

**Book Review**

**The Coming Wave:  
Technology, Power, and the Twenty-First Century's Greatest Dilemma**  
(By Mustafa Suleyman and Michael Bhaskar)

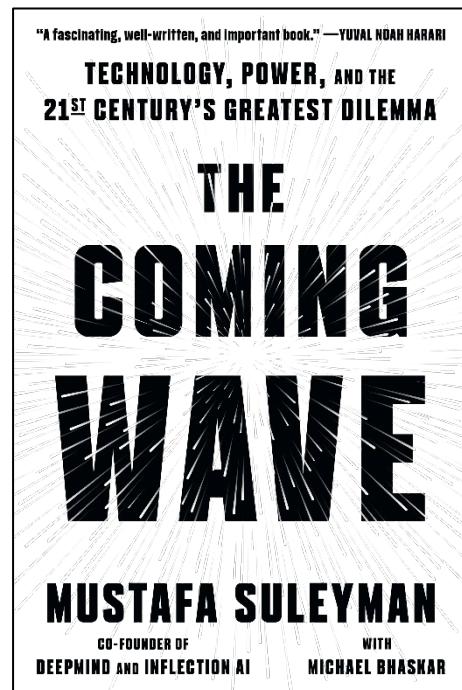
A Review by  
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**Title:** Technology, Power, and the Twenty-First Century's Greatest Dilemma  
**Author:** Mustafa Suleyman and Michael Bhaskar  
**Publisher:** Penguin random House  
**Year:** 2023  
**No. of pages:** 320 pages  
**ISBN:** 1847927491, 9781847927491  
Hardcover

*Front Cover*

*Source: <https://www.the-coming-wave.com/>*



In close to 300 pages, Mustafa Suleyman and Michael Bhaskar's "The Coming Wave" provides a warning about the ever-fasting expansion of technologies. Suleyman and Bhaskar acknowledge that today's upcoming technologies, specifically artificial intelligence (AI) and synthetic biology, are both useful and powerful. However, in much of their book, Suleyman and Bhaskar try to persuade readers that these very technologies will threaten our existence. They suggest, very seriously, that it is essential for us to find a way to contain them.

Suleyman is a co-founder of Deepmind and Inflection AI. Both companies have had massive influence on the AI research and industry for years. Suleyman also became vice president of AI product management and AI policy at Google. That basically means he knows what he's talking about in the book, and really when he talks maybe you want to listen. And Bhaskar is a writer and publisher based in the United Kingdom. His work includes The Content Machine, Curation and Human Frontiers.

AI, as defined by Surleyman and Bhaskar, is the science of teaching machines to learn humanlike capabilities. AI, in this book, is categorised into two groups. They are artificial general intelligence (AGI) and artificial capable intelligence (ACI). AGI is when an AI can perform all human cognitive skills better than the smartest humans, and ACI is somewhere in between AI and AGI which achieves a wide range of complex tasks. The other technological

advancement is synthetic biology which is the ability to design and engineer new organisms down to the level of genes, molecules, and DNA.

Surleyman and Bhaskar give a fascinating narrative when illustrating the world full of promises from the possibilities of AI and synthetic biology. Today, generative AI such as ChatGPT, Google's Gemini, and Claude AI are just a few examples of large language models we have access to (Fui-Hoon Nah et al., 2023). We can communicate, ask questions, and even order them to do things for us in our own human languages. It is not too far in the future, as predicted by the authors, that AI will be able to write reliable software, design complex computer hardware, design cities, discover new drugs, and even generate new forms of organisms. We will even be able to ask these AI tools to help us "make \$1 million ... in a few months", and they will try to obey, carry out our instructions, and achieve the set goal. All these, as mentioned, will be accomplished by us saying or typing a few sentences to the AI.

AI is not the only technology introduced and focused on by the authors. Synthetic biology has become hugely popular over recent years with its cost drastically falling and its capabilities quickly rising. The centre of this technology is the realisation that DNA is basically biological information that can be intervened and altered, which means that food, plants, medicines, and even humans can be transformed and re-imagined. The breakthrough method of how DNA can be edited is CRISPR (Doudna & Charpentier, 2014) which has the ability to cut and modify DNA strands to create new forms of organisms. There are also other technologies that have given us the ability to read, edit, and write, what the authors call, the code of life.

Now, imagine that AI and synthetic biology keep evolving and eventually integrate with one another, where AI computes and designs new forms of DNA and genome, and synthetic biology's technologies can help create them. The possibilities are limitless. Farmers will now have plants that can withstand drought and flood. There will be bacteria that can help fight diseases in plants, animals, and humans. A very promising future lies ahead with the age of biomachines and biocomputers.

Proliferation of these technologies is something not to be overlooked. Proliferation is driven by two forces. They are demands and cost decreases, each of which leads to technologies becoming cheaper and better. The future does indeed have a promising direction with AI helping create more convenient ways of living and more advanced science, knowledge, and machinery.

Unfortunately, as pointed out by the authors, cheaper and better technologies can also fall into the hands of ordinary people. AI models are easily accessible. DNA editing kits with technologies such as CRISPR, which has massively improved over the years, are now affordable and can be easily obtained and worked with at home in a garage. This means that wrong and harmful intentions could lead to catastrophes. What if someone used an AI model to generate massive cyber-attacks? What if someone used a home DNA editing kits to start another pandemic that killed millions? What about the temptations to edit the human genome?

Despite these risks, there are still denials especially from those in secure and powerful positions like executives in large multi-national companies and politicians who rather look at the opportunities from these technologies. This is what the authors call pessimism aversion, which is a refusal to accept the fact that there is a possibility of negative outcomes from the upcoming technologies.

The authors argue that with the coming wave of AI and synthetic biology, there is a problem of technology containment. Containment, the authors define, is the ability to control, limit, and close down technologies at any stage of their development and deployment, if required. It means that if there are any unexpected or unintended consequences because of this wave of technologies, we should be able to stop them from proliferation. Containment itself is a great concept and a wonderful idea. However, Suleyman and Bhaskar admit that at this point it is nowhere near easy to accomplish. Technologies are not easily contained. This is especially true when leaders in the technology sector and politics have what the authors call pessimism aversion, which is basically living in denial that all those wrongdoings would happen.

WannaCry (Chen & Bridges, 2017) is an example of what could happen if technology was uncontained. WannaCry was a piece of malware that tricked users into opening an email, which then released, replicated, and transported the malware to infect around a quarter of a million computers in over 150 countries in just one day. Another example is the assassination of an Iranian head nuclear scientist, which was carried out by a kind of semi-automatic robot weapon authorised by humans but aimed and shot by the AI. Without containment, these technologies will be easily accessible to anyone who wants them. The authors ask us to imagine what would happen if anyone had access to robots equipped with facial recognition, DNA sequencing, and automatic weapons.

Realising the problem of containment, Suleyman and Bhaskar suggest a few measures that should be considered so that we have a better chance of containing proliferations of today's technologies. Steps towards containment include things like technology auditing, criticising technologies, incentives for technological safety, and embracing failures, among others. Saying that, governments need to get more involved, especially in setting regulations, standards, and licensing. In addition, there should be no trade secrets when it comes to technological risks and failures. This means that communications among technology companies when any risks and failures are encountered is the key so that other companies can learn, reflect, and even offer support.

“The Coming Wave” is not a normal look-into-the-future kind of book. It does not focus on what today's technologies, specifically AI and synthetic biology, could usefully do in the future. Of course, the authors touch on what the future might be on the positive side, such as how AI could help design better chips which in turn could help create better AI models and how DNA editing could cure and prevent diseases. However, what Suleyman and Bhaskar focus on is what the future might be like if these technologies were not properly contained.

This book is inspiring and terrifying at the same time. As wonderful as AI and synthetic biology are, without careful and wise management, they may come and destroy us. Although some might think this is more like fiction, I think it is very very real.

## References

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