Data, AI, and The Future of The Fourth Industrial Revolution (2023-2050) Explored in New Book by Alok Aggarwal
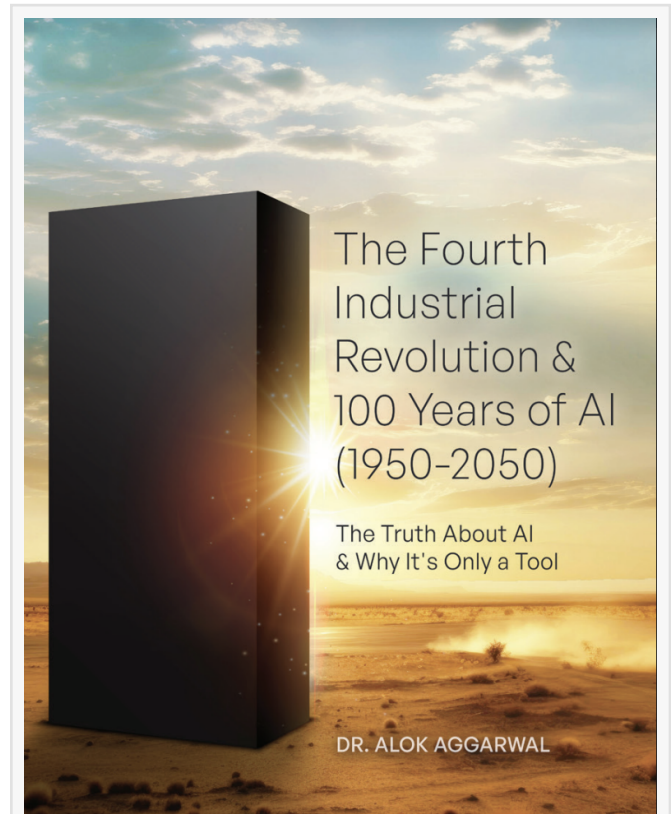
The Fourth Industrial Revolution & 100 Years of AI traces the roots of Artificial Intelligence and how it will impact our future in the next three decades

SAN JOSE, CALIFORNIA, USA, April 11, 2024 /EINPresswire.com/ -- Alok Aggarwal's new book, "The Fourth Industrial Revolution & 100 Years of AI (1950-2050)," traces the roots of artificial intelligence (AI) back to Alan Turing's groundbreaking 1950 article, where a computer attempted to convince a human judge of its humanity through language. In our journey through the evolution of AI, we confront the question raised by scholars like Dreyfus in the 1950s and 1960s - can machines truly "think" when language, for them, is a collection of symbols devoid of intrinsic meaning?

The seventeenth and concluding chapter of the book - titled "Data, AI, and The Future of The Fourth Industrial Revolution (2023-2050)"- explores these concepts further and conjectures what it may take to achieve Turing's vision.

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

This chapter also summarizes the following key inventions of the current industrial revolution that occurred during 2011-June 2023:

• In 2011, IBM Watson won Jeopardy! which reenergized the field of AI greatly.
• In 2011, National Institute of Standards and Technology (NIST) started a Material Genomics Institute to create a huge data-infrastructure so that metadata sets are findable, interoperable, and reusable.
• In 2011, Internet of Things (IoT) became quite popular and expanded greatly thereafter.
• In 2012, Alexnet won the ICLRS challenge, thereby showing the power of Deep Learning

Networks (DLNs) especially when trained on Graphics Processing Units.
• In 2012, an efficient and cost-effective way of gene editing called CRISPR Cas-9 was discovered.
• In 2013, blockchains, which were originally introduced in 2008, were embellished with Smart Contracts, thereby making them eminently usable in several industries.
• In 2015, most countries signed the Paris Climate Agreement to combat climate change aggressively.
• In 2015, the first 3-D printed robots were built using various kinds of solids and liquids.
• In 2016, a humanoid robot named Sophia captured attention globally because it could walk using "practical" legs, had a "lifelike" skin, and above all, simulated more than 50 "facial expressions."
• In 2016, IBM launched an online cloud-based platform, IBM Q Experience, for Quantum Computing.
• In 2017, the United States government started funding, MICRoNS, to promote collaboration among researchers in AI, Neuroscience, and other disciplines.
• In 2018, Google introduced BERT, thereby creating a new breed of DLNs called Transformers, and showed enormous improvement for use cases related to natural language processing.
• In 2020-22, Metaverse became the rage. John Radoff introduced seven layers of Metaverse; Facebook changed its name to Meta, and the first wedding reception occurred in Metaverse.
• In 2020 and 2021, Google's Deepmind announced AlphaFold and researchers at University of Washington created RoseTTAFold. These Deep Learning Networks found the correct three-dimensional folds, which were not known earlier.
• In 2022, OpenAI introduced ChatGPT, a DLN based Transformer, that can be used for natural language processing tasks such as writing emails, scripts, and summarization. In early 2023, OpenAI announced the GPT-4 Transformer, which will form the basis for ChatGPT, and Meta introduced the LLaMA Transformer for which the parameter-values were made public. By August 2023, researchers and innovators had created more than 75 Transformers for different industry domains and languages.

During the next thirty years, human society is likely to witness humongous change, which may exceed the change it witnessed during the first three revolutions, particularly because of the impending rapid climate change and how we tackle it. Moreover, many key inventions of the current industrial revolution (e.g., gene editing and AI systems) will help us stave off serious harm but if not handled properly, these inventions could become a curse rather than a blessing. In this regard, the following astute comments from the gigantic deep learning network, Megatron, which were made during a debate in Oxford University are quite pertinent, "AI will never be ethical. It is a tool, and like any tool, it is used for good and bad. There is no such thing as good AI, only good and bad humans. We [the AIs] are not smart enough to make AI ethical. We are not smart enough to make AI moral," Megatron told the audience. "In the end, I believe that the only way to avoid an AI arms race is to have no AI at all. This will be the ultimate defense against AI". Indeed, Megatron's perceptive comments are not only true about AI but about all inventions, including those in the past, e.g., nuclear fission and fusion. Ultimately, it is only we – the humans – who can use them for the betterment of human society or for destroying it.

About the book and the author: "The Fourth Industrial Revolution & 100 Years of AI (1950-2050)" provides a concise yet comprehensive exploration of AI, covering its origins, evolutionary trajectory, and its potential ubiquity during the next 27 years. 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.

Dr. 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

Alok Aggarwal
Scry AI, Inc.
+1 9149804717
email us here
Visit us on social media:
Facebook
Twitter
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