

Book review

Gunkel, D. J. (2020). *An introduction to communication and artificial intelligence*. Cambridge: Polity Press. 363 pp.

Reviewed by **Marijn Martens**, Communication Sciences, FWO, imec-mict-UGent, Ghent University, Ghent, Belgium, E-Mail: Marijn.Martens@UGent.be.

<https://doi.org/10.1515/commun-2020-0039>

Artificial Intelligence (AI) as a domain has known a renewed explosion of applications in numerous contexts in the 21st century due to the surge of technical capabilities (the exponentially growing computation power and arrival of Machine Learning techniques) and, therefore, an upturn of general interest and investment. This means that AI is increasingly and effectively entering domains specific to social sciences like language generation, recommendation systems, and social robots. However, it is difficult for social scientists to fully understand this – not so – new technology.

In light of this, *An introduction to communication and artificial intelligence* aims and succeeds in making sense of AI for students and scholars in social sciences. The first introductory part combines a brief history of AI in general, AI in relation to communication sciences, and the conceptualization of “artificial” and “intelligence”. Looking at the concept artificial as a fake imitation (e. g., artificial flowers) or as the fabricated real thing (e. g., artificial light) allows the reader to critically evaluate and frame the different AI applications in future chapters. Moreover, by deconstructing intelligence into different elements (including communication, creativity, world knowledge, and goals), the author creates a conceptual foundation, which he often spirals back to throughout the book.

In the second part, Gunkel meticulously unravels the inner workings of the AI-applications in four specific contexts (Machine Translation, Natural Language Processing, Computational Creativity, Social Robots). In these chapters the author builds up his explanation with its non-computer counterpart, historical evolution or sci-fi interpretation of these applications. This is important given that most of the rationales behind the AI application sprouted from these foundations. In Machine Translation, for example, the concept of a universal language dates back to religious traditions (e. g., the tower of Babel) and is used in some of the methods for Machine Translation. When discussing the more technical side of the AI applications in part two, the author chose a more theoretical approach, discussing the different steps an AI application needs to go through to reach its goal on a meta-level. In doing so the author avoids most of the specific program-

ming lines, and thus helps non-STEM scholars' overall understanding of these specific applications. However, the book does not stop at this meta-level and allows the readers to really dive into the code and specific programming in the exercises in part four.

In part three, the author provides a more traditionally social science perspective of AI, looking at the social impact and ethical issues of AI applications in general. In the first chapter, the author tries to nuance the opportunistic view of how this is technically possible with a more societally embedded reflection on technological unemployment. This reflection ends with an, in itself quite utopian, list of suggestions as to how students and others could arm themselves with concepts such as being *gainfully unemployed* and *DIY futures*. The second chapter of part three zooms in on the ethics of AI and is built up around the concept of responsibility and accountability. Looking at responsibility as the ability to respond, the author convincingly argues that looking at AI as a tool (= instrumentalism) and thus keeping the creator responsible is difficult to uphold when the AI system uses "learning" techniques, learning things the developer could not have predicted. However, also, looking at AI as autonomous moral agents would be unwise as they should not be considered moral (or fully autonomous). Mitigating this challenge, the author discusses machine ethics, joint agency and some kind of instrumentalism 2.0 where he looks at AI as slaves, rather than tools or autonomous moral agents.

In my opinion, part three partially surpasses its goal to critically investigate social and ethical issues by providing immediate solutions which people should adopt. It misses some critical issues such as the identification of those AI developments which are societally beneficial, how they interplay with power relations, and what this all means for individual lay people who try, but do not succeed, to understand how this technology works. The book would benefit by including and applying elements of these (and other) social issues in part two when discussing the specific applications just when these issues could surface (e. g., talking about bias while explaining the amount of data that is needed and used in the application). As the author keeps the analysis of the specific applications on a high level, it is feasible to match ethical issues with specific processes in the applications.

In part four, Gunkel encourages the reader to play with some coding exercises to support the previous chapters, translating the more theoretical approach of part two into practical exercises. This part makes the book unique, as it helps the reader to develop skills, experience, and fundamental insights into a technology. It is the easiest way to "pop the hood" (p. 287) of these specific applications and allow for critical reflections.

In conclusion, *An introduction to communication and artificial intelligence* competently helps social scientists to make sense of AI in a way that allows a

high-level and low-level analysis of how specific applications work. The book provides the tools for readers to further explore the field and gives them the experience, especially in part four, to allow discussion with other, more technical, disciplines when it comes to AI. Although the book underexposes the social and ethical issues of AI, a subject that should be in the foreground of social scientists' thinking, it will certainly help to get more social scientists involved in AI development and the AI research field.