life extension. A particular concern of this chapter is to place these promises and perils in relation to socio-ecological flourishing understood as flowing from humanity's status as embodied creatures existing in intertwined social and ecological contexts within an Earth community.

The section on worldviews and artificial intelligence begins with Braden Molhoek's exploration of the application of AI ethics to transhumanism with reference to Michael Waltzer's reflections on citizenship. Molhoek asks a number of poignant questions that set the stage for the insights presented in subsequent chapters. Molhoek's contribution concludes with a compelling treatment of some ways that religious engagement will be shifted by plausible developments in AI and transhumanism. Christopher Benek continues the focus on AI, looking at its effects on both technologists being drawn towards considering religiosity and theologians being drawn to reconsider humanity's role in the cosmos. Benek undertakes this exploration through his own three-part theological lens, leading to an argument in support of his participatory model. In this manner, he presents a theological hermeneutic aimed at allowing people to better themselves and their anthropological location in light of exponential developments in AI. This section ends with Peter Robinson unfolding his innovative research and some of its spiritual implications. Particularly noteworthy here is how Robinson challenges some of the misperceptions that people have about the ability and potential of computers to empathize. Further, he makes some intriguing connections to the concept of *imago dei* in his chapter.

In the penultimate chapter, Philip Butler explores concepts of spiritual enhancement in an intriguing way that focuses upon the ethical implications of spiritually augmenting brain-computer interface's ability to mimic the biochemical processes stimulated by psychedelics. The reader is sure be impressed by his in-depth knowledge of these areas and his ability to think through a fascinating set of ethical implications of this emergent transhumanist technology. This volume's final chapter examines the potential for harm, collateral risks, and some of the unintended negative consequences of intrusions into people's mental domains associated with the emerging field of neuro-technology. Alan Weissenbacher shows that these relatively unproblematized interventions hold coercive properties. In response, he argues for the importance of his criterion of 'acceptability across ideologies' to avoid undue manipulation of neuro-technology in the service of ideologies in their religious, consumerist, and political forms.

This introduction has given a flavor of what is on offer in this volume. Careful attention to each chapter will repay the reader with interest in the complex and pressing issues that come into play when considering the spiritual and religious implications of human enhancement and artificial intelligence. I sincerely hope that each reader's learning and reflection will be enriched in a comparable way to be my own experience in editing this volume. In this light, I invite you to enjoy the diverse, innovative, and intriguing voices that are brought to the fore in the pages that follow.

-Christopher Hrynkow, Toronto, June 2019

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# List of Abbreviated Terms

Arterial Spin Labeling (ASL)

Artificial General Interligence (AGI)

Artificial Intelligence (AI)

Artificail Intelligences (AIs)

Artificial Superintelligence (ASI)

Blood Oxygen Level Dependence (BOLD)

Brain Computer Interface (BCI)

Catholic News Service (CNS)

Cerebral Blood Flow (CBF)

Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)

Deep Brain Stimulation (DBS)

Default Mode Network (DMN)

Electroencephalography (EEG)

Erythropoietin (EPO)

Fédération Internationale de Football Association (FIFA)

Functional magnetic resonance imaging (fmri)

Genetic Virtue Project (GVP)

Human Level Machine Intelligence (HLMI)

Intelligence Augmentation (IA)

Latent Semantic Analysis (LSA)

Lysergic acid diethylamide LSD

Magnetoencephalography (MEG)

Major Depressive Disorder (MDD)

Major League Baseball (MLB)

Medial PFC (MPFC)

Medial Temporal Lobes (MTL)

MIDI (Musical Instrument Digital Interface)

National Health Service (NHS)

Natural Language Processing (NLP)  
N,N-dimethyltryptamine (DMT)  
Obsessive Compulsive Disorder (OCD)  
Organisation for Economic Cooperations and Development (OECD)  
Parahippocampal Cortex (PHC)  
Parahippocampal Gyrus (PHG)  
Pontifical Academy of Life (PAL)  
Positron Emission Tomography (PET)  
Posterior Cingulate Cortex (PCC)  
Prefrontal Cortex (PFC)  
Primary Visual Field (V1)  
Quality of Life (qol)  
Radio Frequency Identification (RFID)  
Resting State Functional Connectivity (rsFC)  
Retrosplenial Cortex (RSC)  
Secondary Visual Field (V2)  
Single Photon Emission Computer Tomography (SPECT)  
Spiritually Augmenting Brain Computer Interface (SABCI)  
Structural Equation Models (SEM)  
Survival Risks (s-risks)  
Task Performance Network (TPN)  
Transcranial Magnetic Stimulation (TMS)  
United States Conference of Catholic Bishops (USCCB)  
Universal Basic Income (UBI)  
Ventral Prefrontal Cortex (VPFC)  
Visual Field 3 (V3)  
Visual Field 4 (V4)  
World Anti-Doping Agency (WADA)

## About the Contributors

**Christopher Benek** is the Pastor and CEO of The CoCreators Network. He is a Presbyterian Church (U.S.A) Pastor who has served churches in New Jersey, Ohio, South Carolina and Florida. Across the globe, he is considered a leading expert regarding Artificial Intelligence and Emerging Technology. The Rev. Dr. Benek is regularly featured in media sources worldwide. He is a frequent speaker who is internationally known for his social and religious commentary. You can read more about him at [www.christopherbenek.com](http://www.christopherbenek.com).

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**Michael Caligiuri** is an alumnus of the University of Manitoba and the University of Ottawa, where he earned degrees in both the sciences and humanities, and a PhD in Religious Studies. He is a Research Fellow of St. Paul's College and an instructor in Catholic Studies and Religious Studies at the University of Manitoba. His areas of focus include religious and secular bioethics, issues in body modification technology, cybernetics and nanotechnology, as well as science, ethics, and religious systems.

**Irene J. Dabrowski** is Associate Professor of Sociology at St. John's University, Staten Island Campus, New York City, where she served as Chair of the Division of Social Sciences for a decade. Dr. Dabrowski's main areas of expertise are futurology, the sociology of health and illness, urban sociology, women's studies, and the sociology of education. Her research and teaching incorporate interdisciplinary, holistic, and systems thinking. She has published an article (with Anthony L. Haynor), “Valuing the Future,” in a World Future Society

volume. As a Visiting Scholar at The Hastings Center (a think tank that focuses on biomedical ethics), Dr. Dabrowski investigated the ethical dimensions of holistic health care, integrating the work of the quantum physicist David Bohm into this project. Since 2005, she has served (with Anthony L. Haynor) as Co-Coordinator of the New Jersey Chapter of the World Future Society. Dr. Dabrowski is an advisory board member of the Lifeboat Foundation, an international think tank that assists humanity in addressing the existential risks and misuses associated with technology. As a member of SENCER (Science Education for New Civic Engagements and Responsibilities), she has attended summer institutes on science education and its implications for student civic engagement. Dr. Dabrowski is as a Liaison Board Member of the East Coast Colleges Social Science Association (ECCSSA) and has served as Associate Editor of *The ECCSSA Journal*, where she published an article on the post-positivist paradigm that called for a revision of social science in response to the Singularity. Her recent scholarship has critiqued artificial intelligence and a transhumanist worldview in an emerging electronic civilization, drawing on the insights of Catholic Social Thought.

**Mark Graves** is Visiting Research Assistant Professor at University of Notre Dame's Center for Theology, Science, and Human Flourishing with his research occurring at the intersection of artificial intelligence, psychology, and theology. He earned his doctorate in computer science at the University of Michigan in the area of artificial intelligence, completed a postdoctoral fellowship in genomics at Baylor College of Medicine as one of the first computer scientists to work on the Human Genome Project, and worked in biotechnology and pharmaceutical research for ten years before studying systematic and philosophical theology at Graduate Theological Union (GTU) and Jesuit School of Theology at Berkeley. He has published forty technical and scholarly works in computer science, biology, psychology, and theology, including the books *Designing XML Databases* (2002), *Mind, Brain, and the Elusive Soul* (2008) and *Insight to Heal: Co-Creating Beauty Amidst Human Suffering* (2013) and taught courses engaging the relationship between science and religion at Santa Clara University, the Graduate Theological Union, University of California Berkeley, Fuller Theological Seminary, and the University of Notre Dame. His current research in cultural analytics and machine ethics uses semantic text analysis to create computational models of human morality.

**Anthony L. Haynor** is Associate Professor of Sociology in the Department of Sociology, Anthropology, and Social Work at Seton Hall University in South Orange, New Jersey. He served for several years as department Chair. Dr. Haynor's main areas of interest are sociological theory, social problems, self and society, the sociology of knowledge, and social change. In his book, *Social*

*Practice: Philosophy and Method* (Kendall/Hunt, 2003), Dr. Haynor presented a communitarian method for social problem-solving. More recently, he contributed a chapter, "Classical Sociological Theory," to the *Cambridge Handbook of Sociology* (2017). Dr. Haynor has published (with Irene J. Dabrowski) in the area of futurology and has given presentations at the World Future Society Annual Meetings. He has also published (with Irene J. Dabrowski) on Catholic Social Thought, most recently on the contribution of the document, *Gaudium et Spes*, to an analysis and assessment of the transhumanist movement. Dr. Haynor is currently working on integrating the human sciences in the service of maximal human flourishing in a civilizational epoch characterized by ever increasing instrumental rationality, demographic diversity, concentrations of wealth and authority, and global interdependence.

**Christopher Hrynkow**, PhD (Peace and Conflict Studies, University of Manitoba), ThD (Christian Ethics, University of Toronto) is an associate professor in Religion and Culture at St. Thomas More College, University of Saskatchewan. From January 2019 to July 2019, he is serving as Patrick and Barbara Keenan Visiting Chair in Religious Education at the University of St. Michael's College in the University of Toronto. In July 2019, he will return to St. Thomas More College as Department Head and Undergraduate Chair in Religion and Culture for the University of Saskatchewan. There, Hrynkow also teaches courses in Religious Studies, Catholic Studies, Peace Studies, and in the Critical Perspectives on Social Justice and the Common Good program.

**Ray Kurzweil** is one of the world's leading inventors, thinkers, and futurists, with a thirty-year track record of accurate predictions. Called 'the restless genius' by *The Wall Street Journal* and 'the ultimate thinking machine' by *Forbes* magazine, he was selected as one of the top entrepreneurs by *Inc.* Magazine, which described him as 'the rightful heir to Thomas Edison'. PBS selected him as one of the 'sixteen revolutionaries who made America'.

Ray was the principal inventor of the first CCD flat-bed scanner, the first omni-font optical character recognition, the first print-to-speech reading machine for the blind, the first text-to-speech synthesizer, the first music synthesizer capable of recreating the grand piano and other orchestral instruments, and the first commercially marketed large-vocabulary speech recognition. Among Ray's many honors, he received a Grammy Award for outstanding achievements in music technology; he is the recipient of the *National Medal of Technology*, was inducted into the *National Inventors Hall of Fame*, holds twenty-one honorary Doctorates, and honors from three U.S. presidents. Ray has written five national best-selling books, including New York Times best sellers *The Singularity Is Near* (2005) and *How To Create A Mind* (2012).

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**Peter Robinson** is Professor of Computer Technology at the University of Cambridge, where he works on problems at the boundary between people and computers. This involves investigating new technologies to enhance communication between computers and their users, and new applications to exploit these technologies. His recent work has included desk-size projected displays, emotionally intelligent interfaces and applications in semi-autonomous vehicles. This has led to broader explorations of what it means to be human in an age of increasingly human-like machines.

**Una Stroda** is a musician and a theologian. A native of Latvia, she currently resides in Chicago, IL. She holds degrees in piano performance, in ecumenical studies, in cross-cultural theology, and is a recent PhD graduate from the Lutheran School of Theology at Chicago. Her dissertation explores biblical, historical, and theological aspects of laughter in relation to the divine: the laughing God, the presence and absence of laughter in scriptures and the Christian tradition, and eschatological perspectives of human laughter.

**Tracy J. Trothen** is a professor of ethics at Queen's University, jointly appointed to the School of Religion and the School of Rehabilitation Therapy where she teaches in the graduate Aging and Health Program. She is an ordained minister in The United Church of Canada, a certified Supervisor-Educator in Clinical Spiritual Health (CASC), and a Registered Psychotherapist (CRPO). Trothen's areas of research and teaching specialization include: embodiment, biomedical and social ethics, Christian theology, spiritual health, aging, human enhancement technologies, and sport. Trothen is the author of *Spirituality, Sport, and Doping: More than Just a Game* (2018). Her other recent books include *Winning the Race? Religion, Hope, and Reshaping the Sport Enhancement Debate* (2015), and the anthology *Religion and Human Enhancement: Death, Values, and Morality* co-edited with Calvin Mercer (2017). She is currently at work, with Calvin Mercer, on a study guide tentatively entitled *Living Healthy for 500 Years and Other Technological Enhancements: Heaven or Hell?* Trothen is a member of the American Academy of Religion's Human Enhancement and Transhumanism Unit Steering Committee.

**Alan Weissenbacher** served many years as a counselor to homeless addicts, removing them from the urban setting and empowering them to run a farm while receiving counseling, spiritual care, and job training. His work with these clients inspires his research into neuroscience and spiritual formation, exploring ways to improve religious care and addiction recovery through understanding how the brain works. Recent publications include the chapter on neuroscience and religion in the textbook, *Religious and Science* edited by Gary Ferngren and an article exploring the neural correlates of instantaneous and gradual religious change published in *Zygon*. He is the book review editor for *Theology and Science* and is a father to two young boys.



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