

THE  
ALGORITHM  
AGE



# THE ALGORITHM AGE

A breakdown of latest trends of  
Artificial Intelligence (AI), Tech, Trend and  
Historical perspective

MAJOR TANVIR HOSSAIN PSC



KOBI PROKASHANI

## THE ALGORITHM AGE

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*To my loving parents Amir Hossain & Lutfu Hossain, sisters  
Afrin Hossain & Lubna Hossain, my wife Sobnam,  
friends, teachers and my mentor Dr. Tania Haque  
and those who love wisdom.*

*And to my work ethics which tells me that the road to  
success is always under construction.*



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# CONTENTS

PROLOGUE	13
<i>Chapter 1</i> Who is Winning the AI Race?	19
<i>Chapter 2</i> AI Boom is Reshaping the World Order: Remolding the History Again	23
<i>Chapter 3</i> In the Age of Computer and AI Based Surveillance: The End of Human Privacy	28
<i>Chapter 4</i> Modern Digital Devices and Associated Security Dilemma	34
<i>Chapter 5</i> How Did the US AI Bubble Burst?	39
<i>Chapter 6</i> How Deep-Fake Videos Are Created using AI: In the Age of Disinformation	43
<i>Chapter 7</i> Reading Versus Social Media Scrolling:An Interesting Analysis	47
<i>Chapter 8</i> The Blurred Line Between Misinformation and Disinformation Explained	52
<i>Chapter 9</i> Silicon Curtain Replacing Iron Curtain: A Recipe for New Global Conflict	57

<i>Chapter 10</i>	
How Internet and Social-Media is Destroying Our Analytical Reasoning	61
<i>Chapter 11</i>	
How Facebook is Polarizing Our Society	65
<i>Chapter 12</i>	
Is Social-Media Becoming the Sorcerer's Apprentice?	69
<i>Chapter 13</i>	
Information is The Oxygen of Modern Age	74
<i>Chapter 14</i>	
Dark Reality of Children's Entertainment Channel in YouTube	78
<i>Chapter 15</i>	
Digital Distraction is The New Demon in Town	81
<i>Chapter 16</i>	
Deepseek-R1 AI Has Prompted a New Techno-Political War	85
<i>Chapter 17</i>	
How Facebook is Down-Playing Democracy	89
<i>Chapter 18</i>	
Capitalism Transcending into TECHNO-FEUDALISM: What's Next	93
<i>Chapter 19</i>	
Digital Economy to Digital Capitalism: The Upcoming Wave of TECHNO-POLITICS	97
<i>Chapter 20</i>	
Suggestibility, Susceptibility & Adaptability of Human Brain	102
<i>Chapter 21</i>	
Evolution of Warfare: From 1 <sup>st</sup> Generation to 4 <sup>th</sup> Generation and Beyond	106
<i>Chapter 22</i>	
Reading Books Are Catalyst for Our Survival	111
<i>Chapter 23</i>	
Ukraine's Drone Attack on Russian Tank: The Future of War	116
<i>Chapter 24</i>	
How Mega Leaks are Becoming Catalyst to Great Changes	119
<i>Chapter 25</i>	
The Global Heat Wave is Getting Worse	123
<i>Chapter 26</i>	
Power of Fictional Stories: The Building Block of Human Civilization	126

<i>Chapter 27</i>	
Evolution of Capitalism: From Feudalism to Surveillance Capitalism Explained	131
<i>Chapter 28</i>	
Skill Based Approach at Work Place: The Future of Work	135
<i>Chapter 29</i>	
Our Sleep-Wake Cycle Governs Our Well-Being & Motivation	139
<i>Chapter 30</i>	
The Forgotten Story of The Islamic Golden Age and Islamic Renaissance	144
<i>Chapter 31</i>	
The Rise and Fall of Great Empires	149
<i>Chapter 32</i>	
The Intricate Web of Global Governance	153
<i>Chapter 33</i>	
The Forgotten History of the Bengal's Golden Age and Bengal Renaissance	157
<i>Chapter 34</i>	
Interest Free Micro Credit: Reviving an Idea from Islamic Golden Age	163
<i>Chapter 35</i>	
Four Day Work Week: More Productivity with Better Work-Life Balance	168
<i>Chapter 36</i>	
How social media is Destroying Our Social Fabric	172
<i>Chapter 37</i>	
How Consumerism is Consuming Our Society	177
<i>Chapter 38</i>	
Hyper-Individualism and Over Consumerism is Causing Social Decay	180
<i>Chapter 39</i>	
Play-based Childhood: A Toolkit for Success	184
<i>Chapter 40</i>	
How to Achieve Hyper-Focus in Our Life?	188
<i>Chapter 41</i>	
Globalization is Fractured: What to Expect Next!	192
<i>Chapter 42</i>	
Ubiquitous Use of Smart Phones Are Adversely Affecting Our Lives	196

<i>Chapter 43</i>	
The iDEA of Digital Fasting Explained	201
<i>Chapter 44</i>	
A Preamble to Nation’s Success and Why Nations Fail	207
<i>Chapter 45</i>	
Influence of AI in the Modern Warfare	211
<i>Chapter 46</i>	
Social-Media Replacing Play-based Childhood: What to Expect Next	215
<i>Chapter 47</i>	
Importance of Outdoor Activities for Kids & Young Adults: in The Age of AI Boom	220
<i>Chapter 48</i>	
Women Rising and Progress Paradox	225
<i>Chapter 49</i>	
We Train AI or AI Train us: A Scientific Paradox	229
<i>Chapter 50</i>	
Steal Like an Artist: Deepseek’s Secret Unveiled	233
<i>Chapter 51</i>	
Conceptualizing the “Mukti Bahini Operations” as Total People’s War: A Retrospective Study on The LIBERATION WAR of BANGLADESH	238
<i>Chapter 52</i>	
History of Industrial Revolution and Its Impact on Human Civilization	254
<i>Chapter 53</i>	
Disruptive Innovations Lading to Great Things	259
<i>Chapter 54</i>	
When Women Ruled the World	263
<i>Chapter 55</i>	
Water Crisis Might Lead to a Full-Scale Global Conflict	267
<i>Chapter 56</i>	
Proposed University for Peace (UPEACE) in Bangladesh: A Project Proposal	272

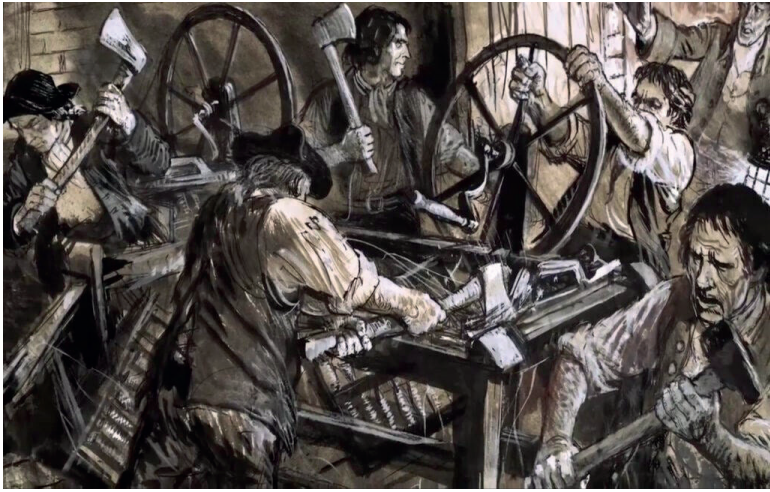


## *Prologue*

### **THE HISTORY OF HUMAN'S IDEA AND INNOVATION LEADING UP TO THE AI-FICATION OF OUR WORLD**

As we learned by now that our present world is molded and remolded by the introduction and proliferation of various technologies and ideas like computers, internet, social media, AI etcetera. So, when ancient humans or the Homo Sapiens learned how to kindle fire and then tame fire, it resulted a tremendous breakthrough in the ancient civilization. Then the discovery of the iron ore resulted a momentous shift in the humans lives during the periods of antiquity. After that ancient human from Africa could domesticate various crops and fruits. From there early human's invention resulted in the utilization of various water source to undertake the water intensive agricultural production.

The history of civilization saw the seismic shift in human civilization and progress due to the invention steam engine, different agricultural and mechanical tools, printing machine etc. This incident resulted in the "First Industrial Revolution" and human's production method shifted from labor intensive agricultural activities to more sophisticated mechanical production system. This shift and early adoption of technologies resulted in surplus wealth creation. Although this momentum of the creation of new idea's sometimes critically viewed by ordinary people. For example, the First Industrial Revolutions



*Picture: Luddites clandestine operations against machines.*

revolutionary idea was opposed by the British Luddites Movement led by a legendary person named Ned Ludd. In fact, Ned Ludd is credited for breaking two stocking frames as an act of rage and despair. Although this incident is seen as the signature movement against the First Industrial Revolution but in reality, it could not hinder the idea of First Industrial Revolution. As we say that small act of defiance cannot stop an entire revolution rather it becomes part of the history.

However, after the “First Industrial Revolution” the “Second Industrial Revolution” ushered a new wave of technologies and innovations. Following those inventions and ideas, the next industrial revolution emerged in the 19th century. By the time of “Third Industrial Revolution” happened it was clear that the new ideas will emerge as a disruptive ideas and innovation. During the third industrial revolution many revolutionary ideas also emerged not only in tech world but also in the academic and philosophical field. This new type of thinking introduced a fresh wave of ideas and perspective which changed the world scenario of idea and innovations. From then on, governments understood that brilliant and ground shattering ideas can alter the status-quo.

During 1970 to 1990 the world has witnessed the emergence of a new technology called computer which disrupted all the previous human inventions. Computer came with the power of speedy computing and various computer-based applications emerged as a result. But still computer as a technology took more few decades to emerge as a completely dominating force. Surely, when it did come as a dominant tech then it spread all over the world displaying a Hydra like characteristics. Computer invention will certainly be remembered as a ground breaking idea which broke scientific boundary and human imagination. In reality, it gave the freedom of thinking, democratized creativity and made our lives more efficient/ better/faster. It also gave all modern humans the agency which was previously unimagined for. As a result, humans society witnessed the unprecedented growth in wisdom, creative iDEA's, scientific discovery, business and finance. I think, it broke the stereotype notion and narrative of "Global North" and "Global South" during this time.

The next ground breaking scientific development came in the form of Artificial Intelligence (AI). AI was developed by three AI research pioneers namely Marvin Minsky, John McCarthy, and Alan Turing. Besides them Yann Le Cun and Edward Feigenbaum's name is also mentionable in this emerging field. Amongst these AI scientists and researches Alan Touring is considered as the "Father of modern-day AI". When AI arrived at the scientific exploration arena, we had no imagination as to how this new tech would perform. But by 2015, an American tech company named Open AI innovated a "Large Language Model or LLM" by which it trained AI's initial dataset to do some elementary computational and routine mundane jobs. Soon in that race machine learning joined as an auxiliary tech and exponentially developed AI's capabilities. By 2019, Open AI became a successful AI company by developing products like Chat GPT-3, 4, 4.0 and GPT-5. At that point in time, it was clearly evident that in order to develop AI systems a large amount of data, resources and ultramodern sophisticated chips were required. Therefore, the US developed a tech hegemony as it had all those resources available in its coffer.

However, in 2025 a less known Chinese AI company named the “High Flyers” entered the AI market and shocked the market leader USA by developing and releasing a new type of AI chatbot which outperformed all the previous chatbot models developed by the American AI entrepreneurs like Open AI, Google, Meta and Microsoft. And for doing that the Chinese AI company used lesser resources, a smaller number of employees and less sophisticated chips but still achieving the desired end result. When that Chinese company developed an AI chatbot named “Deepseek”, it shattered the whole US tech market in a way that in one single day US stock market Nasdaq lost 1 trillion dollars’ worth asset value. Not only USA but also the Japanese, South Korean and European tech market felt the same shock wave in tandem resulting in huge losses in their AI business. And just after that other Chinese companies released a series of new chatbots named Kimi AI 1.5 developed by Moonshot, Mini CPM, GLM-4, Infini AI or Baidu’s ERNIE and ByteDance’s Doubao. So, apparently it seems an AI war has erupted in the tech world resulting in a break-neck speed in AI research and development. American rich tech companies like Microsoft, Open AI, Google, Meta and Nvidia announced a new 185 billion dollar AI development and research project to recapture its lost territory.

And with all these developments which I just mentioned will make human life easier, cheaper and faster by all means. But does it lead to a path in the near future where humans will become vulnerable on the hands of modern upcoming technologies. In fact, there are two schools of thoughts; one of which predicts that AI models are going to be benevolent while another group is not so certain about the AI-based future. So, if you observe what all has happened so far due to AI’s progress then we can make some predictions or have some educated guess for the future days. As for now, AI has assisted in human’s elementary cognitive development and in the near future this trend may lead up to the enhancement of human cognitive power by introducing “Cognitive Exoskeleton Architecture”. Moreover, AI has the latent capability to perform the data-intensive routine



jobs like analyzing, manipulating and managing huge amount of data and resources. Likewise, AI can deliver better outputs if trained as engineers, doctors, medical technicians, teachers, drivers, delivery means, watch keeper, cleaner etcetera. It is also envisioned by some futuristic AI researchers that in near future AI model may replicate human like efficiency in work place resulting massive displacement of humans from its own work-place. These all are not so much hypothetical vision as we can already see the development in Tesla, Google, Meta, Open AI, ByteDance, Baideu, Ali Baba's AI based products and prototypes. These companies are already in an AI race to optimize human's work experience. All this may result in a large-scale labor force displacement starting from 2030 and beyond.

On the contrary to the apprehensive vision of future, it is also true that AI can never replicate human characteristics like caring, care giving, mentoring, motivating, nursing feeble and babies in human like efficiency. Additionally human can imagine of a world assisted by AI chatbots which may give them abundant time, energy and resources to enjoy their life to the fullest and to develop their inner quality in a way which was never experienced before. In the upcoming world of AI assistance, humans can learn new skills, upscale existing skills, unlearn some skills and knowledge. In the same way humans can relearn some skills again to remain adaptive and relevant in a digital world. Moreover, some countries are already planning to introduce "Universal Basic Pay" to all of its citizens to sustain their needs in the upcoming world of ubiquitous AI. In conclusion, as a tech enthusiast, I postulate that if humans can harness the beneficial power by AI, then a Utopian World is in the making. Otherwise, if AI power is not utilized and managed properly, it has all the potentials to behave like autocrat, create Dystopia and a new apartheid between rich tech giants and poor tech illiterate people may be created, which AI even will be unable to control.





## Chapter 1

### WHO IS WINNING THE AI RACE?

This is the most frequently asked question now. I think this has become a trillion-dollar question by now. Although there is no clear winner in this race but for now China has closed the gap with the AI market leader America. It was predicted by US top AI development firms, AI scientists and policy makers that US was leading in the AI development field and its current technologies were at least two years ahead of Chinese tech. But recently in January 2025 a less known Chinese AI chatbot named “Deepseek” announced its supremacy in AI research and it was later revealed by the leading experts that this Chinese AI chatbot has equaled its performance with American latest chatbots like Chat GPT. Some scientists also predicted that the Deepseek if not outperformed the American chatbots but it is at par with the latest American AI language model. This news came at a strategic moment when American President Donald Trump’s inauguration was taking place. Most interesting fact about the news is that this particular Chinese chatbot was created using very less amount of budget compared with the US chatbots. Some skeptics even went further to say that this event has ushered a new “Price War” in AI development between USA and China. This whole news was even termed as the “Sputnik Moment” in AI development. “Sputnik moment” is a reference point in history of space innovation, when Soviet Union launched its first Earth Orbiting satellite Sputnik-1 in 1957 and caught the US space administration unprepared.

These developments were so important in the field of AI development as a whole that it sent a shock wave in the US stock exchange Nasdaq as it wiped out 1 trillion dollars from Nasdaq's market value in a single day transaction. The leading US AI companies lost one trillion US dollars in shares as the investors seems to lost the confidence on US tech companies. In this race the most affected companies were the leading chip producers like Nvidia, Microsoft, Google, Open AI. Some experts are fearing that USA might lose its AI supremacy to China in this AI boom. In fact, modern tech giants like Nvidia lost nearly 600 billion dollars in value and this chip producing company was the most affected tech company by far. More over Google's parent company Alphabet lost 100 billion dollars' worth market value and Microsoft losing 7 billion in the process. Experts and commentators predicted that this incident will be considered as one of the most pivotal moment in AI research history. And it also demonstrates the rivalry between US and China in AI race and AI supremacy.

The back ground of this story dates back to Trump administrations strategic move to restrict the use of most ultramodern AI chips made by Nvidia. It was not allowed to sell its most advanced chip called H100 to China. So, China used Nvidia's less advanced H800 chip instead to bypass the US restrictions. It is very interesting to note that in the modern AI development architecture, all the resources were patent free and anyone could use the latest AI language model developed by modern tech companies. So, Chinese tech industry took this chance and developed Deepseek which out classed the latest US built Chat GPT-4 and Chat GPT-5. Many researchers have found out that Deepseek has the most modern logical reasoning and analytical abilities to solve the toughest Mathematics, Physics and Chemistry problems. For this reason, this AI model has been downloaded most often since its arrival in the Google and Apple app stores but Chat GPT still remains the market leader. But AI scientists have predicted that Deepseek may breach this gap and ultimately become the market leader soon. Deepseek



was built by only 5.6 million dollars whereas Chat GPT used approximately 182 million dollars while it was manufactured. Information on Deepseek AI is scarce online but the company reported that it used only 2000 Nvidia H800 GPUs and spent only 5.6 million dollars while US companies uses 10,000 or more Nvidia's ultramodern H100 chips costing 100 million dollars or more in order to get the equal outcome. So, Deepseek is viewed not as an evolutionary language model rather it is termed as a pathbreaking model by many researchers. Actually, the Chinese tech company did not innovate anything rather it used the existing big AI models to train a small AI model which produced better results. Although some experts suggested that this is a ruthless copying by Deepseek developers but others said that in the field of computer science and AI these are not seen as copy right violation. On the contrary, every company in AI research uses available technologies and hardware to excel the industry further ahead. But still Sam Altman, the owner of Chat GPT said that it is very easy to copy rather than making an original version of AI model. He also showed his resentment, towards Deepseek's producers as it seemingly copied the American chatbot. But other contemporary scientists clarified the matter and said that Deepseek did nothing wrong rather it just sparked a furious competition amongst the AI innovators. American President Trump urged upon the American policy makers to

study the matter and then impose more restrictions on chip imports to China. USA is also considering to apply patent from now on so that their innovation is not copied in future.

So far it was revealed by various western media outlets that Deepseek was developed by a Chinese firm called “High Flyers” and its owner Liang Wengfeng, who was a former Google AI researcher. He later moved to China to build his company located in Gouangzhu. Mr. Liang in an interview told US media outlets that China was able to produce AI model in very nominal price and had the plan to democratize the sector so that many people are able use these language models in a cheaper price. He also mentioned that this Chinese bot has been downloaded by many users and apparently the user experience was highly satisfactory. So, he wished that Deepseek will outperform Chat GPT shortly and in the field of AI this outcome is very natural as old market leaders will be replaced by new AI models.

AI race has reached a new level and it's very difficult to fathom out which country or tech company is winning this race. Actually, there is no clear winners or losers in this race per se, but for now US policy makers have realized that they were caught unaware and needs to step up the gas. All the big techs of Silicon Valley have identified Chinese tech companies as the new emerging power in AI research and some even postulated that US tech companies may even take advantage of the Chinese research to further their AI models and reduce price of their respective products to remain market worthy in future. In summary, I can only say that as tech enthusiasts we should watch this tech rivalry and “Price War” between USA and China closely.






## Chapter 2

### AI BOOM IS RESHAPING THE WORLD ORDER: REMODELING HISTORY AGAIN

I consider history as a melting pot. It shapes and reshapes our surrounding and social order. Whenever human could invent something new that immediately replaced the old idea and system. As for example I can refer to the ancient humans' invention of fire or how homo sapiens could tame fire for their use. Now it will be very easy for us to think kindling a fire is a very mundane thing but for the ancient people this incident was a ground breaking incident during the time of antiquity. From there human could figure out how to domesticate various useful herbs and raise those for production. In fact history teaches us that an old homo sapiens lady observed rice for a long time before she realized that rice could be domesticated and it could be used as a crop which would help to fight against hunger. From there human conceived the idea of cultivation. But rice cultivation needed lots of water. So, humans moved near to rivers and lakes for easy irrigation system. I now know that homo sapiens first domesticated various cultivable herbs and trees, then developed irrigation system to sustain their agriculture. This innovation was so profound that let ancient humans to settle in suitable geographic regions and ended their nomadic life.

Next profound invention was the invention of various agriculture tools. Once human conceived the idea of inventing

tools for agriculture then they looked for objects with which they could prepare more useful tools. As a result of their constant persuasion for innovation ultimately ancient humans found iron core in nature and started making various strong iron tools for daily use. Iron led to invent more tools which led to the first industrial revolution where steam engine and few other elementary engines were invented. The shift from agriculture to industry was a huge leap for ancient humans. Once humans tasted the fruits of their innovation then they kept on thinking and developing new tools and ideas to reshape their surrounding which ultimately reshaped our history. Although a portion of ancient people did not feel good about the first industrial revolution and they tried to halt the development process but human ingenuity did not allow anyone to stop their progress. We all know what happened next. As time went by human's

 <b>Artificial intelligence</b>	 <b>Machine Learning</b>	 <b>Deep Learning</b>
<p>Artificial intelligence is a set of technological tools and algorithms that provides us with predictions, recommendations, and decisions to alter digital and real environments that are based on various, data.</p>	<p>Machine learning is a subfield of AI that helps systems to learn on their own from data without any explicit human involvement ML uses various algorithms that utilize data to figure out how to improve, make predictions, and describe data.</p>	<p>Deep learning is a subset of AI and method of ML is based on the concept of artificial neural networks. Such networks help machines to learn from data, especially from unstructured data. It is used mostly in computer vision, image, and speech.</p>