

There is a significant subgenre one might call either acidic satire, anti-religious, or even anti-Christian science fiction. Well-known examples of this challenge to McGrath's creative interaction thesis include Michael Moorcock's *Behold the Man* (1969); James Morrow's linked series *Only Begotten Daughter* (1990), *Towing Jehovah* (1994), *Blameless in Abaddon* (1996), and *Bible Stories for Adults* (1996); Gardner Dozois, ed., *Galileo's Children: Tales of Science vs. Superstition* (2005); and Thomas Disch, *The Word of God* (2008).

A few typos appear in McGrath's text, but they are easy to spot. For instance, carbon monoxide (p. 89) should be carbon dioxide. As I have suggested, the author was operating under tight publisher's constraints, limiting his discussion of significant stories and his ability to provide a more comprehensive list of relevant references. The multidisciplinary literature on the complex relations of theology and science fiction is huge, to match the deep and wide primary literature (and filmography). For a brief, sound, interesting introduction to the field, I can certainly recommend this book.

Reviewed by Paul Fayter, a retired pastor and historian of science, theology, and science fiction. He taught at the University of Toronto and at York University in Toronto for thirty years. He lives in Hamilton, ON.



TECHNOLOGY

THINKING MACHINES: The Quest for Artificial Intelligence and Where It's Taking Us Next by Luke Dormehl. New York: TarcherPerigee, 2017. 275 pages, including bibliographic references and index. Paperback; \$16.00. ISBN: 9780143130581.

Thinking Machines is a book that gives you the facts about artificial intelligence (AI) in a well-written and enjoyable way. The book is a good read for those who know little about AI and want to see what all the fuss is about. In this small volume, author Luke Dormehl (author of *The Formula: How Algorithms Solve All Our Problems ... and Create More*, and contributor to *Fast Company*, *Wired*, etc.) introduces the reader to the history of AI, where AI can be found today, and where AI seems to be going in the future.

Chapters 1 and 2 are about the history of AI. AI has had a somewhat "on again, off again" past, with many early attempts to build systems that seemed promising, but ultimately were disappointing. The chapters explain this history and how, ultimately, advances in neural networks led us to where we are today, and the development of tools like Siri, self-driving cars, and Roombas.

Chapter 3 talks about the rise of cognitive agents all around us—in our phones, cars, houses, watches,

stores, and work. The author has a brief discussion of the ethics of information collection. What kind of data should we allow others to gather about us? Who owns that data? Will the information collected about us be used to serve us or to serve the companies that collect it? The author asks many questions, but gives no answers.

In chapter 4, Dormehl discusses the rise of service-oriented AIs, such as virtual assistants, Microsoft's Clippy, and others. The chapter contains many entertaining stories and then ends with a discussion of therapeutic, childcare, and eldercare robots. Dormehl makes no mention of the ethics of using these robots or the effects they might have on society and relationships between humans.

What will be the impact of AIs and robots on occupations? Chapter 5 speculates about how AIs and robots will revolutionize the job market, eliminating jobs that are dangerous (mining) and tedious (assembling smartphones), but also those that require a high level of knowledge in a limited domain, such as the practice of law. The author argues, however, that new kinds of jobs are on the rise, especially in the creation of content. The number of jobs is growing by nearly 10% per year in some areas such as vlogging, answering online queries that an AI cannot interpret, and game design. Dormehl argues that jobs like these, jobs that require creativity and social intelligence, will always be what humans are good at and computers are not. Finally, the author notes the rise of products made by humans, such as pottery, that are not all identical and have an artisanal touch.

Chapter 6 contains many fascinating stories about attempts to program computers, robots, and AIs to create. It briefly explores the definition of creativity. One fascinating question is whether a computer can create an invention that can be patented, as a patent requires an "illogical step" from existing invention, and making illogical steps is not a computer's forte.

Chapter 7, "Mindclones," follows, with information about attempts to duplicate a person's mind in a computer. The goal of various projects is to cheat death by storing a person's experiences, through personality capture, lifelogging, and neural networks, to duplicate the human brain. Again, the author describes how these efforts are being done, but never questions whether they could or should be done.

The final chapter of *Thinking Machines* looks at the future, and future risks, of AI. Dormehl notes that visionaries in the field of AI have begun to emphasize the need for safety protocols and ethics panels to guide AI scientists. The author states, "The threat

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comes from AI that is smart enough to work with other connected devices, but not smart enough to question its own motivations" (p. 223). He then goes on to speculate about who is responsible when an AI goes wrong and breaks the law, and whether an AI has any rights.

Is Luke Dormehl's book one that you should have on your shelf? If you are looking for a book to introduce you to the past, present, and future of AI in an entertaining way, this is a quick and worthwhile read. If you are looking for a book that struggles with the hard questions surrounding AI, you will be disappointed. Dormehl only dips his toes into the ocean of questions that AI begs us to ask. In most cases, he is giving us "just the facts," without analysis of the ethical or sociological implications of the technology. For Christians, many of these are important questions. What does it mean to be made in God's image? What effects will AI have on relationships and community? What does God say about the importance of work and service, and which occupations and vocations should we give to AIs to handle? To get answers to these and other questions, one has to go elsewhere.

Reviewed by Victor T. Norman, Associate Professor of Computer Science, Calvin College, Grand Rapids, MI 49546. ★



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ARTIFICIAL INTELLIGENCE: DISCERNING A CHRISTIAN RESPONSE

Derek C. Schuurman (PhD, McMaster University) is a professor of computer science at Calvin College where he holds the William Spoelhof Chair. *Shaping a Digital World: Faith, Culture and Computer Technology* (InterVarsity Press, 2013) is his most recent book. He describes for us, on the ASA and CSCA web sites, the latest developments and challenges in artificial intelligence. That focus calls for our attention to the promise and threat, at hand and in the near future, for issues such as job enhancement and displacement, building in guidance for systems that will then act autonomously, and what it is to be a person.

Schuurman's essay is intended as an invitation. Readers are encouraged to take up one of the insights or questions, or maybe a related one that was not mentioned, and draft an article (typically about 5,000–8,000 words) that contributes to the conversation. These can be sent to Schuurman at dschuurman@calvin.edu. He will send the best essays on to peer review and then we will select from those for publication in an Artificial Intelligence theme issue of *Perspectives on Science and Christian Faith*.

The lead editorial in the December 2013 issue of *PSCF* outlines what the journal looks for in article contributions.

For best consideration for inclusion in the theme issue, manuscripts should be received electronically before August 31, 2018.

Looking forward to your contributions,

James C. Peterson, *Editor-in-Chief*