



Examining the Potential Challenges of Artificial Intelligence in Statelessness Determination from a Human Rights Perspective

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Abstract

Academic literature is scarce on the use of artificial intelligence (AI) in statelessness determination and its human rights consequences. Most existing research in the migratory context focuses on the use of AI, machine learning, algorithms and automated decision-making in refugee status determination and temporary resident visa applications. Drawing on this growing body of academic literature, this article addresses this gap by examining the potential human rights challenges that could arise if AI machine learning algorithms completely replaces human decision-makers in the determination of statelessness. These challenges will be explored within the context of non-discrimination, procedural fairness, and privacy. The article also argues that, despite these challenges, the use of AI should not be entirely dismissed. It further proposes ways in which AI can assist human decision-makers in the statelessness determination process – particularly with tasks that do not involve the determination of an individual's stateless status. The article, however, argues that the partial use of AI may still raise human rights concerns such as privacy risk and it proposes strategies to mitigate potential risks.

Keywords

statelessness determination – stateless persons – technology – *artificial intelligence* (AI) – human rights

1 Introduction

Digitalisation and the use of digital technologies by States and international organisations in the migration, citizenship and asylum fields have increased in recent years.¹ Artificial intelligence (AI) which is the focus of this study is one of the available digital technologies today. AI-based digital technology includes machine learning and chatbots. Chatbots are an AI tool used frequently by public agents to answer routine questions.² AI has led to the creation of sophisticated robotics that can help increase safety in the workplace, as dangerous tasks can be carried out by robots.³ AI now plays a significant role in disease diagnosis, patient outcomes and helps extend life expectancy.⁴ AI also helps with regulatory enforcement, including fraud detection, tax fraud reporting, and cyber threat detection.⁵ AI algorithms' capacity to handle vast volumes of data that takes humans a longer time to process, can help streamline repetitive tasks.⁶

Some countries such as the USA, Canada and the UK have turned to the promise of AI tools in administrative decisions to decide – in whole or in

- 1 Irina Lysak and Glen Hodgson, Exploring the Potential of Digitalisation in Migration Management in the Prague Process Region, Prague Process report, International Centre for Migration Policy Development (2024) 7; Lutiana Valadares Fernandes Barbosa and Ana Luísa Zago de Moraes, 'Exploring the Challenges of Artificial Intelligence in Refugee Status Determination: a Human Rights Approach' in Michał Balcerzak and Julia Kapelańska-Pregowska, *Artificial Intelligence and International Human Rights Law: Developing Standards For a Changing World* (Edward Elgar Publishing Limited, 2024) 294.
- 2 Damilola Awotula, 'Automated Immigration and Administrative Law in Canada: Assessing the Immigration, Refugee Citizenship Canadas' TRVs Advanced Analytics Program' (2024) Research Paper 13, McGill SGI Research Papers in Business, Finance, Law and Society.
- 3 Beata Polok and others, 'Balancing Potential and Peril: The Ethical Implications of Artificial Intelligence on Human Rights' (2023) 9(6) *Multicultural Education* 97.
- 4 United Nations, 'The Impact of Digital Technologies,' <<https://www.un.org/en/un75/impact-digital-technologies>> accessed 30 September 2025.
- 5 Thomas Vogl and others, 'Smart Technology and the Emergence of Algorithmic Bureaucracy: Artificial Intelligence in UK Local Authorities' (2020) 80(6) *Public Administration Review* 955.
- 6 Madeleine Forster, 'Refugee Protection in the Artificial Intelligence Era a Test Case for Rights' Research Paper, (International Law Programme, September 2022) 3.

part – temporary visa applications and asylum claims, as well as to screen naturalisation applications.⁷ While the push for technology infusion in the public sector offers increased efficiency and speed, it also carries the risk of jeopardizing human rights and exacerbating subtle systemic biases that could lead to discriminatory outcomes.⁸ There are also concerns about exploiting vulnerable persons,⁹ and reducing transparency, particularly due to the ‘black box’ nature of some AI machine learning systems. These types of AI systems are unable to offer any reason or suitable explanation for their decisions.¹⁰

The possibility of deploying AI in the determination of statelessness has not gained much attention, and it remains under-examined within human rights scholarship and policy discourse. Drawing on scholarly literature examining the use of AI in the migratory context, this article fills this research gap. It first focuses on a theoretical scenario in which AI completely replaces human decision-makers in the determination of an individual’s stateless status and evaluates the potential human rights challenges that could arise if that happens.

Statelessness determination is the decision-making process that involves identifying States to which a person has connections and then assessing if any of those States recognise a person as a national, either in terms of legislation or practise. If an individual is not recognised as a national of any state, then that person can be recognised as stateless and receive their protection in accordance with the *Convention Relating to the Status of Stateless Persons (1954 Convention)*.¹¹

Theoretically this article argues that fully replacing human decision-makers with AI algorithms risks reinforcing and exacerbating existing challenges, potentially leading to violations of the rights of stateless persons to recognition and protection, as guaranteed under the *1954 Convention*. I shall focus on the following human rights concerns. First, due to the unique security vulnerabilities associated with AI, it has the potential to heighten privacy risks for stateless persons. Secondly, if AI systems are trained on incomplete data

7 Awotula, (n 2) at 3, 8–9.

8 Patrick C Aloamaka and Moses O Omozue, ‘AI and Human Rights: Navigating Ethical and Legal Challenges in Developing Nations’ 2024 6(2) *Khazanah Hu kum* 190.

9 Niamh Kinchin and Davoud Mougouei, ‘What can Artificial Intelligence do for Refugee Status Determination? A Proposal for Removing Subjective Fear’ (2022) 34(3–4) *International Journal of Refugee Law* 376.

10 Vikas Hassija and others, ‘Interpreting Black-box Models: A Review on Explainable Artificial Intelligence’ (2024) 16 *Cognitive Computation* 46. For an explanation of the black box nature of some AI models, see sect on procedural fairness.

11 Solomon Momoh, *Statelessness Determination Procedures and the Right to Nationality: Nigeria in Comparative Perspective* (Taylor & Francis Ltd, 2024) 110.

on stateless persons, they may reinforce the biases of their human developers, thereby compounding existing inequalities and undermining fair outcomes. Thirdly, given that AI lacks the empathy component and ethical awareness characteristics of humans, there is a concern that procedural safeguards, which are essential in administrative decision-making, may be compromised, particularly in cases involving child applicants. Lastly, AI algorithms may be ill-equipped to navigate the complexities of nationality law, which could result in poor decision-making leading to the non-recognition of stateless persons with all the concomitant harms to fundamental rights that involves. Given the potential for future advancements in AI, these arguments are based on its current capabilities and limitations.

Despite the concerns highlighted, the use of AI in the statelessness determination process should not entirely be dismissed, as it can help address delays that often result in significant consequences, such as restricted access to basic rights and prolonged uncertainty for individuals awaiting recognition.¹² Given AI algorithms' ability to quickly process large volumes of data that would take humans much longer to analyse, this study argues that AI should not replace human decision-making but complement it. I suggest ways in which AI can assist human decision-makers in handling non-complex tasks that do not involve the determination of an individual's stateless status – thereby avoiding the complete replacement of human decision-makers. However, it is argued that the partial use of AI may still raise human rights concerns, such as privacy and propose strategies to mitigate these potential risks.

Following this introduction, the article is structured in four main sections. The section 2 explores core normative concepts. It defines the term 'stateless person' and briefly examines the underlying causes and the consequences of statelessness. It also defines AI and AI machine learning. The section 3 explores scholarship that advocates for the application of human rights frameworks in AI governance and provides the rationale for adopting a human rights approach in this study. In addition, this section examines the potential human rights challenges that may arise from using AI algorithms as a complete replacement for human decision-makers in statelessness determination and the adverse effect this could have on stateless persons. The section 4 examines the possibility for the partial use of AI to assist human decision-makers with non-complex tasks in the statelessness determination process, while ensuring that statelessness determination remains the responsibility of

12 European Union Agency for Asylum, 'Statelessness in the asylum context' Asylum report <<https://euaa.europa.eu/asylum-report-2020/711-statelessness-asylum-context>> accessed 30 September 2025.

human decision-makers. Furthermore, it proposes measures to mitigate risk associated with the partial use of AI. Section 5 makes concluding observations.

For the purposes of this study, reference is made to the *1954 Convention*, as well as the United Nations High Commissioner for Refugees (UNHCR) *Handbook on the Protection of Stateless Persons (Handbook on Statelessness)*.¹³ Although a specific international treaty on AI and human rights is not yet in force, reference will be made to core international human rights instruments, including the *International Covenant on Civil and Political Rights* (ICCPR) and the *Convention on the Rights of the Child* (CRC).

2 Exploring Core Concepts on Statelessness and AI

2.1 Definition of Stateless Person and Consequences of Statelessness

A stateless person ‘means a person who is not considered as a national by any state under the operation of its law’.¹⁴ Moreover, this status arises from not only legislation, but also regulations, case law, etc, it encompasses a question of fact and law. Therefore, even when an individual acquires nationality automatically under the law, it is ultimately the state’s position – rather than the law itself – that is decisive in determining whether the individual is considered a national.¹⁵

Statelessness is becoming a growing human rights issue globally as it affects millions of people.¹⁶ Stateless persons are at heightened vulnerability due to the absence of a nationality and if they are not recognised and protected, they are prone to myriad human rights violations which can include indefinite or unnecessary detention, torture, xenophobic attacks, enslavement, family separation, and inadequate housing and health care, among others.¹⁷

13 Convention Relating to the Status of Stateless Persons, opened for signature 28 September 1954, entered into force 6 June 1960, 360 UNTS 117; United Nations High Commissioner for Refugees (UNHCR), ‘Handbook on Protection of Stateless Persons under the 1954 Convention Relating to the Status of Stateless Persons’ (Handbook on Statelessness), Geneva (2014).

14 Convention Relating to the Status of Stateless Persons (1954 Convention), Art.1(1).

15 *Ibid*, paras. 22–24.

16 Institute on Statelessness and Inclusion (ISI), ‘Statelessness in numbers: 2020 An overview and analysis of global statistics’ August 2020 <https://files.institutesi.org/ISI_statistics_analysis_2020.pdf> accessed 30 September 2025.

17 Kristy Belton, ‘Statelessness and Economic and Social Rights’ in *The State of Economic and Social Human Rights: A Global Overview* (Cambridge University Press, 2013) 221; Handbook on Statelessness, (n 13) at paras 104, 311.

The 1954 *Convention* does not prescribe any procedure for identifying a stateless person.¹⁸ However, UNHCR states that it is implicit that states must identify stateless persons within their jurisdictions in order to provide them with appropriate treatment to comply with their commitments.¹⁹ These standards of treatment can only be applied once a person's status is identified and recognised. Therefore, it is accepted that states have an obligation to recognise and protect stateless persons.²⁰

The causes of statelessness globally include discriminatory laws based on ethnicity, gender, race and religion.²¹ For example, citizenship laws based exclusively on patrilineal descent – where mothers are unable to confer nationality on their children – can result in statelessness in instances where the father is stateless, unknown, or unable to transmit his nationality. In addition, a person born to stateless parents can become stateless at birth.²² Other causes include the denial of nationality to abandoned children whose nationality is unknown. Statelessness can also occur as a result of a conflict of nationality laws between different countries. For example, a child may be born in a country that grants citizenship only by descent (*jus sanguinis*). If the child's parents are from a different country that follows the principle of only granting citizenship (*jus soli*) to those born on its territory, the child may end up stateless. The parents' country may deny citizenship because the child was not born on its territory, while the country of birth may refuse it because the parents are not citizens – leaving the child without a nationality.²³

18 *Ibid*, para. 8. The UNHCR has therefore made efforts by providing guidance through the Handbook on Statelessness to states on stateless determination procedure.

19 *Ibid*, para. 8.

20 Momoh, (n 11) at 126.

21 *Open Society Justice Initiative (OSJI) v Côte d'Ivoire*, Communication 318/06, [2015] ACHPR 1 (28 February 2015), African Commission on Human and Peoples' Rights. Peter McMullin Centre on Statelessness 'Factsheet' https://law.unimelb.edu.au/__data/assets/pdf_file/0010/4461076/How-does-someone-become-stateless_factsheet_Feb-2023.pdf accessed 3 October 2025.

22 Ajwang' Warria and Victor Chikadzi, 'Statelessness, trauma and mental well-being: Implication for practice, research and advocacy' (2022) 8(3) *African Human Mobility Review* 44–45.

23 William Samore, 'Statelessness as a consequence of the conflict of nationality laws' (1951) 45(3) *The American Journal of International Law* 476–477. 'Sinovuyo Janda, 'Preventing the Statelessness of Refugee Children through the Statelessness Determination Procedure: Lesson for South Africa', (LLM Thesis, University of Western Cape 2022) 37–38.

2.2 *Nature of AI*

AI in its broadest sense, is intelligence exhibited by machine to mimic human activity.²⁴ Machines learn from data with the aid of ‘algorithms’.²⁵ AI, meanwhile, typically depends on ‘algorithms’ to help simulate human intelligence, and in many but not all cases, the purpose of AI is to perform tasks or make decisions automatically.²⁶ Algorithms refer to ‘a set of defined rules, designed to guide the operation of a task, often with a limited level of opportunity to introduce personal intuition’.²⁷

Although ‘algorithm’ is commonly used to describe AI, most computers operate through a set of algorithms that cannot produce the level of intelligence exhibited by AI.²⁸ This is because they have not been programmed to achieve such level of human intelligence. Their purpose is completely unrelated to AI. They use simple rules-based procedures programmed by humans, while AI is a broader concept referring to computer systems that can learn and make decisions on its own like humans.²⁹

Of particular importance to this paper is AI machine learning systems which describe advanced algorithm models. Machine learning helps train ‘sophisticated’ algorithms to achieve the level of AI.³⁰ These kinds of AI possess improved capability to resolve problems by generating predictions, rules, answers, or advice (outputs).³¹ Machine learning itself is a ‘computer algorithm’ that has the ability to ‘learn’ or improve in performance over time relating to some task.³² It encompasses a broad range of techniques that enable computers to learn from and make inferences based on ‘massive data’ without

24 Avron Barr and Edward Feigenbaum (Eds.), *The Handbook of Artificial Intelligence* (USA: HeurisTech Press, 1981) 3. See also 2024 Council of Europe Framework Convention on Artificial Intelligence and human rights as well as the European Union AI Act (Regulation (EU) 2024/1689).

25 Awotula, (n 2) at 5.

26 Christopher Tozzi, ‘Algorithms vs. Automation vs. AI: Understanding the Differences’ <<https://www.datacenterknowledge.com/automation/algorithms-vs-automation-vs-ai-understanding-the-differences>> accessed 30 September 2025.

27 Awotula, (n 2) at 5.

28 *Ibid.*

29 Tozzi, (n 26).

30 Philip Sales, ‘Algorithms, artificial Intelligence and the Law’ (2021) 105 *Bolch Judicial Institute, Duke University School of Law*; Paula Arias, ‘Artificial intelligence & machine learning: A model for a new judicial system?’ (2020) 3 *Revista Internacional Juridicary Empresarial* 84.

31 Awotula, (n 2) at 5.

32 Harry Surden, ‘Machine learning And law’ (2014) 89(1) *Washington Law Review* 88; Kate Jones, ‘AI governance and human rights Resetting the relationship’ January 2023, Research paper at 5.

being explicitly programmed for specific tasks (deep learning neural networks and artificial neural networks a subset of machine learning).³³ This differs from the traditional approach to AI which involved a programmer trying to translate the way humans make decisions into software code.³⁴ In other words, the programmer does not need to write all the instructions that the system should carry out for it to perform a task. Instead, the system is fed with training data in the form of examples and utilises the generalised algorithm to analyse real data, discern patterns and produce an output.³⁵

The data set used is what powers the algorithm in the decision-making process. During machine learning, the algorithms are fed with historic data, usually broken into training data and test data to validate the results.³⁶ The training data would be used to design and operationalize the system, while the test data is used to access the predictive accuracy of the algorithms. This allows the human analysts to examine the predictive accuracy of the algorithm before real-life data is introduced into the model (the programme that has been trained) to make decisions.³⁷

Supervised algorithms are a type of machine learning given a labelled outcome variable (also known as an output or response variable) representing the true values to be predicted on the basis of input training data.³⁸ In contrast,

33 IBM, 'What is Artificial Intelligence (AI)?' <<https://www.ibm.com/topics/artificial-intelligence>> accessed 30 October 2025; Amazon, 'What is a Neural Network?' <<https://aws.amazon.com/what-is/neural-network/>> accessed 30 October 2025; Deep learning 'is an advanced form of machine learning that allows software to 'train itself to perform tasks, like speech and image recognition, by exposing multilayered neural networks to vast amounts of data.' Though in this case features are not extracted by humans. Rather, data sets are fed directly into the deep learning algorithm, which then predicts the occurrence of objects. Deep learning algorithms do this via multiple layers of artificial neural networks that mimic biological brains.

34 Access Now, 'Human Rights in the Age of Artificial Intelligence' 8 <<https://www.accessnow.org/wp-content/uploads/2018/11/AI-and-Human-Rights.pdf>> accessed 30 September 2025; IBM 'AI vs. Machine Learning vs. Deep Learning vs. Neural Networks: What's the Difference?' <<https://www.ibm.com/think/topics/ai-vs-machine-learning-vs-deep-learning-vs-neural-networks>> accessed 30 September 2025; Jones, (n 32) at 5.

35 Christian Janiesch, Patrick Zschech, and Kia Heinrich, 'Machine Learning and Deep Learning' (2021) 31 *The International Journal on Networked Business* 686.

36 Awotula, (n 2) at 6.

37 Yavar Bathaee, 'The Artificial Intelligence Black Box and the Failure of Intent and Causation' 2018 31(2) *Harvard Journal of Law & Technology* 900; Awotula, (n 2) at 6.

38 David Lehr and Paul Ohm, 'Playing with the Data: What Legal Scholars Should Learn about Machine Learning' (2017) 51 *UC Davis Law Review* 673; Janiesch and others, (n 35) at 686; Lucia Nalbandian 'Using Machine-Learning to Triage Canada's Temporary Resident Visa Applications' Working Paper No. 2021/9 at 2–3.

unsupervised learning finds patterns or mapping functions where the output variable is not present.³⁹

In statelessness determination, the goal is to determine whether a person is not a national of any state under the operation of its law. For labelled data, variables that guide the outcome would include personal history; information concerning laws and other circumstances of different countries, for example the presence of nationality, and nationality legislation (including amended and repealed laws); the possession of any documents proving nationality (identity documents, birth certificates, passport, certificate of naturalisation, certificate of renunciation); and the possession of any other documents that can be used to investigate if a person is a national of any state (for example, marriage certificate, employment contracts/history, residence permits of the country(ies) of habitual residence, identity and travel documents of parents, spouse and children or other official documents that indicate citizenship or recognise statelessness).⁴⁰

The output variable can be categorised into a binary: stateless or a national. Each will be readily code-able by a human to create training data.⁴¹ All of the above output variables informs the decision-making process of the algorithms. If a system is to analyse documents, then this will involve the use of natural language processing (NLP), which can be both supervised and unsupervised learning for analysis of official documents issued by states (e.g., passport, visas, immigration records, identity documents, birth certificates, government correspondence, case law).⁴² With the use of these variables, algorithm classifiers (e.g., decision trees, random forests, or neural networks) could provide findings into whether a person is a national of any state or stateless.⁴³

39 *Ibid*, 2–3: ‘Subcategories under unsupervised learning are clustering, which involves grouping observations based on similarities, and association, which involves discovering rules that describe large parts of the data. In unsupervised learning, under clustering, for example, a machine would group customers based on their purchasing behaviour, while under association, the machine defines the rules that describe clustering: customers who purchase eggs also purchase bacon.’ basis of input training data.

40 Handbook on Statelessness, (n 13) paras. 83–84.

41 Lehr and Ohm, (n 38) at 674.

42 Amazon, ‘What is Natural Language Processing (NLP)?’ <<https://aws.amazon.com/what-is/nlp/>> accessed 30 September 2025: NLP is a machine learning technology that gives computers the ability to interpret, manipulate, and comprehend human language. NLP software is used to automatically, analyze the intent or sentiment in the message, process, analyze, and summarize complex texts. It can be used to analyze legal documents like court decisions.

43 IBM, ‘What is a Decision Tree?’ <<https://www.ibm.com/think/topics/decision-trees>> accessed 30 September 2025.

3 Human Rights Difficulties of AI in Statelessness Determination

3.1 *Applying Human Rights Frameworks to AI Governance*

Some human rights scholars argue for the application of human rights frameworks to set clear boundaries on the use of AI and to address its potential societal implications. Eileen et al asserts that the existing universal human-rights framework is ideal to address the critical societal concerns about the potential impacts of AI if we want to ensure that AI is applied in ways that respect human dignity, democratic accountability, and the bedrock principles of free societies.⁴⁴ Others also argue for the application of human rights standards to set clear boundaries on AI's use in administrative law determinations such as around statelessness status.⁴⁵

Conversely, Teo contends that until international human rights laws are reassessed, existing laws are not sufficient to address novel challenges posed by emerging technologies. She asserts that AI harm challenges the foundational assumptions of the human rights to privacy and also the normative justifications of the human rights framework.⁴⁶ In this regard, Teo asserts that the use of AI challenges the individual's ability to address harms because they are less able to understand algorithmic mediations enabled through datafication.⁴⁷ This, in turn, undermines the core protections of human rights frameworks, which are intended to empower individuals.⁴⁸ Hence, he refers to this as a slow violence of AI towards human rights. Other proponents of international human rights law argue that these legal frameworks are ineffective in addressing new technological issues for several reasons. Firstly, while human rights law addresses normative limitations on personal freedom and autonomy, it mostly ignores non-normative limitations – restrictions not established by law but from moral or social factors.⁴⁹ Secondly, international human rights law is still not fully applicable to private companies and businesses.⁵⁰ Lastly,

44 Donahoe Eileen and Megan MacDuffee Metzger, 'Artificial Intelligence and Human Rights' (2019) 30(2) *Journal of Democracy* 116.

45 Barbosa and de Moraes, (n 1) at 300.

46 Sue Anne Teo 'Artificial intelligence and its "Slow Violence" to Human Rights' (2024) 5(3) *AI and Ethics* 2270.

47 *Ibid.*, 2267–2269.

48 *Ibid.*

49 Hin-Yan Liu, 'AI Challenges and the Inadequacy of Human Rights Protections' (2021) 40(1) *Criminal Justice Ethics* 7; Giovanni Sartor, 'Artificial intelligence and human rights: Between Law and Ethics' (2020) 27(6) *Maastricht Journal of European and Comparative Law* 705–719.

50 Jędrzej Niklas, 'Human Rights-based Approach to AI and Algorithms' in Woodrow Barfield, *The Law of Algorithms* (Cambridge University Press, 2020) 520–543.

human rights, it is argued, are unable to provide guidance when values conflict.⁵¹

Building on the arguments of the earlier mentioned proponents for the application of human rights frameworks in AI governance, some human rights scholars convincingly oppose the above views which do not see human rights as being able to provide assistance in this field. Jones asserts that international human rights law may not currently address all the potential harms caused by AI. However, human rights should rather be the starting point for normative constraints on AI, the baseline to which new rights or further ethical guardrails might appropriately be added, including any ethical principles that businesses or other entities may choose to adopt.⁵² Hogan and Lasek too add that human rights language functions both in moral and legal terms and, therefore, has the capacity to handle both the ethical and legal dimensions of AI.⁵³

In addition to the above arguments, other human rights scholars assert that because the principles of the international human rights framework are thorough and well-defined, they apply to the field of AI and can be modified to accommodate novel situations and changing social norms. Furthermore, it covers the wide range of pressing concerns that AI raises, both procedural and substantive,⁵⁴ including its provision for accountability and redress. Individuals or groups can file complaints to treaty bodies to hold states accountable when there are violations of these treaties. Furthermore, there are currently significant developments taking place to extend respect for human rights beyond the state to private actors.⁵⁵ Companies play a critical role in this regard, as they are often the developers of AI technologies, and thus bear a responsibility to respect human rights through measures such as due diligence and impact assessments.⁵⁶ There is also the development of binding due diligence obligations in Europe.⁵⁷ States in turn have additional obligations to

⁵¹ Jones, (n 32) at 20.

⁵² *Ibid*, 15.

⁵³ Linda Hogan and Marta Lasek-Markey, 'Towards a Human Rights-based Approach to Ethical AI Governance in Europe' (2024) 9(6) *Philosophies* 4.

⁵⁴ Eileen and Metzger, (n 44) at 119.

⁵⁵ United Nations Guiding Principles on Business and Human Rights <https://www.ohchr.org/sites/default/files/documents/publications/guidingprinciplesbusinesshr_en.pdf> accessed 30 September 2025.

⁵⁶ OHCHR, 'B-Tech Project', <https://www.ohchr.org/en/business-and-human-rights/b-tech-project> accessed 30 September 2025.

⁵⁷ European Union Corporate Sustainability Reporting Directive, 2022/2464.

fulfil and protect human rights.⁵⁸ Finally, human rights laws balances rights where there is conflict and has garnered consensus globally.⁵⁹

This article supports the application of a human rights approach because AI has the potential to affect the rights of vulnerable populations. A human rights approach ensures that everyone's fundamental rights are respected, protected, and fulfilled. Statelessness is fundamentally a human rights issue, as the lack of nationality and legal recognition can lead to the denial of basic rights for stateless individuals. Accordingly, applying a human rights approach to assess the use of AI in statelessness determination is consistent with the objectives of the 1954 *Convention*, which seeks to ensure the recognition and protection of stateless persons. The arguments for the view that human rights do not apply to AI are not convincing as the responses by the scholars above highlight. In this regard, the following section examines the potential human rights challenges associated with replacing human decision-makers with AI.

3.2 *Challenges of Replacing Human Decision-Makers with AI Algorithms in Statelessness Determination*

Although AI can handle complex tasks, the complexity of nationality laws may limit its ability to accurately assess statelessness applications. As a result, AI can reinforce and worsen existing challenges. This section explores the challenges associated with the potential use of AI algorithms as a complete replacement for human decision-makers in the determination of statelessness, along with the human rights implications this may have for stateless persons. The section focuses on non-discrimination, procedural fairness, and the right to privacy which are the main areas of challenge (although there may be other human rights affected to).

3.2.1 Bias, Equality and AI

Emotions are commonly seen as a major source of decision bias. The lack of emotions in AI might lead people to view it as fairer than humans, as it is free from personal biases, ensuring consistency.⁶⁰ Legomsky states that consistency can contribute to equal treatment, certainty as well as efficiency

⁵⁸ D Bilchitz 'The Necessity for a Business and Human Rights Treaty' 2016 (1) *Business and Human Rights Journal* 203–227.

⁵⁹ Jones, (n 32) at 15.

⁶⁰ Benedict Sheehy and Yee-fung Ng, 'The Challenges of AI Decision-making in Government and Administrative Law: A Proposal for Regulatory Design' (2024) 55(3) *Indiana Law Review* 675–676.

in decision-making.⁶¹ However, Liodden asserts that consistency does not necessarily guarantee accuracy, as decisions can be consistent yet not accurate.⁶²

AI, however, has a reputation for exacerbating bias because it lacks the ability to distinguish bias from unbiased data set.⁶³ AI lacks the ability to understand the underlying moral reasoning behind ethical decisions. Although humans possess emotional intelligence, moral reasoning and experience, they are still susceptible to bias. The key difference is that AI lacks moral awareness and cannot take responsibility for its decisions. While humans can be influenced by others, they retain the ability to choose and to refrain from acting. In contrast, AI merely replicates and reinforces the patterns it has been trained on, without the capacity for independent judgment due to the fact that these algorithms are highly dependent on the data they are trained on.⁶⁴ Decisions are based on data; if the data is biased, the output will likely reinforce inevitable bias. Bias tends to affect groups that have been historically discriminated and marginalised based on gender, social class, or race, but not in all cases.⁶⁵ For instance, in 2014, Amazon's AI recruiting tool which was used to review resumes of job applicants for software developer positions and other technical roles, discriminated against women by favouring men over women because it was trained on the profiles of male successful Amazon employees.⁶⁶ It was fed resumé data from the existing pool of Amazon software engineers,

61 Stephen Legomsky, 'Learning to Live with Unequal Justice: Asylum and the Limits to Consistency' (2007) 60 *Stanford Law Review* 426.

62 Tone Liodden, 'Making the Right Decision: Justice in the Asylum Bureaucracy in Norway' in Nick Gill and Anthony Good (Eds.), *Asylum Determination in Europe: Ethnographic Perspectives* (Springer International Publishing 2019) 245.

63 Jungmin Choi and Melody Chao, 'For Me or Against Me? Reactions to AI (vs. Human) Decisions that are Favorable or Unfavorable to the Self and the Role of Fairness Perception' (2024) *Personality and Social Psychology Bulletin* 2. FRA European Union Agency for Fundamental Rights, 'Bias in Algorithms – Artificial Intelligence and Discrimination' Vienna, 2022 accessed 3 October 2025.

64 'What is AI? Artificial Intelligence Explained' <<https://www.techtarget.com/searchenterpriseai/definition/AI-Artificial-Intelligence>> accessed 30 September 2025.

65 Lorenzo Belenguer, 'AI Bias: Exploring Discriminatory Algorithmic Decision-making Models and the Application of Possible Machine-centric Solutions adapted from the Pharmaceutical Industry' (2022) 2 *AI and Ethics* 773–774; Rowena Rodrigues, 'Legal and Human Rights Issues of AI: Gaps, Challenges and Vulnerabilities' (2020) 4 *Journal of Responsible Technology* 2.

66 Jeffrey Dastin, 'Insight—Amazon Scraps Secret AI Recruiting Tool that Showed Bias Against Women' 11 October 2018 <<https://www.reuters.com/article/us-amazon-com-jobs-automation-insight-idUSKCNiMKo8G/>> accessed 30 September 2025.

who were predominantly men.⁶⁷ Historical biases may therefore be inherited by algorithms based on historical data.⁶⁸

Various issues pertaining to the data-entering procedure and the algorithm's design itself may lead to discriminatory results.⁶⁹ The first issue arises when training data is inaccurate, outdated, incomplete, or non-representative, or when there is 'selection bias', where certain groups are under or over-represented in the input data.⁷⁰ Given that an algorithm's design reflects the designer's values, the second instance may be the result of biased assumptions made by the developer throughout the model-building process, whether consciously or unconsciously.⁷¹ For instance, UK Home Office utilised a streaming tool to automatically sort visa applications and classify their risk, though the final decision of an application rests with human decision makers. The algorithm sorted visa applicants into different risk groups to determine high, medium and low levels of risk. This algorithm discriminated based on nationality to categorise applications. Some nationalities appeared to be automatically streamed into the high-risk group. Equality concerns were brought up by the disparate processing of applications.⁷²

Even though AI may not be intended to be discriminatory, it may nevertheless result in discrimination since algorithms have the ability to reinforce preexisting biases and stereotypes, even when the data set does not explicitly contain particular information about the protected group.⁷³ For instance, searches for names associated with black persons were more likely to be accompanied by advertisements featuring arrest records, even when no

67 'Why Amazon's Automated Hiring Tool Discriminated Against Women' 12 October 2018 <<https://www.aclu.org/news/womens-rights/why-amazons-automated-hiring-tool-discriminated-against>> accessed 30 September 2025.

68 Alina Ko'chling and Marius Claus Wehner, 'Discriminated by an Algorithm: a Systematic Review of Discrimination and Fairness by Algorithmic Decision-making in the context of HR Recruitment and HR Development' (2020) 13 *Business Research* 795–848.

69 Niklas, (n 50) at 520.

70 *Ibid.*, 522.

71 Brent Daniel Mittelstadt and others, 'The Ethics of Algorithms: Mapping the Debate' (2016) 3(2) *Big Data & Society* 1–15.

72 The Digital Freedom Fund <<https://digitalfreedomfund.org/wp-content/uploads/2022/01/DFF-07-Foxglove-Update.pdf>> accessed 30 September 2025.

73 Noémi Nagy, 'Humanity's New Frontier: Human Rights Implications of Artificial Intelligence and new Technologies' (2023) 64 *Hungarian Journal of Legal Studies* 241; Stéphanie Laulhé Shaelou and Yulia Razmetaeva, 'Challenges to Fundamental Human Rights in the Age of Artificial Intelligence Systems: Shaping the Digital Legal Order while Upholding Rule of Law Principles and European Values' (2024) 24 *ERA Forum* 567–587.

actual records existed. In contrast, searches associated with white persons did not prompt such advertisements.⁷⁴

In *State of Wisconsin v Loomis*, the Wisconsin Supreme Court assessed whether the use of an algorithmic risk assessment tool to determine if the defendant could be supervised within the community rather than detained violated the defendant's right to due process. As the court noted, risk scores are intended to predict the general likelihood that those with a similar history of offending are either less likely or more likely to commit another crime following release from custody. However, the court found that the risk assessment used in this case did not predict the specific likelihood that an individual offender will reoffend.⁷⁵ Instead, it provided a prediction based on a comparison of information about the individual to a similar data group (African-America) as it was more likely to falsely predict that they would reoffend compared to white defendants.⁷⁶

The United States Citizenship and Immigration Services (USCIS) uses Asylum Text Analytics, an AI tool to identify fraud in asylum applications. This tool employs machine learning to identify plagiarism-based fraud in applications for asylum. The technology scans the narrative text of applications and looks for duplicate language repeated across applications. It flags when applicants' stories do not align. USCIS states that the machine reviews an applicant's narrative not only individually but also compared with other applicants' narratives. The tool can be susceptible to discrimination against those applicants who do not speak English well.⁷⁷

Regarding bias leading to discrimination, Chen asserts that the idea that AI processes are inherently 'objective' and 'neutral' is a misconception.⁷⁸ Despite AI's sophistication, the systems can still be classified as 'garbage-in-garbage-out' since they are unable to distinguish between a biased and unbiased dataset.⁷⁹ Consequently, the system might automate systemic and implicit bias that might pass for neutrality while posing as algorithm objectivity.⁸⁰ Therefore, algorithms risk aggravating human biases in decision-making.

74 Zhisheng Chen, 'Ethics and Discrimination in Artificial Intelligence-enabled Recruitment Practices' (2023) 10 *Humanities and Social Sciences Communications* 6.

75 *State v Loomis*, 881 n.w.2d 749 (wis. 2016) (2017)130(2) *Harvard Law Review* <<https://harvardlawreview.org/print/vol-130/state-v-loomis/>> accessed 30 September 2025.

76 *Ibid.*

77 Julie Mao and others, 'Automating Deportation: The Artificial Intelligence Behind the Department of Homeland Security's Immigration Intelligence Behind Immigration Enforcement Regime' June 2024 <<https://mijente.net/wp-content/uploads/2024/06/Automating-Deportation.pdf>> accessed 30 September 2025, 23.

78 Chen, (n 74) at 2.

79 Awotula, (n 2) at 17.

80 *Ibid.*

The prohibition on discrimination and the principles of equality are key elements of the international human rights treaties. These treaties prohibit 'distinction of any kind such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.'⁸¹ Respecting human rights is required of governments, and they have the obligations to protect and fulfil human rights. States have the negative obligation of not acting in a discriminatory manner and the positive obligation to take measures against discrimination.⁸²

It is true that, if the training data is not biased, there is potential to eliminate some human bias.⁸³ But the problem is that it is not clear if the data can be freed of bias. Hence the discriminatory worries are very serious.

3.2.2 Lack of Accurate and Available Data on Stateless Persons and Technical Difficulties in Ensuring AI's Reliability

Training an algorithm on statelessness will require diverse, comprehensive and massive amounts of high-quality data on the nationality information of all countries worldwide. This requires thorough training with sufficient data and testing so that a machine can operate effectively. The challenges in a statelessness determination will be the training data. In terms of data collection, the key to identifying stateless persons would involve collecting a range of data sources that may help indicate whether an individual is stateless or a national of any state. This would include historical data about territorial changes, colonial borders, and legal frameworks on nationality and birth registration (including laws amended and repealed) that have led to people being excluded from citizenship. Also, these sources would include ministerial decrees, regulations, orders, judicial case law (in countries with a tradition of precedent) and, where appropriate, customary practice which includes how officials apply the nationality laws of a State.⁸⁴

81 Art. 2 of the International Covenant on Civil and Political Rights (ICCPR), adopted by UN General Assembly, Resolution 2200A (XXI) of 16 December 1966; entered into force on 23 March 1976; art. 2 of the Convention on the Rights of the Child, adopted by General Assembly, UN Doc A/44/49 20 November 1989; entered into force 2 September 1990; General Comment 18: Non-discrimination, adopted at the Thirty-seventh Session of the Human Rights Committee on 10 November 1989, para. 7: defines discrimination as 'any distinction, exclusion, restriction or preference based on protected features having the purpose or effect of nullifying or impairing the enjoyment, recognition or exercise by all persons on an equal footing, of all rights and freedoms'.

82 Human Rights Committee, General Comment No 31 [80], The Nature of the General Legal Obligation Imposed on States Parties to the Covenant adopted on 29 March 2004 at the 2187th meeting, para. 6; Barbosa and others, (n 1) at 301.

83 Yee-fuing Ng, (n 60) at 675.

84 Handbook on Statelessness, (n 13) paras. 84–85.

Since nationality laws can change, country-related information is continuously updated so that changes in nationality law and practice in relevant countries are taken into account. Just like human decision-makers AI will also require regular updates.⁸⁵ AI algorithms can autonomously update themselves. Continuous or online learning is a type of machine learning technique where a model learns from new data streams without being re-trained.⁸⁶ This type of learning adapts instantly to keep up with changes and trends in real time.⁸⁷ In a situation where an AI system does not have access to real-time data, AI will not pick up on any recent repeals, amendments or publications of new legislation. AI algorithms may also generate information that are inaccurate.⁸⁸ Therefore, accuracy may be compromised in both instances.⁸⁹ Humans remain more reliable, as they can actively seek information from relevant authorities to ensure accuracy and avoid relying on outdated or incorrect data.

For country-related training data, which an AI must learn, it has to be treated as accurate and needs to be obtained from reliable and unbiased sources, preferably more than one.⁹⁰ Therefore, information sourced from State bodies directly involved in nationality mechanisms in the relevant State, or non-State actors which have built up expertise in monitoring or reviewing such matters, is preferred.⁹¹ They can also be acquired from human rights organizations, non-governmental organizations (NGO's) dealing with nationality issues, and international bodies (e.g., UNHCR, International Organization for Migration (IOM), Institute Statelessness and Inclusion (ISI)) including Independent researchers such as Citizenship Rights Initiative in Africa.

International organisations and researchers might not have up to date or accurate information on states. Even State bodies directly involved in nationality mechanisms in the relevant State may lack accurate data capturing the extent of the issue of statelessness.⁹² According to UNHCR, the true number

85 *Ibid*, para. 86.

86 Cecilia S Lee and Aaron Y Lee, 'Applications of Continual Learning Machine Learning in Clinical Practice' (2020) 2(6) *The Lancet Digital Health* 1.

87 *Ibid*.

88 *Mavundla v MEC: Department of Co-Operative Government and Traditional Affairs KwaZulu-Natal and Others* (7940/2024P) [2025] ZAKZPHC 2; 2025 (3) SA 534 (KZP) (8 January 2025).

89 See Clyde & Co, 'Regulation of the Use of Artificial Intelligence in Law Firms', <<https://www.clydeco.com/en/insights/2025/04/regulation-of-the-use-of-artificial-intelligence>> accessed 30 September 2025.

90 Handbook on Statelessness, (n 13) para. 86.

91 *Ibid*, para. 85.

92 Adeyemi Saheed Badewa, 'Statelessness, development, and protection of 'disadvantaged groups': Bridging the post-2030 sustainable development gaps' (2022) 8 (3) *African Human Mobility Review* 58–59.

of stateless people worldwide is likely much higher than reported figures due to poor data collection practices, with many countries not reporting any information on stateless individuals within their borders, leading to a significant underestimation of the issue⁹³ and absence of concrete and reliable information to capture the extent of the issue.⁹⁴ In addition, stateless people might find it difficult coming out due to fear of detention, especially in the absence of a statelessness determination procedure (SDP) that can play an important role by assisting in identifying and recognising stateless persons and can ensure their protection and increase awareness of the problem.⁹⁵ Therefore, the concept statelessness and the extent of the problem is less understood.⁹⁶ Since AI lacks the capacity for normative judgment, unlike human decision-makers, they are unlikely to be able to make a determination about statelessness status that has no apparent relation to what they have been trained. Gaps in information may prevent the algorithm from accurately assessing an individual's stateless status. This can lead to erroneous decisions, such as incorrectly determining that a person is not stateless.

Until statelessness is accurately and reliably reported, whatever data that is available will be biased, perpetuating existing discriminatory trends and preventing stateless people from being recognised and protected.⁹⁷ Without balanced training data, for example, an AI algorithm may prioritize certain variables (engineers may prioritize specific features or variables based on how they want the machine to behave) and minimise the significance of issues such as discrimination based on gender in nationality laws.⁹⁸

93 UNHCR, 'Who We Protect Stateless People' <<https://www.unhcr.org/about-unhcr/who-we-protect/stateless-people>> accessed 30 September 2025.

94 *Ibid.*

95 Laura van Waas, *Nationality Matters Statelessness under International Law* (Intersentia, 2008) 9; Solomon Momoh, Hanneke van Eijken and Cedric Ryngaert, 'Statelessness determination procedures: Towards a bespoke procedure for Nigeria' (2020) 2 *Statelessness and Citizenship Review* 90.

96 *Ibid.*, 9.

97 Charlotte Armstrong, 'How can AI Contribute to the Fight to End Statelessness?' *European Network on Statelessness*, 21 September 2023 <<https://www.statelessness.eu/updates/editorial/how-can-ai-contribute-fight-end-statelessness-0>> accessed 30 September 2025.

98 *Ibid.*; Chen, (n 74) at 6.

3.2.3 Procedural Fairness

Procedural guarantees, and procedural fairness are fundamental elements of SDPs.⁹⁹ Under both international, regional and domestic law, public agents are to ensure decision processes are fair.¹⁰⁰ Due process guarantees integrated into administrative law procedures, including those applicable in refugee status determination procedures,¹⁰¹ are necessary in a SDP and these include: decisions are made in writing with reasons with an explanation of the grounds on which it was made; the right to make representations; where children are concerned, the child's right to be heard and the best interest of the child.¹⁰² For the purpose of this study, only these procedural guarantees are examined within the scope of algorithmic decision making.

3.2.4 AI 'Black Box Nature' and the Duty to Give Reasons

In statelessness determination, officials are required to provide reasons that justify the decision based on fact and law, which will allow the affected individual to understand why their application was rejected or approved and appeal if decisions are unfair.¹⁰³ Providing reasons for decisions based on law and fact is a fundamental administrative procedural fairness requirement for decision makers under both domestic and international law.¹⁰⁴ In this regard, it

99 United Nations Counter-Terrorism Implementation Task Force Working Group on Protecting Human Rights while Countering Terrorism Basic Human Rights Reference Guide: Right to a Fair Trial and Due Process in the Context of Countering Terrorism (October 2014). Due process is guaranteed in arts 13 and 14 of the ICCPR.

100 Human Rights Committee, General Comment 32 Article 14: Right to Equality Before Courts and Tribunals and to a Fair Trial; *Agraira v Canada* (Public Safety and Emergency Preparedness), 2013 SCC 36; African Charter on Values and Principles of Public Service and Administration, adopted by the 16th Ordinary Session of the of Heads of State and Government of the AU Addis Ababa, Ethiopia—31st January 2011, entered into force on 23rd July 2016; South Africa's Promotion of Administrative Justice Act 3 of 2000.

101 ICCPR, Art 13; Human Rights Committee, Concluding Observations on Bulgaria, UN Doc. CCPR/C/BGR/CO/3, 19 August 2011 para 16; European Court of Human Rights *M.S.S. v Belgium and Greece* [GC], application No. 30696/09, para 302; Inter-American Court of Human Rights, *Nadege Dorzema et al v Dominican Republic* 24 October 2012, paras 161 and 175.

102 UNHCR 'Good Practices Paper—Action 6: Establishing Statelessness Determination Procedures to Protect Stateless Persons' July 2020 at 17.

103 Handbook on Statelessness *supra* n 13 para 71, 77; Jessica Palairt 'Reason-Giving in the Age of Algorithms' (2020) 26 *Auckland University Law Review* 88.

104 International Centre for Settlement of Investment Disputes (ICSID), *Joseph Lemire v Ukraine* ARB/06/18, 14 January 2010 para 309; *Regina v Higher Education Funding Council, ex parte Institute of Dental Surgery* [1994] 1 WLR 242 (QB) para 256–257; South Africa's Promotion of Administrative Justice Act 3 of 2000; Joint General Comment No. 4 (2017) of the Committee on the Protection of the Rights of All Migrant Workers and Members of Their Families and No. 23 (2017) of the Committee on the Rights of the

is mandatory that public officials are transparent in the processes, criteria, and the bases upon which decisions are made.¹⁰⁵ Mashaw asserts that ‘authority without reason is literally dehumanising’.¹⁰⁶ Therefore, human dignity is at the centre of the rationale for a duty to give reasons for decisions.¹⁰⁷ This administrative duty extends to algorithmic decision. To succeed in meeting this duty, there is a need for AI algorithmic systems to provide the legal basis upon which a particular legal decision has been made.¹⁰⁸ AI scholars use the term explainability for this idea.¹⁰⁹ Explainability implies the duty to provide reasons (justifying decision) and the ability to understand how the algorithm decision was reached and why, making it comprehensible to the public.¹¹⁰

Some deep neural network (‘black box’) algorithms suffer from opacity, meaning they are unable to provide reasons or suitable explanations for the decisions they make.¹¹¹ Experts in the field (computer scientists or programmers) cannot understand how these black box models process data, and the outcomes arrived at – if so, they will even be more incomprehensible to the public.¹¹² Although we do not fully understand how these forms of AI generate decisions, this is similar to our limited understanding of how

Child on State obligations regarding the human rights of children in the Context of International Migration in Countries of Origin, Transit, Destination and Return; Art. 41 Charter of Fundamental Rights of the European Union (OJ 2012/C 326/02).

105 Khaled Khalaf Abed Rabbo Aldrou, ‘The principle of Transparency in Administrative Decisions in Light of Artificial Intelligence for Sustainable Development Goals: A Legal Study’ 2025 5 (2) *Journal of Lifestyle and SDGs Review* 1–25; Charter of Fundamental Rights of the European Union (OJ 2012/C 326/02), Art. 41.

106 Jerry Mashaw, ‘Public Reason and Administrative Legitimacy’ in John Bell and others (Eds.), *Public Law Adjudication in Common Law Systems: Process and Substance* (Hart Publishing, 2016) 17.

107 Palairé (n 103). 97.

108 David Restrepo Amariles, ‘Promises and Limits of Law for a Human-Centric Artificial Intelligence’ (2023) 48 *Computer Law & Security Review* 8.

109 Riccardo Guidotti and others, ‘A Survey of Methods for Explaining Black Box Models’ (2018) 51(5) *ACM Computing Surveys* 1–42; Tim Miller, ‘Explanation in Artificial Intelligence: Insights from the Social Science’ (2019) 267 *Artificial Intelligence* 1–38.

110 The Royal Society ‘Explainable AI: The Basics’ *Policy briefing* November 2019, 8, <<https://www.techtarget.com/searchcio/tip/AI-transparency-What-is-it-and-why-do-we-need-it>> accessed 30 September 2025.

111 Hassija and others, (n 10) at 46.

112 *Ibid*; Stéphanie Laulhé Shaelou and Yulia Razmetaeva, ‘Challenges to Fundamental Human Rights in the Age of Artificial Intelligence Systems: Shaping the Digital Legal Order while Upholding Rule of Law Principles and European Values’ (2024) 24 *Journal of the Academy of European Law* 580; Johan Wolswinkel, ‘Artificial Intelligence and Administrative Law’ December 2022 para. 19; See The cases of C-203/22 *CK v Dun & Bradstreet Austria*; IBM ‘What is Black Box AI?’ 29 October 2024 <<https://www.ibm.com/think/topics/black-box-ai>> accessed 30 September 2025.

the human brain functions and results in decisions.¹¹³ What matters most is whether the decision can be justified with reasons grounded in fact and law. Some black-box AI systems can produce results but are unable to offer reasons or provide clear, understandable explanations for the results that were reached.¹¹⁴ Humans may not give reasons or clear reasons for their decisions, but they possess the ability to do so. Since the legal system demands transparency in decision-making, decision-makers can be challenged by affected parties through appeals and may be compelled to justify their decisions. As a result, humans can reflect on their decision-making processes and provide reasons.¹¹⁵ With AI black box models, they lack the ability to provide the rationale for their decisions even if the law imposes this duty. This is a deeper problem than just refusing to give reasons. This suggests that a full ability to provide reasons flowing from AI decision-making can be very difficult.

Empirical research has shown that AI systems are unable to accurately perform the complex legal reasoning required in decision-making and as a consequence, they cannot provide legally meaningful explanations for their outcome of a case.¹¹⁶ Kolkman et al. asserts that AI lacks the ability to adapt its reasoning to the evolving nature of the legal system and lacks the flexibility to apply exceptions to general rules in novel cases. This is because AI algorithms tend to learn the most general rules (patterns, correlations) that appear in its training data, the algorithm cannot exercise discretion, the autonomy to decide what should be done for each individual case.¹¹⁷ AI algorithms is problematic because it does not follow rational evaluation or human-like reasoning. As a result, AI algorithms cannot handle complex matters that impact on individual lives.¹¹⁸

Explainable AI systems have been developed to provide *post hoc* explanations of the black-box model's outputs. These explanations capture simplifications of a black-box system's algorithm decision-making and do not contain all its technical details. It identifies the most important features that influenced a

113 John Zerilli and others, 'Transparency in Algorithmic and Human Decision-making: Is there a Double Standard?' (2019) 32(4) *Philosophy and Technology* 661–683.

114 *R v McCann* [2019] UKSC 34; Adamantia Rachovitsa and Niclas Johann, 'The Human Rights Implications of the Use of AI in the Digital Welfare State: Lessons learned from the Dutch SyRI Case' (2022) 22 *Human Rights Law Review* 1–15; Hassija et al, (n 10) at 46.

115 Uwe Peters, 'Explainable AI Lacks Regulative Reasons: Why AI and Human Decision-Making are not Equally Opaque' (2023) 3(3) *AI and Ethics* 968–969.

116 Daan Kolkman and others, 'Justitia ex machina: The impact of an ai system on legal decision-making and discretionary authority' (2024) 11(2) *Big Data & Society* 3.

117 *Ibid.* Johan Egbert Hans Korteling and others, 'Human- Versus Artificial Intelligence' (2021) 4 *Front Artif Intell* 1–10.

118 Uwe, (n 115) at 971.

decision.¹¹⁹ However, this approach has been criticised for their low fidelity and for disallowing an inspection and verification of a black-box system's rationale.¹²⁰ Developers of these systems stress that the explanations have no direct connection between the features that cause the black-box system to make its decisions and those mentioned in the justification. Explainable AI systems have to infer, i.e indirectly work out, the black-box model's rationale.¹²¹ Therefore, the AI explanation can be an inaccurate representation of the original (black box).¹²² Since the black-box model's processing is opaque, people will not be able to check the explanation's accuracy. This makes the trustworthiness of such AI explanation questionable.¹²³

Therefore, completely replacing human decision-makers with AI algorithms in the determination of statelessness risks diminishing transparency and violating the administrative duty to uphold it. Transparency emphasises the need for explainable AI, where the logic and rationale behind AI-driven decisions are made clear.¹²⁴ It becomes difficult to challenge an algorithm decision without a clear explanation of the decision.¹²⁵ Van den Hoven relates this challenge to hermeneutical injustice.¹²⁶ A 'condition where an individual is increasingly 'dispossessed of the interpretive tools, concepts and even words to make sense of the world and of one's experiences'.¹²⁷ Machine learning's opacity may make its owners less accountable, which would undermine public trust, and make their decisions incontestable.¹²⁸ Individuals must be given reasons behind decisions that impact their rights or interests so they can challenge decisions they believe to be unfair and make the required representations during the process.¹²⁹ Therefore, the absence of reasoned decisions undermines the individual's ability to challenge human rights

119 *Ibid*, 974–975.

120 *Ibid*, 965.

121 *Ibid*.

122 *Ibid*.

123 *Ibid*.

124 Khaled Khalaf Abed Rabbo Aldrou, (n 105) at 4.

125 Antoni Roig, 'Safeguards for the Right not to be Subject to a Decision Based Solely on Automated Processing' (Article 22 GDPR)' (2017) 8 *European Journal of Law and Tech* 3.

126 Emilie van den Hoven, 'Hermeneutical injustice and the computational turn in law' (2021) 1 *Journal of Cross-Disciplinary Research in Computational Law* 2; Miranda Fricker, *Epistemic Injustice: Power & the Ethics of Knowing* (Oxford University Press, 2007) 158.

127 *Ibid*.

128 Mireille Hildebrandt, 'The New Imbroglio Living with Machine Algorithms' (2016) in Liisa Janssens (Eds.), *The Art of Ethics in the Information Society: Mind You* (Amsterdam University Press, 2017) 55–60.

129 Handbook on Statelessness supra n 13 Para 71; art. 31 1954 Convention. South Africa's Promotion of Administrative Justice Act 3 of 2000.

violations, weakening the core purpose of the human rights framework: the empowerment and protection of the individual.¹³⁰ Additionally, the lack of reasoning disrespects individuals, as respect caters to individual's need to understand the treatment they receive from decision-makers. It also infringes on their right to seek review and an effective remedy.¹³¹

3.2.5 AI's Lack of Empathy and Ethical Consciousness: Best Interests of the Child

Scientists are still working on AI, and their efforts will aim to make AI more emotionally, cognitively, and socially intelligent.¹³² Care, empathy, and ethical consciousness which are intuitive of human intelligence, and which tacitly influence public decision making are beyond current AI capability and even future AI development.¹³³ Children are particularly vulnerable because they may be less able to understand how their data is being used, anticipate how this might affect them, and protect themselves against any unwanted consequences.¹³⁴

The best interest of the child is a cardinal principle in the determination of statelessness. The general principle articulated in article 3 of the CRC applies which provides that 'in all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration'.¹³⁵ In this regard states are placed under a strong legal responsibility.¹³⁶

¹³⁰ Anne Teo, (n 46) at 2267.

¹³¹ Arts. 2(3), 13 ICCPR; Jarrod Hepburn, 'The Duty to Give Reasons for Administrative Decisions in International Law' 61(3)(2012) *International and Comparative Law* 641–663; Meltem Ineli Ciger, 'Artificial Intelligence and Resettlement of Refugees: Implications for the Fundamental Rights' RSC Working Paper 2023/44 at 14–20.

¹³² Forster, (n 6) at 5.

¹³³ Bert Olivier, 'Artificial intelligence (AI) and Being Human: What is the Difference?' (2017) 49 *Acta Academica* 2; Nafees Ahmad, 'Refugees and Algorithmic Humanitarianism: Applying Artificial Intelligence to RSD Procedures and Immigration Decisions and Making Global Human Rights Obligations Relevant to AI Governance' (2020) 1–69 *International Journal of Minority Group* 2.

¹³⁴ ICO, 'When do we need to do a DPIA' <<https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/accountability-and-governance/data-protection-impact-assessments-dpias/when-do-we-need-to-do-a-dpia/>> accessed 30 September 2025.

¹³⁵ Art. 3 CRC.

¹³⁶ UN Committee on the Rights of the Child General Comment 14 'on the right of the child to have his or her best interests taken as a primary consideration,' CRC /C/GC/14 29, May 2013 para 36.

In determining the status of a child applicant, this study raises concerns about how AI will function in such a way that it protects the best interest of the child – a principle already fraught with human discretion.¹³⁷ A stateless applicant may find it difficult proving that he or she is not a national of any country particularly in situations where there are no available documents. Therefore, the question arises as to how applications will be responded to in a child sensitive way because children may have challenges with providing basic information about their nationality. An algorithm assessing a child's application may not exercise the care and empathy required by a human when dealing with a child and can thus neglect the fact that the State has a greater share of the burden of proof when it comes to children. Stateless persons may lack the resources necessary to conduct thorough investigations into their nationality. Even when they approach authorities with inquiries, they are often ignored. This situation is particularly challenging for stateless children, who face even greater obstacles – especially those who are orphaned or abandoned and have no family members to support them in navigating these processes. In such cases, the State has a higher duty of care and responsibility to assist the child.¹³⁸

The above circumstance will make it impossible to completely replace human decision-makers with AI because an AI algorithm's decision might not take into account the communication challenges of the child – which in most cases will require an interview(s) with the child for gathering information and for clarification.¹³⁹ Therefore, the replacement of human decision-makers with AI, risks violating the state's responsibility as a duty bearer to respond to the rights and needs of children.¹⁴⁰ Moreover, this also risks violating the obligation to ensure that the child's views are heard – either directly or through a representative – and to uphold the best interests of the child in decisions that affect their rights.¹⁴¹ States have to ensure that the child receives all

¹³⁷ European Network on Statelessness, 'Statelessness Determination and Protection in Europe: Good Practice, Challenges, and Risks' Statelessness Index, Thematic Briefing, September 2021 at 15.

¹³⁸ Handbook on statelessness, (n 13) para. 119; Thandeka Chauke, 'Pioneering legal victory for childhood statelessness fight' 9 November 2023 <<https://africanlii.org/articles/2023-11-09/ThandekaChauke/pioneering-legal-victory-for-childhood-statelessness-fight>> accessed 18 June 2025.

¹³⁹ Handbook on Statelessness, (n 13) para. 119.

¹⁴⁰ Committee on the Rights of the Child, General Comment 5- General Measures of Implementation of the Convention on the Rights of the Child, CRC/GC/2003/5, Thirty-fourth session 19 September-3 October 2003 paras. 6 & 11.

¹⁴¹ Arts. 3 & 12 CRC; UN Committee on the Rights of the Child adopted a general comment on the rights of children in relation to the digital environment, CRC/C/GC/25, 2 March 2021 para. 13.

necessary information and advice to make a decision in favour of his or her best interests.¹⁴²

3.2.6 Privacy

Privacy is a fundamental human right, essential in order to live in dignity and security.¹⁴³ Article 17 of the ICCPR states that ‘no one shall be subjected to arbitrary or unlawful interference with his privacy, family, home, or correspondence, nor to unlawful attacks on his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks’. Violations or abuses of privacy might affect the enjoyment of other human rights, including freedom of expression, association and movement.¹⁴⁴ This can affect the rights of people to cast their vote in confidentiality and to keep their political opinions private.

AI systems thrive on vast amounts of data, and this dependency adds a new layer of complexity to long-standing privacy concerns, especially around the collection and processing of personal information.¹⁴⁵ While issues around transparency, security, and unauthorized data collection are not new, the scale and impact of AI’s capabilities, enabled by vast datasets and powerful computational resources, present more significant challenges.¹⁴⁶ Since AI is good at recognizing patterns, it can also gather data on people even without direct access to personal information. AI systems can collect, process, and analyse vast amounts of data, including sensitive information, often in ways that are difficult for individuals to understand or control. This can lead to increased risks of privacy violations.¹⁴⁷ Anne Teo contends that ‘with datasets and the dispersed use of AI in communications and even public life, the infrastructural affordances it entails means that privacy is being increasingly hollowed out at its core’.¹⁴⁸ Affonso et al. asserts that the new challenges AI tools bring in

¹⁴² Committee on the Rights of the Child, General comment No. 12 (2009): The right of the child to be heard CRC/C/GC/12, Fifty-first session, Geneva, 25 May-12 June 2009 para. 16.

¹⁴³ Nagy, (n 73) 243–244.

¹⁴⁴ UN Human Rights Council, ‘The Right to Privacy in the Digital Age’ A/HRC/RES/34/7, resolution adopted on 23 March 2017.

¹⁴⁵ ‘What Are the Privacy Concerns With AI?’ 5 February 2025 <<https://verasafe.com/blog/what-are-the-privacy-concerns-with-ai/>> accessed 30 September 2025.

¹⁴⁶ *Ibid.*

¹⁴⁷ Bernd Carsten Stahl, *Artificial Intelligence for a Better Future An Ecosystem Perspective on the Ethics of AI and Emerging Digital Technologies* (Springer Briefs in Research and Innovation Governance, 2021) 41.

¹⁴⁸ Anne Teo, (n 46) at 2271.

connection with the right to privacy have resulted in the recognition of data protection as a stand-alone right or as a dimension of the right to privacy.¹⁴⁹

Personal data refers to information recorded in any format that enables the identification of an individual. This data includes data on our health, political ideas, family life etc.¹⁵⁰ AI poses significant risks to privacy, particularly when there is inadequate data protection in place. AI privacy risks include accidental exposure of sensitive data to third party apps and stealing or misuse of data – such as unauthorized access to personal accounts by hackers from AI applications. This can occur due to weak security protocols, human error, or malicious actors, leading to the exposure of sensitive information.¹⁵¹ Due to these unique security vulnerabilities faced by AI, stateless applicant's sensitive personal information which include marriage details, health, employment and family life are highly prone to data leakage and hacking if data is not protected and this can lead to infringement of privacy. When data is leaked or hacked, stateless person's stories can be shared to online platforms, that can expose them to xenophobic attacks, discrimination and hate speech. They can be labelled both in their country of residence and origin by citizens as illegal. This also risk violating their rights to freedom of expression and freedom to participate in democratic society. Their right to dignity is at stake as they are prone to inhumane treatment due to the absence of legal documents and they can be arbitrarily detained, affecting their right to free movement. Therefore, there are serious risks relating to the privacy of stateless applicants awaiting decision.¹⁵²

Humans can make errors which can lead to data leakage and data can also be stolen from human decision-makers. However, humans possess the capacity to understand and act according to ethical principles. They are aware of their responsibility to uphold privacy, which is critical when dealing with sensitive data – something AI is inherently unable to do.¹⁵³

149 Carlos Affonso Souza and others, 'From privacy to data protection: the road ahead for the Inter-American System of human rights' (2021) 25 (1) *The International Journal of Human Rights* 150.

150 Teresia Munywoki, 'Data Protection Challenges for Refugee Women in Africa' 22 March 2024 <<https://cipit.org/data-protection-challenges-for-refugee-women-in-africa/>> accessed 3 July 2025; Tony Ke and K Sudhir, 'Privacy rights and data security: GDPR and personal data markets' (2023) 69 (8) *Management Science* 4389–4412.

151 'Cyber security breaches' <<https://www.dataguard.com/cyber-security/breaches/>> accessed 30 September 2025; Data Guard insights September 2024 'The growing data privacy concerns with AI: What you need to know' <https://www.dataguard.com/blog/growing-data-privacy-concerns-ai/?hs_amp=true> accessed 30 September 2025.

152 *Ibid.*

153 Korteling and others, (n 117) at 1–10.

4 Reliability of AI

4.1 *Navigating the Complexities of Nationality Laws*

Another challenge is that determining a person is stateless involves its own peculiarity and complexity that might not be grasped by AI algorithms. Statutory laws and international treaties often require human interpretation where there are ambiguous and normative or context-dependent meanings.¹⁵⁴ AI systems may lack the ability to interpret complex legal terms that human adjudicators provide and may confuse the meaning of certain terms because the technological capacity to readily code complex legal text still does not exist.¹⁵⁵ The European Union (EU) Artificial Intelligence Act has labelled as 'high risk' AI systems intended to be used by a judicial authority in interpreting facts and the law and applying the law to facts or by alternative dispute resolution when the outcomes produce legal effects for the parties.¹⁵⁶

In certain situations, the intricacy of a state's nationality laws and practices may warrant the use of human expert evidence.¹⁵⁷ Consequently, the depth of understanding that humans can provide remains indispensable. Olivier argues that 'human intelligence in the decision-making process transcends logic and is not entirely based on some sort of specific algorithm process'.¹⁵⁸ Humans possess the ability to engage in critical thinking and nuanced reasoning – capacities that AI currently lacks. Given that AI is not yet sufficiently advanced to interpret complex legal terminology, it should not replace human decision-makers. I now elaborate upon some of the complexities involved in the statelessness area.

In state's nationality legislation, the term 'national' is used differently in different countries and different nationals could be granted distinct rights.¹⁵⁹ If AI has to determine statelessness, how AI algorithms will navigate the different terms used in different countries is difficult to understand.

AI may not perform well, or at all, in areas that involve abstract concepts such as 'reasonableness'.¹⁶⁰ This concept involve actually understanding the

¹⁵⁴ Magnus Killander, 'Interpreting Regional Human Rights Treaties' (2010) 7 (13) *SUR International Journal on Human Rights* 145–169.

¹⁵⁵ Foster, (n 6) at 6.

¹⁵⁶ Veronika Fikfak and Laurence R Helfer, 'Automating International Human Rights Adjudication' (2025) 69 46 *Michigan Journal of International Law* 117; European Union Artificial Intelligence Act 2024 Annex III, point 8.

¹⁵⁷ Handbook on Statelessness (n 13) para 85.

¹⁵⁸ Olivier, (n 133).

¹⁵⁹ Handbook on Statelessness, (n 13) para 52: "citizen", "subject", "national" in French, and "nacional" in Spanish.

¹⁶⁰ Harry Surden, 'Artificial intelligence and law: An overview' 35(4) 2019 *Georgia State University Law Review* 1326.

underlying meaning of the word. For instance, under the UK Immigration Rules, a stateless applicant must demonstrate that they have ‘taken all reasonable steps’ to acquire or re-acquire nationality from the competent authorities of any relevant countries.¹⁶¹ If AI is to determine statelessness, it would be unclear how an algorithm could evaluate what constitutes ‘reasonable steps,’ as this assessment involves subjective judgment.¹⁶²

4.2 *Exploring AI’s Potential to Assist the Statelessness Determination Process: Benefits, Challenges, and Strategies for Mitigating these Challenges*

This study has thus argued above against completely replacing humans with AI. This section now turn to consider whether there is any usage of AI that is compatible with human rights in the statelessness determination process

4.2.1 Partial use of AI: Its Potential Benefits

States can enhance the statelessness determination process by using AI to assist in non-complex tasks during the initial review stage, rather than completely replacing AI algorithm with human decision-makers in the determination of stateless status.

Officials often exceed established time limits in the determination of stateless status and can take a longer period of time. In some countries, this is due to heavy caseloads and insufficient staff.¹⁶³ UNHCR recommends that first instance decisions should be issued not more than six months from the submission of an application as this prolongs the period spent by an applicant in an insecure position.¹⁶⁴ UNHCR further states that in exceptional circumstances, it may be appropriate to allow the proceedings to last up to 12 months to provide time for enquiries regarding the individual’s nationality status to be pursued with another State, where it is likely that a substantive response will be forthcoming in that period.¹⁶⁵

¹⁶¹ Sec 3.2 UK Immigration Rules <<https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-statelessness>> accessed 30 September 2025.

¹⁶² Home Office ‘Permission to stay as a stateless person’ (27 March 2025) Version 7.0 at 16 <<https://assets.publishing.service.gov.uk/media/67e40dc6d052ace7e8977693/Permission+to+stay+as+a+stateless+person.pdf>> accessed 30 September 2025.

¹⁶³ European Network on Statelessness, Statelessness Determination and Protection in Europe, Thematic briefing (September 2021) 18 https://www.statelessness.eu/sites/default/files/2021-09/ENSStatelessness_determination_and_protection_in_Europe-Sep_2021.pdf accessed 30 September 2025.

¹⁶⁴ Handbook on Statelessness, (n 13) paras 74–75.

¹⁶⁵ *Ibid.*

As a result of AI's ability to process large volumes of data at a pace that surpasses human capabilities, AI algorithms can support human decision-makers in speeding up the statelessness determination process in a number of ways. Since machine learning can identify hidden anomalies, this makes it very useful. AI algorithm can speedily detect the lack of any form of documentation regarding an individual's personal circumstances. It can be used to generate a simple binary indicator to show whether specific documents such as passport, ID, birth certificates are present or missing. By learning from previous computations and extracting regularities from massive databases, AI algorithms can help produce reliable and repeatable decisions in routine task. For example, AI algorithms can be used to automatically cross-check the application fields to detect missing or incomplete submissions. Flagging these issues early can reduce processing and decision-making times and better manage application loads. Since the process of statelessness determination can take a long time, addressing these challenges early on can prevent applicants from spending extended periods in an insecure position.¹⁶⁶ AI algorithms can be used specifically to identify contradictory information or discrepancies in an application form. In addition, AI algorithm can sift through a vast database of case laws, providing decision makers with relevant information in a fraction of time it will take manual processing.¹⁶⁷

4.2.2 Challenges with Partial use of AI

In these partial tasks, bias worries and procedural fairness issues are a less concern. However, privacy concerns remains. If AI algorithms are employed to cross-check application fields for missing or incomplete information and to detect the absence of documentation, the data may still be vulnerable to privacy risks, as previously discussed under privacy. Reliability concerns may arise in situations relating to citations. AI systems employing machine learning can produce fabricated references; for instance, ChatGPT has been noted for generating fictitious citations and non-existent cases.¹⁶⁸

¹⁶⁶ *Ibid.*

¹⁶⁷ 'AI in legal research' 5 May 2025 <<https://www.sdlaw.co.za/articles/ai-in-legal-research/>> accessed 30 September 2025.

¹⁶⁸ *Roberto Marta v Avianca, Inc* Case 1:22-cv-01461-PKC (S.D.N.Y June 22, 2023) <<https://s3.documentcloud.org/documents/23826753/judgeaskingtheotherlawyerwhyhe submittedafilingwithfakecases.pdf>> accessed 3 June 2025; *Mavundla v MEC: Department of Co-Operative Government and Traditional Affairs KwaZulu-Natal and Others* 2025 (3) SA 534 (KZP) (8 January 2025).

4.2.3 Possible Mitigation Strategies

One way to mitigate the risk of privacy is to conduct privacy impact assessments (PIA) during the planning stage. PIA involves a detailed legal analysis of how data is collected, processed, stored, and deleted, identifying risks to privacy at each stage. It also requires evaluating the necessity and proportionality of data processing, ensuring that only the minimum amount of data necessary for the objectives is used. Conducting PIAs can help identify potential privacy issues in order to respond with appropriate control measures on time to mitigate the risk before they become real problems.¹⁶⁹

Other possible mitigation strategies include but are not limited to the following: anonymising and encrypting data can also protect user identities, making it harder to re-identify individuals and prevent unauthorised access to confidential information. Encrypting data renders it unreadable to unauthorized parties, ensuring that even if data is intercepted, it remains incomprehensible and unusable.¹⁷⁰ It is important that developers adhere to industry best practices and standards, such as the use of strong and unique encryption keys, regular security audits, and continuous monitoring of security controls. This proactive approach to data security can significantly reduce the likelihood of data breaches and unauthorised access. Implementing robust data protection policies is also critical to safeguard sensitive information.¹⁷¹

Human oversight is necessary to prevent errors and ensure the reliability of information.¹⁷² One concern, however, is that decision-makers may assume the provided information is accurate and fail to verify it. Additionally, they may face organisational barriers such as time constraints or pressure from upper management.¹⁷³ As a result, instead of verifying accuracy critically, they 'rubber-stamp'. Rubber stamping can result in the decision-makers erroneously taking into account wrong information.¹⁷⁴ Appropriate oversight and further verification is necessary to mitigate these challenges.

169 Krishnapriya Agarwal, 'How to Mitigate Privacy Issues With AI: Best Practices' 9 February 2024 <<https://www.spotdraft.com/blog/mitigating-privacy-issues-around-ai>> accessed 30 September 2025. See also European Union Artificial Intelligence Act 2024.

170 Madaoui Nadja, 'The Impact of Artificial Intelligence on Legal Systems: Challenges and Opportunities' (2024) 164 *Problems of Legality* 285–303, at 297–299.

171 *Ibid.*

172 Ludivine Stewart 'Fair and Efficient Asylum Procedures and Artificial Intelligence: Quo Vadis Due Process?' (2024) 55 *Computer Law & Security Review* 7.

173 Niklas, (n 50) at 520,521.

174 Stewart, (n 172) at 7–8.

5 Conclusion

If AI machine learning algorithms completely replace human decision-makers in the determination of stateless status, there is a grave risk of serious human rights violations. I have outlined concerns relating to discrimination, due process and privacy. Until AI algorithms are adequately trained to interpret complex legal terms and demonstrate ethical awareness, they should not completely replace human decision-makers. Doing so could exacerbate existing challenges and undermine ongoing efforts to ensure the recognition and protection of stateless persons. In addition, States must ensure that data on stateless persons are reliable and accurate to prevent future biases in the application of AI algorithms.

Despite the above concerns, there are some uses of AI algorithms that can assist decision-makers to process statelessness applications in an efficient manner. Governments can turn to AI algorithms, to assist officials, without completely replacing human decision makers with them. Although, if AI is used only partially, significant challenges remain – particularly regarding privacy risks and the accuracy of the information generated. Appropriate mitigation strategies can be put in place to address these concerns. Human oversight is also necessary to ensure information is accurate.