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Article · November 2020

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International Journal of Law
ISSN: 2455-2194; Impact Factor: RJIF 5.12
Received: 03-09-2020; Accepted: 18-09-2020; Published: 04-10-2020
www.lawjournals.org
Volume 6; Issue 5; 2020; Page No. 306-310

Artificial intelligence and its impacts on the society

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Abstract
Artificial intelligence (AI) is considered as a new concept. It is associated with the concept that intelligence is supposed to be manifested by the computer systems. It was the sole property of humans previously. Without human help, the AI can take decision and can solve complex problems in different sectors of the society. It has brought in a vital societal change in the perspective of revelation of human intelligence. There was an implicit assumption that humans possess hierarchical superiority in exhibiting intelligence in comparison to other forms of life. This fundamental assumption has been questioned owing to the anticipated entry of such entities which, in the familiar thinking, are not alive but nonetheless is considered superior to humans intellectually and perhaps ultimately morally. The entry of this cutting age technology (AI) has caused some impacts in the society deriving huge advantages as well as throwing some entangled challenges those are apprehended to pose threat even to the human rights bringing in a thorough societal change in different ramifications.

Keywords: intelligence, Artificial, bringing, associated

1. Introduction
The concept of AI is persisting as long back as 1950s. In those days, people used to have possessed high hopes towards success of AI in every sector of the society [1, 2, 3, 4]. In the context of problem solving without human help, AI is considered as an accurate tool [5, 6, 7, 8, 9]. AI is usually considered as a computer-centric technology capable of easily solving various problems in the complex situations in a flawless, cost-effective and quick manner without slightest assistance of humans[1] which was previously deemed to be unique treasure of humans [10, 11, 12]. Applications of AI are associated with analysis of information including personal information for learning something and for arriving at an accurate decision intelligently by its own[2] [13, 14, 15, 16]. This ever-increasing utilization of AI in every sphere of the society in various sectors has brought in multifarious vital challenges towards facing a wide range of legal as well as ethical dilemmas. It has propelled the necessity for establishing a reasonable balance between possibility of rapid advancement in the society taking help of AI and protection of privacy of personal data endangering societal normative values [17, 18, 19, 20, 21]. So far as India is concerned, the issue of privacy protection has gained a new momentum especially in view of the recent judgement of Supreme Court of India [22, 23, 24]. However, in our society the effects of AI have not cast shadow till now in a huge magnitude but there exists many unsolvable questions in our radar though they are not arising currently with perceptible acuteness, but, it will be perhaps not cogent and will be too late to introspect if we do not think it now for the society and leave it to think once they pose to the society with acuteness. In this background this paper has taken an attempt to project the good effects of AI on the society, challenges faced by the society by the applications of AI along with prescribing some recommendations coupled with a comprehensive conclusion at the end.

1.1 AI and Society
The anticipated arrival of this AI technology has brought a short, medium and long-term changes in our society. Entry of AI in the society has brought in major implications for professionals who are used to deal with modern technologies, to the legal practitioners nurturing effects of influence of AI with its regulatory implications, to the technocrats who are frequently taking help of this modern technology to arrive at a precise decision in a complex technological issue [25, 26, 27]. AI is also posing vital implications to the general citizens by providing them enormous help in a cost-effective manner as well as posing some entangled challenges even jeopardizing their basic rights including privacy infringement. In this perspective, this paper has taken a calibrated, comprehensive and holistic attempt to analyze briefly how the arrival of this AI technology is effectively contributing to the societal changes by providing advantages as well as disadvantages to the humans [28, 29, 30]. In doing so, this study would deal with for analyzing how, through introduction of different regulatory implications, the applications of AI in the society can be controlled so that it can hardly cause any harm to the society jeopardizing security and privacy of personal data of humans, abusing their human rights and also this paper would mention how the AI is deriving immense benefits to the society in different sectors like Agriculture, healthcare and so on [31, 32, 33].

2. AI for 'Social Good'
It is a fact that every technological innovation invites effective potential for advancement as well as for damages to the society. AI can analyze and can process data [34, 35, 36]. This capability of AI is expected to help for alleviating several pressing problems of the world. In this way AI can do good to the society.

2.1 AI is helpful for healthcare industry

There has been immense progress for diagnosis and treatment of diseases by the help of AI. In rural areas there are problems of accessibilities of the doctors or health-care staff. As a result, people living in those remote areas feel insecure regarding treatment of their health hazard [4]. AI has come to rescue this problem [37, 38]. AI can predict outbreaks of diseases well ahead so that the healthcare staff can have a scope to take preventing steps well ahead before the actual outbreaks take place [5]. By the help of AI, instruments are there for image recognition [39]. This is helping the diseased people who are visually impaired [6]. There are other examples where AI can help the Healthcare industry [40].

2.2 AI is helpful for agriculture sector

By the help of AI, it is now being possible to obtain appropriate data concerning to issues of agronomic and weather information [41, 42]. This is helpful for the farmers to improve the production of crops. This process is called precision agriculture that helps to improve productivity of crops helpful to address the need of the growing population [43, 44].

2.3 AI and Climate Change

By the help of AI, weather events can be predicted well ahead. It can also predict weather situation and occurrence of natural disasters. By the help of AI, it has become possible to identify the disease-spreading insects and animals [45, 46].

2.4 AI is helpful to improve work efficiency

Governments of many countries are now using AI technology to improve the efficiency of their employees working in all levels. Governments of different countries are also taking help of AI to improve their financial allotment mechanisms and to help to optimize their budgets. There are other instances through which society is being benefited by the grace of AI [47, 48].

3. AI and Challenges to the society

AI can analyze different collected information of various nature. This has brought in greatest concerns over data protection, cyber security as well as data privacy. In addition to these challenges, the issue of AI concerning to its borderless character and personhood issue are causing problem to the jurisprudence [49, 50, 51]. So far as India is concerned, the status of AI in the legal environment is still greyish. That is why Indian jurisprudence could not take appropriate steps to clear up vital debates in respect of legal applicability of AI algorithm [52, 53].

The main legal challenges around AI are as follows:

1. How to safeguard the privacy of data from the clutch of AI?
2. How it will be possible to safeguard security, ethical and privacy norms from the applicability of AI?
3. Use of AI in various fields has posed a challenge regarding problem of employment curtailment.
4. Digitalization with the help of AI through application of Internet of Things (IoT) has made the situation ideal for cyber-attack.

4. Recommendations

In India, the mission has been set up in the name of 'Inter Ministerial National Artificial Intelligence Mission' [54]. This mission would act as a principal agency to control and monitor all AI-related activities. This agency would confine its activities in the following issues.

1. To establish reliable coordination amongst various ministries to supervise AI applications.
2. To create a repository of all research works covering AI activities for improving studies on AI.
3. To establish 'Center of Excellence'' to enhance facilities for research work covering AI and to formulate the testing mechanisms to weigh performances of AI. Besides, it is required to

a. Set up a digital data bank to facilitate collection of cross-industry data beneficial for start-ups. [55, 56, 57, 58].
b. There should be a Bureau of Indian Standard for taking appropriate initiatives to formulate standards in terms of AI acceptable internationally. [59, 60, 61, 62].
c. Set up a data ombudsman to settle AI-centric issues. This will be formed under commerce ministry, Government of India. [63, 64].

5. Conclusion

Throughout the world people are depending on use of AI and it is expected this trend will increase with passage of time. Development of AI for the societal benefits will be hampered if the concerns covering privacy and security protection for personal data are not properly addressed by formulating appropriate policy, laws and regulations [65, 66, 67, 68]. Those are required to be consistently implemented with good governance. Focus is to be given to see that in the name of protection of privacy, the authority should not be unreasonable and over strict, because in that case, development with the help of AI will be impeded causing an obstruction towards societal growth. The authority should be vigilant to stick to the ethical standard in structuring AI-program [69, 70, 71, 72]. In India, there is no AI-policy and absence of this might imped progress because the society wants to take the help of AI and at the same time expects to keep data privacy duly protected. This balance will be ensured by strict adherence to the policy of AI which should be, of course, consistent, reasonable and executable [73, 74, 75].

References

1. Chatterjee S, Bhattacharya K. Adoption of artificial intelligence in higher education: a quantitative analysis using structural equation modelling", Education and Information Technologies, In Press, 2020. https://doi.org/10.1007/s10639-020-10159-7.
2. Gomory RE, Baumol WJ. Global Trade and Conflicting National Interests. MIT Press, Cambridge, MA, 2000.
3. Chatterjee S. "Organization learning and learning organization: A critical review - A Paradox", Asian Journal of Computer Science and Information Technology. 2011; (3):64-70. ISSN: 2249-5126.
4. Garner R. The political theory of animal rights. Manchester University Press, Manchester, 2005.
5. Chatterjee S. "ERP System and Business Transformation: An investigative Analysis of Success and Failure for Organizations", International Journal of

Science Technology & Management. 2015; 4(2):197-206.
6. Chatterjee S. "E-Commerce in India: A review on culture and challenges", IEEE International Conference on Soft Computing Techniques and Implementations (ICSCTI), 2015, 105-109. https://doi.org/10.1109/ ICSCTI.2015.7489547.
7. Chopra S, White L. Artificial agents—personhood in law and philosophy. In: De Mántaras RL, Saitta L (eds) The 16th European conference on artificial intelligence, Valencia, 2004, 22-27.
8. Chopra S, White L. A legal theory for autonomous artificial agents. The University of Michigan Press, Ann Arbor, 2011.
9. Chatterjee S. "ERP failure in developing countries: A case study in India", 2015 Annual IEEE India Conference (INDICON)., 2015, 1-6. https://doi.org/10.1109/INDICON.2015. 7443222.
10. Chatterjee S. "Security and privacy issues in E-Commerce: A proposed guidelines to mitigate the risk", IEEE International Advance Computing Conference (IACC), 2015, 393-396. https://doi.org/10.1109/IADCC.2015.7154737.
11. Chen N. Are robots replacing routine jobs? Harvard College Thesis, Applied Mathematics Cambridge, MA, 2018.
12. Chatterjee S. "A synthesis of structural creative problem solving in the perspective of OR/MS methodology", International Conference on Computational Techniques in Information and Communication Technologies (ICCTICT), 20181-6. https:// doi.org/10.1109/ICCTICT.2016. 7514614.
13. Chatterjee S. "Issues of personal data protection and privacy in cyberspace: A comparative analysis among different countries", International Journal of Law. 2018; 4(2):01-08. ISSN: 2455-2194.
14. Chatterjee S. "Surveillance Threating Privacy and Data Protection: A Review", International Journal of Current Trends in Science and Technology. 2017; 8(3):20583-20590. ISSN: 0976-9498. https://doi.org/10.15520/ctst.v8i03.360.
15. Brynjolffson E, McAfee A. The Second Machine Age: Work, Progress, and Prosperity in a time of Brilliant Technologies. W.W. Norton & Company, New York, NY, 2014.
16. Chace C. Surviving AI. Three Cs, Bradford, 2015.
17. Chatterjee S. "Data Privacy and Intellectual Property Rights in Cyberspace", Legal Research Development: An International Refereed e-Journal. 2018; 2(3):42-49. ISSN: 2456-3870.
18. Chatterjee S. "Internet of Things and Social Platforms: An empirical analysis from Indian consumer behavioral perspective", Journal of Behavior & Information Technology. 2016; 39(2):133-149. https://doi.org/10. 1080/0144929 X.2019.1587001.
19. Chatterjee S. "Law and Social Cohesion: A chronological overview from India perspective". International Journal of Research in Social Sciences. 2018; 8(3):204-216. ISSN: 2249-2496.
20. Chatterjee S. "Privacy, Human Behavior and Fundamental Rights in India: Some recent development and analysis", Indian Journal of Law and Human Behavior. 2018; 4(1):95-103. ISSN: 2454-7107.
21. Brown N, Sandholm T. Superhuman AI for heads-up no-limit poker: libratus beats top professionals. Science. 2018; 359(6374):418-424.
22. Chatterjee S. "Antecedence of attitude towards IoT usage: A proposed unified model for IT Professionals and its validation", International Journal of Human Capital and Information Technology Professionals. 2019; 18(1):4. (DOI: To be updated).
23. Chatterjee S. "Antecedents of behavioral intention impacting human behavior to use IoT enabled devices: An empirical investigation", International Journal of Technology and Human Interaction. 2019; 18(1):4. (DOI: To be updated).
24. Chatterjee S. "Artificial Intelligence and Human Rights: From Socio-Legal Perspectives", International Conference on Law and Technology [ICLT 2019]. School of Law, The University of Petroleum & Energy Studies (UPES), Dehradun, Uttarakhand, IndiaM, 2019, 28-29.
25. Chatterjee S. "Artificial Intelligence and Personal Data: From Legal and Policy Perspective", International Conference on Digital Transformation: A Cognitive learning towards artificial intelligence [ICDT 2019]. Rajiv Gandhi National University of Law, Patiala, Punjab, India, 2019, 409-417. ISBN: 978-93-83043-28-6.
26. Chatterjee S. "Critical issues with Artificial Intelligence, Blockchain and Personal Data: From Social, legal and Policy perspective", Blockchain Technology: Adoption, Regulation & Security. National Law Institute University, Bhopal, India, 2019, 18-19.
27. Bostrom N. uperintelligence: paths, dangers, strategies. Oxford University Press, Oxford, 2016.
28. Chatterjee S. "Emergence of AI and its implication towards data privacy: From Indian legal perspective", International Conference on Justice Education: Artificial Intelligence and Its Legal Implication [ICJE 2019]. Institute of Law, Nirma University, Ahmedabad, Gujrat, India, 2019, 15-16.
29. Chatterjee S. "Factors Impacting Behavioral Intention of users to adopt IoT in India: From Security and Privacy Perspective", International Journal of Information Security and Privacy. 2019; 14(4):6. DOI: To be updated.
30. Chatterjee S. "Impact of AI regulation on intention to use robots: From citizens and government perspective", International Journal of Intelligent Unmanned Systems. 2019; 8(2):97-114. https://doi.org/10.1108/IJIUS-09-2019-0051.
31. Chatterjee S. "Influence of IoT policy on Quality of Life: From Government and Citizens' perspective", International Journal of Electronic Government Research. 2019; 15(2):19-38; https://doi.org/10.4018/IJEGR.2019040102.
32. Chatterjee S. "Issues of Human Rights in the era of Artificial Intelligence: From Regulation and Policy Perspective", Advancements in Legal Research: Reflections in Contemporary Pandemic and Transdisciplinary Dimensions, Amity Law School, Amity University, Noida, Uttar Pradesh, India, 2019, 4-5. ISBN: 978-16-92702-10-6.
33. Chatterjee S. "Why people will use IoT enabled devices? An empirical examination from Indian perspectives", International Journal of Technology and

Human Interaction. 2019; 18(2):7. (DOI: To be updated).
34. Wiegel V. The ethics of IT-artefacts. In: Floridi L (ed) The Cambridge handbook of information and computer1 ethics. Cambridge University Press, Cambridge, 2019, 201-218.
35. Chatterjee S. "Determinants impacting diffusion of knowledge in higher learning institutes in India: an empirical study", Journal of Studies in Higher Education, Earlysite. https://doi.org/10.1080/030 75079.2019.1599847.
36. Autor DH, Levy F, Murnane RJ. The skill content of recent technological change: an empirical exploration. The Quarterly Journal of Economics. 2003; 118(4):1279-1333
37. Barrat J. Our final invention: artificial intelligence and the end of the human era. Thomas Dunne Books, New York, 2013.
38. Chatterjee S. Chatterjee S. "Is data privacy a fundamental right in India? An analysis and recommendations from policy and legal perspective", International Journal of Law and Management. 2019; 61(1):70-190. https://doi. org/10.1108/IJLMA-01-2018-0013.
39. Chatterjee S. Chatterjee S. "AI strategy of India: policy framework, adoption challenges and actions for government", Transforming Government: People, Process and Policy, Vol. ahead-of-print No. ahead-of-print, 2019. https://doi.org/10.1108/ TG-05-2019-0031.
40. Chatterjee S. "Antecedents of phubbing: from technological and psychological perspectives", Journal of Systems and Information Technology, Vol. ahead-of-print No. ahead-of-print, 2020. https:// doi.org/1 0.1108/JSIT-05-2019-0089.
41. Chatterjee S, Chaudhuri R. "A System Theoretic Analysis of IT/IS Outsourcing: A Case Based Approach", Journal of Modeling and Simulation of Systems. 2010; 1(2):131-143.
42. Chatterjee S, Chaudhuri R. "Information-Knowledge Space: A Transformation Model for IT and other knowledge Intensive organizations", Global Journal of Management and Business Research. 2013; 13(1):42-52.
43. Chatterjee S, Chaudhuri R. "System and Process Analysis of IT/IS Outsourcing in Japanese Market: Opportunities for India", Global Journal of e-Business & Knowledge Management. 2019; 5(1):8-19.
44. Chatterjee S, Kar AK. "Effects of successful adoption of information technology enabled services in proposed smart cities of India: From user experience perspective", Journal of Science and Technology Policy Management. 2019; 9(2):189-209. https://doi.org/ 10.1108/JSTPM-03-2017-0008.
45. Chatterjee S, Kar AK. "Regulation and governance of the Internet of Things in India", Journal of Digital Policy, Regulation and Governance. 2018; 20(5):399-412. https://doi.org/10.1108/DPRG-04-2018-0017.
46. Chatterjee S, Kar AK. "Securing IoT devices in Smart Cities of India: From ethical and enterprise information system management perspective", Journal of Enterprise Information System. In Press, 2019. https://doi.org/10.1080/17517575.2019.1654617.
47. Chatterjee S, Kar AK. "Why do small and medium enterprises use social media marketing and what is the impact: Empirical insights from India", International Journal of Information Management, In Press. https://doi.org/10.1016/ j.ijinfomgt. 2020.102103.
48. Chatterjee S, Sreenivasulu NS. "Personal Data Sharing and Legal Issues of Human Rights in the Era of Artificial Intelligence: Moderating Effect of Government Regulation", International Journal of Electronic Government Research. 2019; 15(3):21-36. https://doi.org/10.4018/IJEGR.2019070102.
49. Chatterjee S, Kar A, Gupta MP. "Success of IoT in Smart Cities of India: An empirical analysis", Government Information Quarterly. 2018; 35(3):349-361. https://doi.org/10.1016/j.giq. 2018. 05.002.
50. Chatterjee S, Kar AK, Gupta MP. "Alignment of IT authority and citizens of proposed smart cities in India: System security and privacy perspective", Global Journal of Flexible Systems Management. 2018; 19(1):95-107. https://doi.org/10.1007/s401 71-0 17-0173-5.
51. Chatterjee S, Kar AK, Gupta MP. "Critical Success Factors to Establish 5G Network in Smart Cities: Inputs for Security and Privacy", Journal of Global Information Management. 2019; 25(2):5-37. https://doi.org/10.4018/JGIM.2017040102.
52. Brown N, Sandholm T. Superhuman AI for heads-up no-limit poker: libratus beats top professionals. Science. 2018; 359(6374):418-424.
53. Chatterjee S, Arpan AK. "Smart Cities in developing economies: A literature review and policy insights", International Conference on Advances in Computing, Communications and Informatics (ICACCI), 2015, 2335-2340. https://doi.org/10.1109/ ICACCI.2015.7275967.
54. Chatterjee S, Chaudhuri R, Vrontis D, Thrassou A, Ghosh SK, Chaudhuri S, *et al*. "Social customer relationship management factors and business benefits", International Journal of Organizational Analysis, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJOA-11-2019-1933.
55. Chatterjee S, Ghosh S, Chaudhuri R, Nguyen B. "Are CRM systems ready for AI integration?", The Bottom Line. 2019; 32(2):144-157. https://doi.org/10.1108/BL-02-2019-0069**.**
56. Chatterjee S, Ghosh SK, Chaudhuri R. "Adoption of Ubiquitous Customer Relationship Management (uCRM) in Enterprise: Leadership Support and Technological Competence as Moderators", Journal of Relationship Marketing. 2019; 19(2):75-92. https://doi.org/10.1080/15332667.2019.1664870.
57. Chatterjee S, Ghosh SK, Chaudhuri R. "Knowledge Management improving Business Process: An interpretative framework for successful implementation of AI-CRM-KM System in organizations", Business Process Management Journal, 2017. https://doi.org/10. 1007/s40171-017-0173-5.
58. Chatterjee S, Ghosh SK, Chaudhuri R, Chaudhuri, S. "Adoption of AI-Integrated CRM System by Indian Industry: From Security and Privacy Perspective. Information and Computer Security. Accepted, 2019. https://doi.org/ 10.1108/ICS-02-2019-0029.
59. Chatterjee S, Kar AK, Dwivedi YK, Kizgin H. "Prevention of cybercrimes in smart cities of India: from a citizen's perspective", Information Technology & People. 2019; 32(5):1153-1183.

https://doi.org/10.1108/ITP-05-2018-0251.
60. Chatterjee S, Majumdar D, Misra S, Damaševičius, R. "Adoption of mobile applications for teaching-learning process in rural girls' schools in India: an empirical study", Education and Information Technologies, In Press, 2019. https://doi.org/10.1007/s10639-020-10168-6.
61. Chatterjee S. Critical Success Factors to Create 5G Networks in the Smart Cities of India From the Security and Privacy Perspectives. Chapter 10. In the book of Novel Theories and Applications of Global Information Resource Management by Zuopeng Zhang. IGI Global, USA Publication, 2020. https://doi.org/10.4018/978-1-7998-1786-4.ch010. ISBN13: 9781799817864.
62. Roberts R. How Adam Smith can change your life: an unexpected guide to human nature and happiness. Penguin, New York, 2014.
63. Wiegel V. The ethics of IT-artefacts. In: Floridi L (ed) The Cambridge handbook of information and computer ethics. Cambridge University Press, Cambridge, 2010, 201-218.
64. Chatterjee S, Kar AK. Smart Cities in India: A Conceptual framework for emerging economics focusing on security and privacy aspects, Advances in Theory and Practice of Emerging Markets Book Series. Springer Publication. Status: Submitted, awaiting review, 2017.
65. Chatterjee S, Kar AK. Concept of Smart Village in India: A literature Review and Policy Insights, International Conference on Smart Cities, ICEG, IIT Delhi, India, 2016.
66. Chatterjee S. "Security and privacy issues in smart cities of India: a proposed it governance framework". Thesis Paper, Indian Institute of Technology Delhi. June 2018. New Delhi, India, 2018.
67. Bostrom N. Superintelligence: paths, dangers, strategies. Oxford University Press, Oxford, 2016.
68. Chatterjee S, Kar AK. Readiness of Smart City: Emerging Economy Perspective. Chapter 7, In the book of Emerging Markets from a Multidisciplinary Perspective: Challenges edited by Yogesh K. Dwivedi, Nripendra P. Rana, Emma L. Slade, Mahmud A. Shareef, Marc Clement, Antonis C. Simintiras, Banita Lal, 2017.
69. Chatterjee S. "A critical study of creative problem solving on level, style and complexity". International Journal of Science, Technology & Management. 2015; 4(1):705-713.
70. Kurki VAJ, Pietrzykowski T (eds). Legal personhood: animals, artificial intelligence and the unborn. Springer, Cham, 2017.
71. Lawless WF, Sofge DA. Evaluations: autonomy and artificial intelligence: a threat or savior? In: Lawless WF, Mittu R, Sofge D, Russell S (eds) Autonomy and artificial intelligence: a threat or savior? Springer, Cham, 2017.
72. Chatterjee S, Chaudhuri R, Vrontis D, Thrassou A, Ghosh S. "ICT-enabled CRM System Adoption: A Dual Indian Qualitative Case Study and Conceptual Framework Development", Journal of Asia Business Studies, In Press, 2020. https://doi.org/10.1108/JABS-05-2020-0198.
73. Chatterjee S. "The Safety of IoT enabled system in Smart Cities of India: Do ethics matter?" International Journal of Ethics and System, In Press, 2020. https://doi.org/10.1108/IJOES-05-2019- 0085.
74. Chopra S, White L. A legal theory for autonomous artificial agents. The University of Michigan Press, Ann Arbor, 2011.
75. Garner R. The political theory of animal rights. Manchester University Press, Manchester, 2005.