

and scientific methods. Science and underrepresented populations, which is mentioned in the first chapter, is again mentioned very briefly here with examples illustrating how trust in science might be compromised.

Chapter 6 discusses how motivation and social identity can affect how one evaluates and takes a position on scientific findings. How information technology is influenced by, and in turn influences, these factors, particularly how we sort ourselves into groups online and the rise of “fake news.” The point about communication strategies being more effective from someone “in” the group and trying to foster identification can be an effective strategy when thinking about communicating or addressing conflict regarding scientific issues.

The chapter about emotions and attitudes is probably one of the most challenging for scientists, as it goes beyond focusing on facts and evidence, exploring how feelings and emotions affect how one thinks. The example they use is the demotion of Pluto from full planet status—an issue that does not have a lot of effect on daily life, unless you are a planetary astronomer, but which generated much public attention. It is a good example of how an emotional response can affect what one thinks about the immutability of scientific findings and science in general. Another crucial discussion addresses how emotional responses to studying science in school or interacting with less-formal science education at institutions (museums, zoos, etc.) can make some science knowledge easier or more difficult to think about.

The book concludes with a summary of the main points and a list of action points identified as “Solutions: A Field Guide to Addressing Science Denial, Doubt, and Resistance.” As with the end of the earlier chapters, these are divided into sections for individuals, educators, science communicators, and policy makers, with some expanded points and details.

Overall, the book is well written at a general level and is easy to follow. The examples illustrate rather basic dilemmas in science denial and doubt, and the discussions are not very formal and are often personalized (frequently using the authors’ studies and anecdotes). Although the chapters in the second section do go deeper into the psychological theories and evidence for looking at how we think, or don’t think, about science, the information is still at an introductory level. For more detail, each chapter is very thoroughly referenced and there are extensive

citations for further background, exploration, and deeper detail.

Although the book is not a difficult read, I must admit that it took me some effort to pick it up and get through it. As a physician and an educator, I am used to discussing difficult questions about vaccinations, use of medications, clinical trials, as well as known unknowns and unknown unknowns, in medicine. During the pandemic, however, the amount and fervency of public, private, and professional controversy and discussion has been at times overwhelming. One point of the book is that as individuals each of us needs to examine how we look at science, how we think about what we know and what we don’t know, and how we try to understand others who don’t share our opinions or evaluation of evidence. I recognized a few of my own emotional responses and cognitive biases. While this book will not eliminate science denial, it does lay out some steps to having a positive impact, both on the individual and societal level.

With regard to spiritual or Christian doctrinal issues and how these have sometimes clashed with science, the authors present examples (i.e., evolution and a Christian university student) thoughtfully and without judgment, while still standing strong on the importance of science and understanding how these are not mutually exclusive and how the conflict can be addressed.

As I write this, I had been hoping that the pandemic would be over by now and that there would be less need for a book like this. After the pandemic, there will continue to be climate change and other important issues requiring scientific thought and attention. Having read the book through and thinking about where my own responses were coming from, I do feel more optimistic and better prepared to go out there and be an advocate, not an adversary, when trying to work through situations that involve science denial.

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## TECHNOLOGY

**THE ROBOT WILL SEE YOU NOW: Artificial Intelligence and the Christian Faith** by John Wyatt and Stephen N. Williams, eds. London, UK: SPCK Publishing, 2021. 256 pages. Paperback; \$31.99. ISBN: 9780281084357.

# Book Reviews

Writing about the impact of artificial intelligence on our understanding of what it means to be human, John Wyatt summarizes what I found to be the most helpful and interesting ideas in *The Robot Will See You Now*:

Might it be possible that the twenty-first century provides a ... range of profound challenges to orthodox understandings of human embodiment, personhood, relationships, morality and future hope? The ubiquity and effectiveness of various forms of machine intelligence have created a distorting lens through which our humanity is being perceived in new ways. ... But perhaps this time in history represents a unique opportunity for creative thought and engagement as a Christian community, to deepen and enrich our understanding of what it means to be human, of the extraordinary possibilities of the tools we are creating and of the strange new world in which we find ourselves. (p. 72)

In each chapter a different writer offers their perspective on particular challenges posed by artificial intelligence (AI)—sometimes AI as implemented in existing technology, sometimes AI as imagined in literature, film, or futurist thinkers' predictions—to particular philosophical or theological claims consistent with Christian faith. (The writers are Christians; the book assumes a reader familiar with the vocabulary and sympathetic to the foundational beliefs of Christianity.) For example, Christina Bieber Lake draws on science fiction writers' ideas about the potential and significance of AI, suggesting that increasingly realistic simulation technology undermines our ability to discern what is real. She suggests this may lead us to question whether the distinction between simulation and reality is even meaningful, whether it matters if something is real or simulated.

Later in the book similar concerns are echoed by other writers as they consider robots of various kinds, designed to mimic human beings in various ways: as companions or caregivers, soldiers or sex partners. (Some readers may find Andrew Graystone's descriptions of "sextech" awkward reading, but his chapter also provides thoughtful reflection on the significance of sex in human relationships and the absence of such significance in a "relationship" between a person and a technological device.) A recurring theme is summarized by Vinoth Ramachandra:

... by using a common vocabulary (for example, "information," "intelligence," "neural networks," "emotions") when discussing minds, brains and

computers, we humanize the machines even as we mechanize humans. (p. 85)

As a computer scientist who is a Christian (and an educator of future computer scientists at a Christian university), I know that computer programming, and quantitative problem solving more generally, can be fun and meaningful. I am thankful to God for a job I enjoy and believe we can honor him by making and sharing good software—where "good" is not only defined by how the software is used but encompasses elegance and beauty in specification, design, and implementation as well. This perspective, or something like it, is mentioned several places in the book—most clearly by Crystal Downing and Noreen Hertzfeld in their discussion of human creativity, including technological making, as a reflection of our having been created in the image of a creative God. (Andrzej Turkanik writes about this as well, but his focus is on the creativity of composers and visual artists, not scientists or engineers.) Unfortunately, in several chapters there is a sense of "us and them," where "us" refers to Christians who are not involved in the development of new technologies, and "them" refers to those other people—or perhaps robots, in the not-too-distant future—who are.

The book includes an introductory chapter written by Peter Robinson, professor and researcher in the field of human-computer interaction, but this is written as an overview of vocabulary and current trends for readers less familiar with AI; computing professionals are mentioned but only to point out their responsibility to uphold appropriate ethical standards. I wonder whether a Christian engineer or software developer might be more receptive to a book like this if it included more concrete affirmation of the (very human) creative and cooperative work behind what is called artificial technology.

Recently I found myself in need of emergency medical care, frightened by symptoms different from anything I had experienced before. In a situation like this, one may feel vulnerable, helpless, and alone. After this (thankfully temporary!) illness, I reread John Wyatt's chapter on artificial intelligence applications in health and social care—the chapter most evocative of the book's clever title, *The Robot Will See You Now*. His writing about the deeper relational needs of a physically sick person—solidarity, compassion, understanding, empathy—struck me with a new and powerful urgency as I thought about my own recent experience. How would I have reacted to an invitation to pretend that a social robot could offer me these things? I am not sure. I knew I needed help;

perhaps I was ready to accept help from whatever source was available. But it makes me very thankful, when I try to imagine being helped by a robot, to have had the opportunity to interact with caring human beings whose compassion and understanding I can be confident was genuine.

Overall, I found *The Robot Will See You Now* to be a very thoughtful and well-written book, and I would recommend it to readers interested in reflecting on the interplay between artificial intelligence—both the technology and the philosophical or cultural ideas associated with that technology—and our ideas and assumptions about what it means to be human. The concern mentioned above, about how engineers or software developers might respond to the book, should not be interpreted as criticism. My hope is that Christian computing professionals would in fact be receptive to a book like this and would think carefully about the long-term impact of their work on how people understand themselves and their relationship to technology.

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**RELIGION AND THE TECHNOLOGICAL FUTURE: An Introduction to Biohacking, Artificial Intelligence, and Transhumanism** by Calvin Mercer and Tracy J. Trothen. Cham, Switzerland: Palgrave Macmillan, 2021. 266 pages. Paperback; \$43.93. ISBN: 9783030623586.

Christians understand the world in terms of history. They look back to the creation and the Fall, are encouraged by the unfolding story of God's plan to redeem his people, and they look forward to the Second Coming, the resurrection of the dead, and the eschaton. But Calvin Mercer and Tracy J. Trothen claim: "The religions of the world will come to an end, or thrive, depending on how they respond" to the challenges of emerging human enhancement technologies (p. 3). Really? An existential threat to Christianity? Is such a threat possible? And if the Holy Spirit is working through today's church, how could "human enhancement technologies" affect its thriving?

To begin, it is necessary to note the first word of the book's title: religion. Mercer and Trothen are professors of religious studies at secular schools, East Carolina University and Queen's University, respectively. In such programs, religions are often reduced to social and cultural phenomena. They are important in human history, culture, international affairs, and other fields, but their internal details, such as their central god(s), are of secondary importance.

Serious Bible-believing Christians *are* interested in how the church and the gospel are received in the world, but the authors' *exclusive* focus on externals may be unsettling. So, what are Mercer and Trothen up to?

Like others, Mercer and Trothen call attention to how futuristic technologies challenge conventional beliefs, including central elements of Christian theology, such as the doctrine of human beings made in the image and likeness of God, the *imago Dei*. Indeed, through Part I, chapters 1–4, they project how future technology will interact with—and threaten—two broad categories of religious faith: monotheistic and karmic. Chapter 3 explores basic concepts of these faith categories and the technological enhancements they will encounter.

In Part II, chapters 5–7, the authors survey the potential for techno-religious conflicts and synergies. And in Part III, chapters 8–10, they introduce "radical" enhancements: cryonics, mind uploading, and artificial superintelligence. Finally, in Part IV, chapter 11, Mercer and Trothen reiterate their main points, with special emphasis on their claim that "the future of religion and the welfare of society in general depends in part on how religions address radical human enhancement in the coming years" (p. 226).

*Religion and the Technological Future* was written as a textbook. All eleven chapters end with "Questions for Discussion," most requiring students to judge whether some development would be good or bad. No doubt, such exercises would test students' ethical reasoning, so the book may serve the pedagogical work of Mercer and Trothen. However, its shortcomings make it unsuitable for other audiences.

Readers with serious religious commitments will doubt the need to adjust their beliefs to accommodate technological change. Mercer and Trothen are aware of this fact; they frequently note that religious conservatives are less open to change. But history shows that change does occur, sometimes driven by conservatives willing to sacrifice stability in order to preserve what they value more. Indeed, with sufficient reasons, today's religious conservative could be tomorrow's revolutionary. Such a shift could occur within one religious worldview, its internals shaping how believers view external affairs and act to produce change.

Mercer and Trothen understand that religious reasoning is important, but they offer no direct doctrinal evidence why technology is a substantial threat to