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IMPORTANCE OF ETHICS IN THE FIELD OF AI ARBITRATION

Abstract[1]

Earlier drafting, researching and compiling work needed human indulgence, but now such activities can be easily performed by artificial intelligence without any complications or delay. The evolution of technology made legal work more accurate, faster and efficient replacing human efforts. Although, it reduced efforts the use of machine intelligence to adjudicate cases of human rights or disputes involving humans, raised questions of bias and lack of ethics in the process of adjudication. The use of AI in International Arbitration has been debated with different philosophies, even the Model Law and the Conventions were drafted in an era where technology did not play such a significant role, but can we still say that such model laws are fit to govern the AI in arbitration? The paper would analyse the present use of AI in the field of arbitration and what are the immediate concerns for the same. Further, it would also try to propose a solution to the problem of machine bias and explain the importance of the ethical framework governing AI.

Keywords: Artificial intelligence Bias UNCITRAL Model Machine learning Arbitration

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Introduction

The concept of Artificial Intelligence more popularly known as AI gained its importance with Hollywood concept films[2] on AI and their relationship with humans. [3] Explaining the mutual bond with less focus on the scientific and societal aspects, the movies created a new world for AI and humans. The pace of technological evolution increased and so did our dependence on them; making it almost impossible to think our life without them.[4] The most uncomplicated answer to the question what is an AI?[5] can be machines which can perform decision-making tasks which generally requires human thought process without human intervention is an AI.[6] Chapter I of the paper enumerates the different concepts associated with the functioning of an AI. Chapter II explains how AI is used in arbitration proceedings[7] and the existing international conventions and Model Law for AI in International Commercial Arbitration. Chapter III discusses the function of neural networks and how bias gets implemented in the AI system and Chapter IV analyses the need for an ethical framework to govern an AI and suggest possible solutions to eliminate the machine bias.

I. Artificial Intelligence and its Components

To understand the use of AI in arbitration proceedings we need to have some basic ideas on how an AI function in real-life situations. Watching sci-fi movies, watching robots perform tasks people often tend to confuse an AI with many unnecessary characteristics. AI works on a large chunk of data, processes such data and generates results based on the data which was made available to it. The process of interpreting text, images, solving patterns is carried out on large scale within a short duration of time. In this fast-pacing world of technology AI, jargon can become useful in multiple scenarios which can help us analyse how data is used by an AI.

- **Machine learning** can be one such terminology that is widely used in multiple articles explain AI. It is a method that [8]helps the system to perform the task assigned based on its past

[2] Raquel Magalhaes, *Expectations v Reality: AI narratives in the media*, UNBABEL (Oct 18, 2019) https://unbabel.com/blog/artificial-intelligence-media/

[3] Nick Heath, *What is AI? Everything you need to know about Artificial Intelligence*, ZDNET (Dec. 11, 2020) https://www.zdnet.com/article/what-is-ai-everything-you-need-to-know-about-artificial-intelligence/

[4] Jane Wakefield, *Intelligent Machines: The truth behind AI fiction*, BBC NEWS, (Sept. 11, 2015) https://www.bbc.com/news/technology-33629465

[5] John McCarthy, *What has AI in Common with Philosophy?* STANFORD UNIVERSITY (April 25, 2006) http://www-formal.stanford.edu/jmc/

[6] IBM Cloud Education, *What is Artificial Intelligence*? IBM CLOUD LEARN HUB (June 3, 2020) https://www.ibm.com/in-en/cloud/learn/what-is-artificial-intelligence

[7] AMLEGALS, *AI & Its Effects on Arbitration*, MONDAQ (23 June 2020) https://www.mondaq.com/india/arbitration-dispute-resolution/956956/ai-its-effects-on-arbitration

[8] Sara Brown, *Machine learning explained*, MIT MANAGEMENT SLOAN SCHOOL (April 21, 2021) https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained

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experiences [9]without being programmed again. Such algorithms are solved to analyse the given data and give an[10] output based on[11] the computer system's previous encounters. Health diagnosis of the patients uses machine learning to predict future contingencies based on the patient's data.

- **Deep learning** is a type of machine learning but much wider in nature as it uses neural networks to process data.[12] Neural networks work in the same way as neurons in our brain. In the case of machine learning a pre-processing of data takes place- but in the case of deep learning such pre-processing of data is not required which decreases the dependence on human experts.[13]
- **Neural networks** are also called artificial neural networks forms the heartbeat of deep learning. These networks are structures that exist in human brains in the form of neurons through which signals pass. Similarly, a neural network consists of nodes- an input layer, an output layer and multiple[14] other layers through which the data is transferred. Such a neural network learns from multiple training by repeating/ reinforcing the task again and again until it gives a correct outcome.
- **Cognitive computing**[15] is the way used by an AI to aid human beings and improve interaction. Understanding the thought process of humans to give a better outcome is done through cognitive computing.[16] This helps the machines to take solve problems involving human behaviours.

[9] R. Collobert, *Natural language processing (almost) from scratch*, JOURNAL OF MACHINE LEARNING RESEARCH, vol. 12, pp. 2493–2537(2011).

[10] Javaid Nabi, *Machine Learning*, FUNDAMENTALS TOWARDS DATA SCIENCE (Aug 15, 2018) https://towardsdatascience.com/machine-learning-basics-part-1-a36d38c7916

[11] Noah Heinrich, *What is machine learning? A quick guide to basic concepts*, BUILT-IN BETA (Jan 8, 2020) https://builtin.com/artificial-intelligence/what-is-machine-learning-basic-concepts

[12] Jason Brownlee, *What is Deep Learning*?, MACHINE LEARNING MASTERY (Aug 16,2019) https://machinelearningmastery.com/what-is-deep-learning/

[13] Artem Oppermann, *What is Deep Learning and How does it work?* TOWARDS DATA SCIENCE (NOV 13,2019) https://towardsdatascience.com/what-is-deep-learning-and-how-does-it-work-2ce44bb692ac

[14] A. Krizhevsky, I. Sutskever, and G. Hinton, *ImageNet classification with deep convolutional neural networks in Proceedings of the Advances in Neural Information Processing Systems*, vol. 25, pp. 1090–1098, LAKE TAHOE, NV, USA (December 2012).

[15] Noah Heinrich, *What is machine learning? A quick guide to basic concepts*, BUILT-IN BETA (Jan 8, 2020) https://builtin.com/artificial-intelligence/what-is-machine-learning-basic-concepts

[16] Peter Sommer, *Artificial Intelligence, Machine Learning and Cognitive Computing*, IBM NORDIC BLOCK (Nov. 20, 2017) https://www.ibm.com/blogs/nordic-msp/artificial-intelligence-machine-learning-cognitive-computing/

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- **Natural Language Processing** is a method that helps the machine to interpret ambiguous, confusing and complicated human language. Machines cannot understand the grammatical structure, images, numerical while processing the data, NLP helps the machine to understand the human context. Siri can be the best example that understands our everyday demands with ease.

AI uses machine learning and deep learning to process both structured and unstructured data[17] which are in huge quantity (big data).[18] Such tools are used for predictive purposes where data from the past and present are used to predict the outcome of a specific problem at hand.[19] The use of AI in the legal industry is not something new and evolutionary rather it has been used by various consulting organizations and law firms to make the legal process easier. iManage is a conflict managing company that uses AI tools for audit, research, and finding solutions to client needs.[20] Another company named Smokeball [21] introduced its own AI software- Smokeball Ai for multiple purposes such as drafting, report filing, emailing and many more. It can also be used by the business organization to review their past activities and predict their utility.

II Use of AI in Arbitration

The use of AI in arbitration can be bifurcated into two categories one relating to the use of AI for assisting the process and the second AI directly participating in the process, e.g. as an arbitrator. There can be two possible arguments[22] that can be debated upon while AI is used in any field, firstly the outcome or the result given by an AI would solely depend upon the data which has been used for training purposes and secondly reliability on the computer efficiency used to process data without being dependent on human beings. A right balance has to be achieved between the two factors to promote the easy use of AI in arbitration.

a) AI used for assisting

[17] Jason Brownlee, *What is Deep Learning?* MACHINE LEARNING MASTERY (Aug 16, 2019) https://machinelearningmastery.com/what-is-deep-learning/

[18] Aslam Siddiqui, *Distinguishing between cognitive computing and AI*, INTELEGAIN TECHNOLOGIES (Aug 7, 2018)https://www.intelegain.com/distinguishing-in-between-cognitive-computing-and-ai/

[19] Temitayo Bello, *Online Dispute Resolution Algorithm: The Artificial Intelligence Model as a Pinnacle*, 84(2) INT'L J. OF ARB. MED. & DISP. MAN. 159, 161 (2018).

[20] iManage, CONFLICT MNAGAER, https://imanage.com/products/conflicts-manager/

[21] Smokeball, *Introducing Activity Intelligence: The Next Generation of Activity Reporting*, SMOKEBALL https://www.smokeball.com/blog/introducing-activity-intelligence-next-generation-activity-reporting/

[22] Sonal Kumar Singh & Anish Jaipuriar , *Artificial Intelligence In Arbitration: Revolutionary Or Impractical*, MONDAQ (Jan. 19, 2021) https://www.mondaq.com/india/arbitration-dispute-resolution/1027248/artificial-intelligence-in-arbitration-revolutionary-or-impractical

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Case Management-The huge paperwork shifted the burden from manual slow labour to the process of digitalization of documents for case management. Such documentations[23] are not predominantly facilitated by an AI, but such tools in the industry use machine learning along with natural language processing to plan and make decisions for the organizations. For such scheduling purposes, an AI is not yet used by the arbitrators involved in the proceedings but multiple organizations in the legal industry have used such tools for their benefit. Scheduling meetings, emailing clients, keeping a track of all the ongoing cases,[24] important dates and deadlines, geographical location of different clients, free time slots and many more can be monitored by an AI. Such facilities are not specially built for the arbitrators but can be used by them when different parties from different time zone participate in the process. The scheduling, emailing, tracking is all done by machine learning by analyzing the data set provided to it.[25] It hugely reduces the burden of case management on the arbitrators and the counsels involved in the proceedings.[26]

Documentation and fact collection- The process of maintaining the records in every case becomes monotonous when a huge number of facts and details are involved. Every case has its own unique and similar features attached to it. The AI system can help the counsels and the arbitrators to gather such facts and details and proceed with the documentation process without any hassle. The data can be identified by natural language processing and optical character recognition techniques by characterizing data based on specific taglines given. The previous classification of data can be of huge importance for such techniques and can be helpful in the complex stages of arbitration. Analyzing documents, researching on a particular topic of law, contract review and other counselling services[27] which can be handy for the litigators.

- **eBrevia**[28] is one such tool that uses the AI technique for the document reviewing process and highlights the important parts of any legal document. The company also claimed that such

[23] Aditya Singh Chauhan, *Future of AI in Arbitration: The Fine Line Between Fiction and Reality*, KLUWER ARBITRATION BLOG (Sept. 26, 2020) http://arbitrationblog.kluwerarbitration.com/2020/09/26/future-of-ai-in-arbitration-the-fine-line-between-fiction-and-reality/

[24] Filipe Sanches Afonso, *The Fifth Arbitrator? The Role of Artificial Intelligence to Tribunals in International Arbitration*, LISBONA ARBITRATION (18 December 2018).

[25] Michael Polkinghorne & Charles B. Rosenberg, *The Role of the Tribunal Secretary in International Arbitration: A Call for a Uniform Standard*, THE JOURNAL OF THE DISPUTE RESOLUTION SECTION OF THE INTERNATIONAL BAR ASSOCIATION, Vol. 8, No 2 (October 2014).

[26] J. Martin Hunter, *Experts in International Arbitration*, KLUWER ARBITRATION Blog (Oct. 22, 2019) http://arbitrationblog.kluwerarbitration.com/2011/02/07/experts-in-internationalarbitration.

[27] John Armour, Richard Parnham & Mari Sako, Augmented Lawyering (2020), Oxford University Business Law Workshop (April 29, 2020) https://www.youtube.com/watch?v=X1_ZKJswkqU

[28] eBravia, *Contract Management & Digitization*, DFIN, https://ebrevia.com/contract-management-digitization.

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analyzing tools could swiftly process more than 50 documents in less time and were 10 per cent more accurate than manual review.

- **Ross Intelligence**[29] is an AI software application that is used for research on a specific legal issue at hand and answers multiple questions which could require a huge number of resources and time. It aids the lawyers to prepare their cases in advance and can also be used by the arbitrators to review documents and research upon the question of law involved.
- **DISCO**[30] is another such software that uses AI prediction while reviewing the document. As it uses the NLP to understand[31] the structure of sentences, words, legal jargon and other data to arrive at a logical and accurate conclusion of the case.
- **Everlaw**[32] is another platform that has made the process of litigation easier for many smaller firms. From cloud computing to artificial intelligence the platform can aid in searching all the relevant and essential information for the case at hand. From the cluster of huge data, machine learning techniques are used to process multiple documents and use deep learning to solve complicated problems involved.

Predictive tools in decision making- Another important area is the decision-making process where the arbitrator has to decide the case without any bias based on the facts and pieces of evidence presented by the parties. The law firms have already used predictive tools[33] to predict the outcome of a proceeding based on the data given[34] and such can also be utilized to deliver awards that are fair to the parties. The AI tools feed on huge data which are segregated and labelled. One such example can be the US court courts[35] which to test the reliability of AI, used 100,000 past decided cases and labelled them accordingly to study the outcome. Experts are involved to train the system and also supervise them during the analysis of the data. Machine learning would help the AI system to

[29] ROSS Intelligence, *Legal Tech Corner*, ROSS, https://www.rossintelligence.com/
[30] DISCO AI, *Artificial Intelligence*, DISCO, https://www.csdisco.com/discoai
[31] Research Team, *EverLaw: Another Useful Artificial Intelligence Capability*, CTOvision.com, https://ctovision.com/everlaw-another-useful-artificial-intelligence-capability/

[33] Ajay Agrawal, Joshua Gans & Avi Goldfarb, Prediction Machines (2018)
[34] Maxi Scherer, *Artificial Intelligence and Legal Decision-Making: The Wide Open*, 36(5) ARBITRATION INTERNATIONAL 539 (2019).
[35] Felix Steffek & Ludwig Bull, *Law and Autonomous Systems Series: Paving the Way for Legal Artificial Intelligence – A Common Dataset for Case Outcome Predictions*, OXFORD BUSINESS LAW BLOG (2018), https://www.law.ox.ac.uk/business-law-blog/blog/2018/05/law-andautonomous-systems-series-paving-way-legal-artificial.

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predict[36] the outcomes based on the past data fed into the system and the commands given by the expert.

To welcome AI with open arms, some countries made changes to the national laws where the essential details which can question the privacy along with the sensitive details of the parties can be removed before the publication of awards. Such a decision increases the availability of data for the AI which can have more data to conclude.[37] **ArbiLex**[38] is a perfect example of AI which uses machine learning to predict the outcome and the risk involved in a specific arbitration case for both parties. Lex Machina[39] known for its brilliant work in the AI world has an essential feature to predict the time which would be taken to decide a specific case based on the arbitrator adjudicating the matter. They have sufficient data about the history of the arbitrators to make an efficient prediction.

b) AI participating in arbitration

An AI can also participate in the process of arbitration rather than just being a tool. The most common example can be when AI is used as an arbitrator. Earlier there was a study conducted by the US Supreme Court that made an AI and researcher predict the outcome of cases from 1816 to 2015 where the AI gave an outcome with 70.2 per cent accuracy.[40] This instance makes AI a very lucrative option in the field of arbitration. Although an AI still requires human assistance to reach the outcome and there are no fully independent AI systems in the legal field yet. Some of the important issues can be:

- An adjudicator is a third party who resolves the dispute between two or more parties. Appointing as an adjudicator raises the question about the legal status of an AI.[41] As it has not been recognized or given a legal status worldwide, the question of deciding rights and liabilities of the AI adjudicator[42] becomes ambiguous. In case of algorithm failure who would

[36] Daniel Martin Katz, *Quantitative legal prediction-or-how I learned to stop worrying and start preparing for the data-driven future of the legal services industry*, 62 EMORY L.J. 912 (2012).
[37] Antonio Musella, Arbitration, *Open Data, Justice and Artificial Intelligence: a New Step Forward*, Kluwer Arbitration Blog (2020) http://arbitrationblog.kluwerarbitration.com/2020/04/16/arbitration-open-data-justice-andartificial-intelligence-a-new-step-forward/
[38] ArbiLex - Predictive analytics for international law, ARBILEX.CO, https://www.arbilex.co/
[39] Legal Analytics - Quickly Uncover Strategic Information, Lex Machina, https://lexmachina.com/legal-analytics/
[40] Maxi Scherer, *Artificial Intelligence and Legal Decision-Making: The Wide Open? Study on the Example of International Arbitration*, QUEEN MARY SCHOOL OF LAW LEGAL STUDIES (2019) https://ssrn.com/abstract=3392669
[41] Temitayo Bello, *Online Dispute Resolution Algorithm: The Artificial Intelligence Model as a Pinnacle*, 84(2) Int'l J. of Arb. Med. & Disp. Man. 159, 161 (2018).
[42] Ibrahim Shehata, *The Marriage of Artificial Intelligence & Blockchain in International Arbitration: A Peek into the Near Future!!!* KLUWER ARBITRATION BLOG (Nov. 12, 2018) http://arbitrationblog.kluwerarbitration.com/2018/11/12/the-marriage-of artificialintelligence-bloc.

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be held responsible – the AI itself or the expert who has programmed the AI.[43] Legal status and self-reliant software are two barriers to such steps.

- Another important issue is the involvement of multiple jurisdiction laws in case of arbitration. Parties belong to different countries and the contractual agreement between the parties decide the laws which are to be applied by the arbitrators. In the case of an AI, the amount of data and the analysis which is required to determine the outcome would be huge. The system has to study the pattern of the arbitral awards and the reasoning given for them. In such cases an independent AI arbitrator is not feasible due to the question of law, question of fact and the national and international laws involved. Human assistance would still be required to make the process smooth and successful.[44]
- It has been stipulated under the UNCITRAL Model Law[45] that whenever an arbitrator passes an award proper reasoning has to be given for the award. Parties use such reasonings to either enforce the awards to challenge the awards given.[46] But in the present scenario, an AI in itself isn't sufficient to give the reasoning for its award. Detailed analyses and the reasons for the same cannot be achieved in toto[47]

a) Laws Governing Arbitration

The arbitration proceedings are not restrictive, they depend upon the free will of the parties. The counsels, parties and arbitrators can mutually decide the method of arbitration, the legal system applicable and also the use of the technology to adjudicate the particular case. UNCITRAL Model Law on International Commercial Arbitration itself elaborates; under Article 19 the parties[48] can mutually agree to the procedure governing the arbitration process even in the matters of admissibility of evidence and its relevance. Article 25 of the ICC Arbitration Rules,2021 also specifies that arbitrators can choose any mechanism to establish the facts of the case within a short period.[49] But the UNCITRAL Model law definition and even the Travaux Preparatory do not explicitly mention or

[43] John Armour & Horst Eidenmüller, *Self-Driving Corporations?*,10 HARV. BUS. LAW. REVIEW 87 (2020).
[44] Partington Martin, *Introduction to the English Legal System* (14th ed. 2019)
[45] UNCITRAL Model Law Article 31(2).
[46] Antonio Musella, Arbitration, *Open Data, Justice and Artificial Intelligence: a New Step Forward*, KLUWER ARBITRATION (2020), http://arbitrationblog.kluwerarbitration.com/2020/04/16/arbitration-open-data-justice-and-artificial-intelligence-a-new-step-forward.
[47] William Tetley, Mixed Jurisdictions: Common Law vs. Civil Law (Codified and Uncodified) (Part I), 4 UNIF. L. REV. 591, 596 (1999); Rene David & John Elmes Campbell Brierley, *Major Legal Systems In The World Today: An Introduction To The Comparative Study Of Law*, 94 (3 Rd Ed. 1985); Pietro Sirena, Introduction To Private Law 105 (2019)
[48] International Chambers of Commerce, Arbitration Rules, 2017.
[49] International Chamber of Commerce, Arbitration Rules, 2017.

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emphasize that arbitrators can be humans only. Even though the administrative work could be easily delegated to AI for fact-finding, researching and prediction, but delegating adjudication would create issues relating to the legal status of the AI, the reasoning provided, the validity of the awards and whether the AI was a fully automated system?

UNCITRAL Model Law and New York Conventions are the two most important documents in the arena of international commercial arbitration. These instruments have shaped the pathway of many national legislations governing cross-border arbitration. The Model law has been accepted widely signed and ratified by many countries hence it gives a direction to the countries to frame their regulations.[50] The Model Law has no such provisions[51] which expressly elaborates on the AI-based arbitration process. It does not negate or support the AI-based arbitration hence an amendment to the Model Law can be the ultimate solution. New York Convention[52] is important for the international enforcement of awards. The enforceability of awards can be questioned due to the difference in the national legislation of a particular country and the enforceability under the New York Convention.[53] But AI-assisted awards cannot be discouraged because such awards are made by the human arbitrators who are assisted by the AI tools. The question of a fully automated AI arbitrator can raise some eyebrows. Although there has been no mention about the nature of the arbitration tribunal or the arbitrator under the Convention. The conflict arises when there is the enforceability of awards as the provisions of the conventions show more reliance on human arbitrators rather than relying on technology. This can be substantiated from Article IV[54] which makes it mandatory for the arbitrator to authenticate the original or certified[55] copy of the award. AI cannot authenticate the awards themselves and hence this legislative procedure shows that the drafters wanted a human arbitrator than a machine who can adjudicate the process.

III. Neural Networks and Question of Bias [56]

[50] Convention on the Recognition and Enforcement of Foreign Arbitral Awards, 1958 art. IV.
[51] Bruno Manzanares Bastida, *The independence and impartiality of arbitrators in international commercial arbitration*, 6 REV. E-MERCATORIA (2007), https://dialnet.unirioja.es/descarga/articulo/5197420.pdf.
[52] Kathleen Paisley & Edna Sussman, *Artificial Intelligence Challenges and Opportunities for International Arbitration*, 11 NYSBA NEW YORK DISPUTE RESOLUTION LAWYER36 (2018).
[53] Xu Zhihe & Li Tingwei, *The Use of Expert Witness in Arbitration from the Perspective of SHIAC*, KLUWER ARBITRATION BLOG (April 29, 2020) http://arbitrationblog.kluwerarbitration.com/2020/04/29/the-use-of-expert-witness-in-arbitration-from-the-perspective-of-shiac/
[54] New York Convention, Article II and Article IV.
[55] Temitayo Bello, *Online Dispute Resolution Algorithm: The Artificial Intelligence Model as a Pinnacle*, 84(2) INT'L J. OF ARB. MED. & DISP. MAN. 159, 161 (2018).
[56] Cecilia Carrara, *Chapter IV: Science and Arbitration, The Impact of Cognitive Science and Artificial Intelligence on Arbitral Proceedings Ethical issues*, AUSTRIAN YEARBOOK ON INTERNATIONAL ARBITRATION (2020).

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We have discussed in chapter I about different components of an AI like machine learning, deep learning and neural network. To understand how an AI functions and paves its pathway to reach a specific outcome, it is important for us to understand the relationship between a neural network, how they function and their relationship with the deep learning process. Artificial neural networks are just like the neurons present in our brain. [57]These cells help the brain to send signals to different organs and other parts of the body. The neurons perform a mathematical function and add up the electronic data received from other neurons. The two essential facets of such transfer are weights and bias. There are three types of neurons involved in the process namely input neuron, bias neural (hidden layer) and output neuron. Input neuron along with the bias neuron ultimately forms the output. The weight value of the neurons plays a significant role to reach the outcome. During the training process of an AI, these weights of neurons are balanced to reach the desired output neuron. The bias neuron also called the hidden layers are the deep neural networks and the number of layers depends upon the architecture which is depended upon the problem to be solved. When the AI works with a labelled set of data it is called the supervised form of learning as the experts monitor every step.[58] This specific process can amalgamate the bias of the expert with that of the AI who is fed the data. Another form of learning can include both labelled and non-labelled data which is unsupervised by the experts where the machine finds patterns and tries to solve the algorithm. Reinforcement can be another way of learning which uses rewards and punishment theory for the machines.

The machine does not tend to have their own bias rather they are fed into by the experts who code them and train them. The data set which is used to train the AI contains the element of bias which can give different outcomes to the given problem. Machines reach these outcomes through the trial-and-error method. The process of deep learning helps the AI to find a pattern between the existing unstructured dataset without the total indulgence of the expert. Hence AI bias becomes one of the most important issues apart from privacy, storage, expenditure on AI. But the answer to the question of bias is not a one-liner rather it is a more nuanced version.

[57] Pavan Vadapalli ,*The Role of Bias in Neural Networks*, UPGRAD (March 1, 2021) https://www.upgrad.com/blog/the-role-of-bias-in-neural-networks/

[58] Navdeep Singh Gill, *Artificial Neural Networks Applications and Algorithms*, *XENONSTACK* (April 7,2021) https://www.xenonstack.com/blog/artificial-neural-network-applications

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- The first step which leads to this problem is the formulation of the problem by the organization or institution or company. The computer system[59] does not understand human language or the reason behind a specific question at hand, rather they would again use a deep learning algorithm to decide the answer. Now whatever stands a close chance to the given question/ concepts the algorithm would process that data for the solution. Although the question and the reason for asking that question would be different the AI would use an analogy closer to its own.
- The second step comprises the collection of data that is used for training the AI. The data which is collected can either be too unrealistic[60] and gave a different alternative or it can have the prejudice of the expert himself. The best example can be the bias in the process of recruitment for a specific position in the company. The AI [61]prefers to support more male candidates than females based on the history and the data used while training the system.
- Third comes the preparation of the data. Here the expert selects and demarcates the data are essential for the process. It tries to demarcate those attributes which are very essential to answer the problem question. [62] Through the process of deep learning, the attributes which would be included are specified but such specification only helps to improve the accuracy of the outcome not the bias of an AI.

IV. What are Machine Ethics?

With the evolution of technology, accountability, transparency and responsibility are basic areas for consideration. But the question of how AI can be made ethically sound does not have a linear answer. Even the allocation of liability and responsibility gets blurred when AI tools are used to perform specific actions. Now an AI when encountered with any question it would have multiple choices to decide. Such choices are based on their interaction with human data and past experiences.

[59] Atakan Kantarci, *Bias in AI: What is it, types & examples, Tools to fix it,* AI MULTIPLE (Feb. 13, 2021) https://research.aimultiple.com/ai-bias/amp/

[60] Chris Baraniuk, *How to Give A.I. a Pinch of Consciousness*, ONEZERO (Sep 11, 2020) https://onezero.medium.com/how-to-give-a-i-a-pinch-of-consciousness-c70707d62b88

[61] Ziad Obermeyer, *Dissecting racial bias in an algorithm used to manage the health of populations*, SCIENCE (25 Oct 2019)

[62] James Manyika, Jake Silberg & Brittany Presten, *What Do We Do About the Biases in AI?* HARVARD BUSINESS REVIEW (October 25, 2019) https://hbr.org/2019/10/what-do-we-do-about-the-biases-in-ai

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What can be included in the domain of machine ethics is not simple to define. A human ethical code cannot be implemented in the same manner as an AI.[63] There have been numerous cases where the output given by the machine has been drastically discriminatory or unethical. Sometimes the predictive analysis tool which is used by an AI takes into consideration all the details including the personal life details which are not essential for the outcome. Some have said that societal norms, moral principles and other conservative factors has to be taken into consideration by the AI depending on the different value system of the stakeholders in the society. The concept of moral agents has been associated with AI. The AI can be programmed in such a manner where it can successfully play the role of a moral agent in performing its function. Some have even stated that a machine can be an autonomous moral agent without the intervention of any individual but all such facets are based on little research and assumptions.[64]

The ethical rules which are programmed into the AI can be changed or modified to be unethical later. Issac Asimov gave the three laws of ethics for robots- based on which many ethical codes for computers were made. Firstly, the robot cannot injure the human being, secondly in case of a clash between orders robot must follow the human and thirdly the robot must protect its own life as long as the other two laws do not limit it. But then he stated how these laws would not be very helpful in organizations that have a hierarchy, and there is not a clear and definite definition of machine ethics.

A) Key features for ethical determination

AI can be supervised by a human being to prevent any bias or default on its part. Such activities can be related to the judicial decision-making process, participating in predictive analyses or data collection.[65] AI ethics cannot be limited or restricted to a specific box it would be varying based on industries and the sectors and also upon what project the organizations are undertaking. AI ethics code has to be structured based on the legal and regulatory framework persisting in the specific industry and hence the following procedures can be considered for the same:

1) Identify the data structure

[63] Jake Silberg & James Manyik, *Tackling bias in artificial intelligence (and in humans*), MCKINSEY GLOBAL INSTITUTE (June 6, 2019) https://www.mckinsey.com/featured-insights/artificial-intelligence/tackling-bias-in-artificial-intelligence-and-in-humans#

[64] Sethunya R. Joseph, *Natural Language Processing: A Review*, INTERNATIONAL JOURNAL OF RESEARCH IN ENGINEERING AND APPLIED SCIENCES, Vol. 6, Issue 3 (March 2016).

[65] Kathleen Paisley & Edna Sussma, *Artificial Intelligence Challenges and Opportunities for International Arbitration*, (Dec 15, 2018) https://sussmanadr.com/wp-content/uploads/2018/12/artificial-intelligence-in-arbitration-NYSBA-spring-2018-Sussman.pdf

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When the arbitration proceeding involves an AI tool or when the parties along with their counsels use AI to select witnesses and experts, the creation and accumulation of data resources should be mandatorily kept in mind. [66]AI solves the algorithms through the data which is made available to it. Protecting the privacy of parties, performing cyber compliance, acknowledging the principles of human rights should be done by the individual who manufactures such an AI tool along with the person who uses it to perform certain tasks. The human control over the data which is fed to the AI can make the arbitration process less biased.

2) Sector-specific frameworks

Artificial intelligence cannot have a similar set of ethical codes for every sector. Depending upon the task performed and the work delegated, the ethics should be sector-specific. Arbitration has a certain set of principles that are followed by the parties and the same has to be coded in the AI, for it to implement in research, administrative and prediction making processes. The specific standard for data collection, research, administrative functions has to be notified before the actions to authenticate the work performed by an AI.

3) Building awareness about AI

Artificial Intelligence has multiple benefits and can transform the future. Not only the engineers and scientists who[67] work and establish an AI program but also the society needs to be aware of the functions of an AI. When AI is used in the arbitration to research or predict an outcome, the awareness about the program[68] can help parties understand the bias in any in the results. Or they can alter the data sets based on their observation and experience of working with an AI. The more the involvement of people the easier it is to understand the decisions or results given by an AI.[69]

Conclusion

Arbitration acts as an alternative to lengthy litigation proceedings which can be financially draining for the parties. Arbitration proceedings do not follow strict procedural compliance and the parties have the autonomy to choose the arbitrator, the place and seat of arbitration and other contractual

[66] Gary Born, INTERNATIONAL COMMERCIAL ARBITRATION 64 (2nd ed. 2014).
[67] Hugh Howey, *How to Build a Self-Conscious Machine*, WIRED (April 10, 2017) https://www.wired.com/story/how-to-build-a-self-conscious-ai-machine/
[68] James Manyika, Jake Silberg & Brittany Presten, *What Do We Do About the Biases in AI?* Harvard Business Review (October 25, 2019) https://hbr.org/2019/10/what-do-we-do-about-the-biases-in-ai
[69] Preetipadma, *Building Conscious Artificial Intelligence: How Far are we and Why?* ANALYTICS INSIGHT (Jan. 26, 2021) https://www.analyticsinsight.net/building-conscious-artificial-intelligence-how-far-are-we-and-why/

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obligations. AI in the field of arbitration has given us a plethora of opportunities in the field but majorly it has, helped the parties and the arbitrators with the legal research and predicting the outcome in numerous circumstances. The existing international agreements and frameworks in the field of arbitration has no explicit provision to support AI arbitrator and the internal instruments need amendment by the countries who are the signatory and have also ratified the conventions. AI assisting the process of arbitration is highly motivated in the legal sector but an un assisted AI who performs all the functions independently can be a far-fetched concept. The ambiguity of fully automated AI as an arbitrator can raise multiple challenges about the legal status, data assimilation, privacy, enforcement of awards etc. Formulating an ethical code cannot be uniformly distributed and hence it has to be made sector-wise and organization wise. But such regulations need to have a draft framework to structure their AI laws in the field of arbitration. Most importantly the employees and the people who code the algorithm have to be made aware of their duties. AI learns through the process of machine learning which is especially based on the set of data that is made available to the AI. The chunk of data that is available for the AI is how the algorithm is solved by the AI. Hence machine ethics in the domain of arbitration is a must to have better participation of AI in arbitration proceedings.

Understanding the data with which the AI would operate would help us understand the level of unfairness and a debiasing method that considers the different functions of the organizations like the technical aspect, operational aspect and financial aspect. These strategies can help the organization recognize areas and the[70] source of bias by acknowledging the data which gives the outcome. The characteristics when recognized can make the model more accurate and efficient while predicting the outcomes.[71]Another factor can be the segregation of work that is performed by an AI and the tasks which require automatic decision making and those which require human intervention. To minimize the instances of bias the organizations can participate in research to understand the AI and its algorithm in a better way. Working with experts who known the functioning of the AI helps reduce cost and also makes the system more efficient.[72]

[70] *supra note at 23.*
[71] *supra note at 24.*
[72] James H. Moor, *The Nature, Importance, and Difficulty of Machine Ethics*, MACHINE ETHICS 13–20 (2011).