

New Book from Alok Aggarwal Traces the Evolution of Extended Reality, Metaverse, Data, and Artificial Intelligence

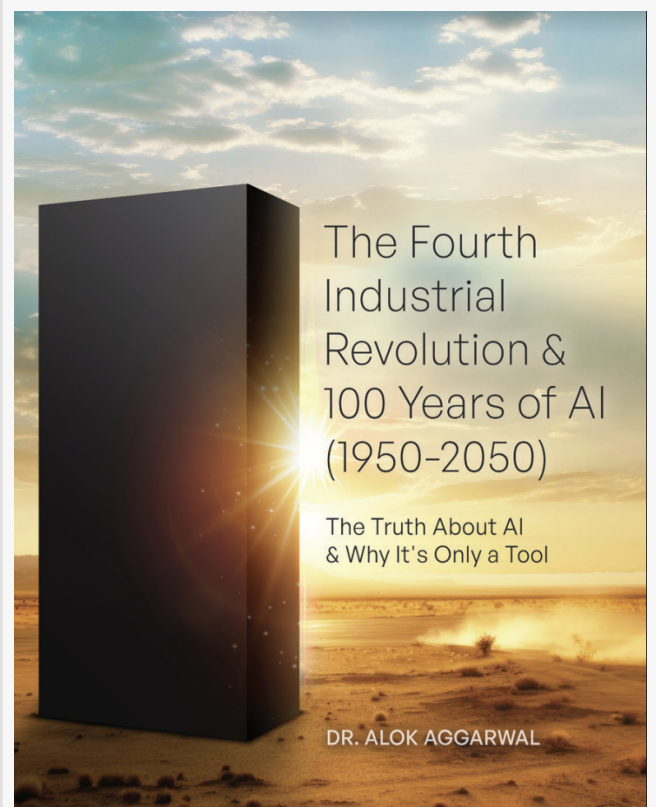
The Fourth Industrial Revolution & 100 Years of AI explores impact of the Fourth Industrial Revolution and how it will evolve during the next three decades

SAN JOSE, CALIFORNIA, USA, March 11, 2024 /EINPresswire.com/ -- The new book from Alok Aggarwal, "[The Fourth Industrial Revolution & 100 Years of AI \(1950-2050\)](#)" provides a concise yet comprehensive exploration of Artificial Intelligence, covering its origins, evolutionary trajectory, and its potential ubiquity during the coming decades. The eighth chapter of the book, "Extended Reality, Metaverse, Data and AI" is summarized below.

Inspired by Neal Stephenson's vision in his 1992 novel "Snow Crash," a Metaverse is a three-dimensional world, location, or environment, fantastic or not, real or not, in which users in the form of Avatars can experience, participate and interact with objects, people and non-player characters, in a way that transcend the limits of the physical world and free from the constraints of human forms. This chapter examines Metaverse and Extended Reality as another key invention of the Fourth Industrial Revolution and Data Science and AI are improving it further.

The following are the key takeaways of Chapter 8:

- Seven layers of Metaverse: A Metaverse platform usually consists of the following seven technology ingredients: (a) infrastructure, (b) human interface, (c) decentralization, (d) spatial computing, (e) creator economy, (f) discovery, and (g) experience.
- Use of wearable devices and brain computer interfaces: Currently, human interfaces include mobile and wearable devices (e.g., smartwatches, smart-eyeglasses, and smart contact lenses),



The Fourth Industrial Revolution & 100 Years of AI (1950-2050)

head-mounted displays, human gestures, and voice. Since manipulating real and virtual objects using hands and feet is unwieldy, direct interfaces between human brains and computers are being explored. Brain Computer Interface (BCI) is a link that allows brain impulses to control external movements such as moving cursors or their avatars. However, it is unclear whether humans would adapt wearing either VR headsets or be comfortable with electrodes being attached to their skull.

- Datasets and AI help in improving Metaverse considerably: Artificial Intelligence is vital for efficient functioning Metaverse and will be used for managing its technology infrastructure, improving BCI, computer vision, improving quality of 2D and 3D images, and videos, and natural language processing.
- Digital Twin will continue to provide virtual representations: A critical concept in Metaverse is that of Digital Twin or a "Virtual Twin," which is a virtual representation of a real-world object, process, or a living being. Although Digital Twins were originally invented for product lifecycle management, they have now become vital for Extended Reality and Metaverse.
- Metaverse is severely limited by electronic communication and computation: Since Metaverse assumes three-dimensional avatars of humans and others and since these require enormous electronic communication, we are likely to need 6G (sixth-generation wireless) networks that have a bandwidth of 10,000 gigabits per second and less than microsecond latency. Since 6G networks are likely to be introduced in 2030 and will only become popular by 2035, Metaverse is unlikely to become pervasive before 2035. Similarly, the computation power and AI techniques required to create acceptable 3D avatars of humans and things is currently enormous and since Moore's law is gradually dying, overcoming the computational bottleneck will be a mammoth task. Nevertheless, substantial innovation is likely to occur between now and 2035 and some aspects of Metaverse may even become popular by 2030.
- Governments will need to modify laws for ownership of virtual environments: Governments will need to enact new laws as well as amend old ones to incorporate issues related to ownership of virtual property, and whether firms or users in Metaverse should be taxed for owning or renting virtual property.
- Metaverse is hyped and may go through its boom-bust cycle: Just like in the previous industrial revolutions, audacious forecasts are being exalted regarding the market size of Metaverse by 2030. This is leading to a massive and irrational exuberance and such forecasts are unlikely to transpire.
- Once Metaverse seeps in the society, it will be pervasive: Finally, once Metaverse becomes pervasive, it will be exploited by numerous domains out of which the following ten are most important: (a) computer gaming, (b) buying, selling, or renting virtual estate, (c) advertising, (d) retail, (e) fashion industry, (f) events' organizers, (g) virtual workplaces and offices, (h) virtual gyms and fitness, (i) healthcare, and (j) Avatars of loved ones.

Beginning with an introduction to the fundamental concepts of AI, subsequent chapters delve into its transformative journey with an in-depth analysis of achievements of AI, with a special focus on the potential for job loss and gain. The latter portions of the book examine the limitations of AI, the pivotal role of data in enabling accurate AI systems, and the concept of "good" AI systems. It concludes by contemplating the future of AI, addressing the limitations of

classical computing, and exploring alternative technologies (such as Quantum. Photonics, Graphene, and Neuromorphic computing) for ongoing advancements in the field. This book is now available in bookstores and online retailers in Kindle, paperback, and hard cover formats.

About the Author: Dr. Alok Aggarwal is the founder, CEO, and Chief Data Scientist of Scry AI, which provides innovative AI-based products, solutions, and services to enterprises across the globe. Before starting Scry AI, he co-founded Evalueserve (www.evalueserve.com) which provides research and analytics services worldwide. He received his Ph. D. from Johns Hopkins University and worked at IBM's T. J. Watson Research Center during 1984 and 2000. He has written more than 120 research articles and has been granted eight patents. For more information, please visit: www.scryai.com

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