Tilburg Institute for Law, Technology, and Society (TILT)

LLM Law & Technology
Master's Thesis

"The potential implementation of predictive algorithms as tools assisting judges of the European Court of Human Rights in the decision-making process and the impact on the right to a fair hearing"

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List of acronyms and abbreviations

ECtHR: European Court of Human Rights

AI: Artificial Intelligence

ECHR: European Convention on Human Rights

SVM: Support Vector Machine

Chapter1. Introduction

In 2016, the first systematic study of a predictive algorithm that predicts the outcome of the cases brought before the European Court of Human Rights (ECtHR or the Court) was introduced. Aletras et al. became the first Artificial Intelligence (AI) developers to use predictive models relying only on unstructured text features from the data set of the ECtHR to achieve legal judicial predictions.[1] Their study produced a system aiming to unveil the patterns that are used as foundation for the judicial decisions regarding violations of specific Articles of the European Convention on Human Rights, to assist both judges and lawyers.[2]

In 2019, based on the study by Aletras et al., another study with the same aim was published by Medvedeva et al. According to Medvedeva, such a prediction could also make possible the determination of the words that have the most influence on the outcome of the judicial decision. Both studies focus on the European Court of Human Rights, creating a system that will be able to predict the verdict of a new case, by automatically analyzing previous cases of the Court. Focusing on the fact that the outcome prediction by these algorithms is solely based on the machine-learning analysis of previous judgments, this research aims to assess whether a potential implementation outcome prediction algorithms, predicting the decisions of the ECtHR in the judicial system, as a tool assisting judges in the process leading to the decision over a case, might have an impact on the essence of the right to a fair hearing.

To do so, this thesis aims to consider the aspects of the right of the parties to defend themselves and the individuality of each case in the context of a thought experiment, setting the conditions of potential implementation scenarios and the impacts they might have. The scenarios that are being discussed are the use-case where the system could be available for judges to consult whenever they believe they would need its support; the scenario under which the Court could formally adopt the AI algorithms as a formal decision aid to judges; and the case of the AI being built into the Court's proceedings, via a contract with a provider. The focus is on directly linking the functioning of these predictive models under each implementation scenario with the right to a fair hearing.

This thought experiment is founded upon the concern that the right to a fair hearing (Article 6 ECHR), as a component of the right to a fair trial[3] and as all fundamental rights, has always been interpreted based on the fact that it has to be respected by humans. However, a potential introduction of predictive systems used as ECtHR judges' assisting tools could disrupt the stability of this fact. Therefore, it is argued that this is the time to assess potential scenarios under which the AI systems in discussion could be implemented and whether the essence of the right to a fair hearing would continue to be preserved, without shifting the human centricity to machines; without infringing a fundamental human right that ensures the parties' control over the process leading to the Court's decision.

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[1] Strickson, B., & de la Iglesia, B. (2020). Legal Judgement Prediction for UK Courts. Proceedings of the 2020 The 3rd International Conference on Information Science and System. https://doi.org/10.1145/3388176.3388183 , 1

[2] Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., & Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93

[3] Convention for the Protection of Human Rights and Fundamental Freedoms as amended by Protocols Nos. 11 and 14, supplemented by Protocols Nos. 1, 4, 6, 7, 12, 13 and 16, 4 November 1950. Available from: https://www.echr.coe.int/Documents/Convention_ENG.pdf [Accessed 30 January 2019].

1.1 Overview of the system's mechanism

The algorithms developed by Aletras et al. and Medvedeva et al. predicting the outcome of a new case in the European Court of Human Rights (ECtHR) are AI systems that use natural language processing and machine learning to process judgments on previous cases and use them as a basis to predict the outcome on a new case.[4] The reason for focusing on these kinds of algorithms (the ones using machine learning) is that they function without human interaction, especially the judge's action, to be required for the system to predict the outcome of the case.

More specifically, according to the models in discussion, the algorithm is provided with textual information solely retrieved by the cases accessed through HUDOC (the electronic database of the ECtHR)[5] and detects patterns associated with each verdict type, namely "violation", "no violation".[6] Through the process of analyzing the case-data retrieved by HUDOC, the system identifies some information as important. The features of each case that was identified as the most important are sorted on the ones leading to "violation" and the ones leading to "no violation", respectively. This part of the process is called *the training phase.*[7]

For the result to occur during the aforementioned training phase, the parts of the judicial decision that are being analyzed are: the procedure followed before the Court, the circumstances of the case – meaning all actions and events that gave rise to the alleged violation – and the legal provisions leading to the decision.[8,9] Another important part of the judicial decisions is the *Law;* this section contains the main arguments provided by the parties and the legal arguments made by the Court. According to Medvedeva, the *Law* part includes the judges' discussion and arguments and therefore it was removed from the data used to train the algorithm.[10] On the contrary, in the model presented by Aletras et al. this section is actually analyzed by the system and constitutes part of the prediction.[11]

Thus far, the predictive algorithms at hand have been tested in predicting the outcome of cases already tried before the European Court of Human Rights. It is

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[4] Medvedeva M, Vols M and Wieling M, 'Using machine learning to predict decisions of the European Court of Human Rights (2019) 28(2) Artificial Intelligence and Law 237 <http://dx.doi.org/10.1007/s10506-019-09255-y> accessed 27 October 2021

[5] Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., & Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93 , 3

[6] Medvedeva, M., Vols, M., & Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y , 6

[7] Medvedeva, M., Vols, M., & Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y ,6

[8] Medvedeva, M., Vols, M., & Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y , 9

[9] Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., & Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93 , 4

[10] Medvedeva, M., Vols, M., & Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y ,12

[11] Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., & Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93 , 11

acknowledged by both Aletras et al. and Medvedeva et al. that their models do not have the purpose of replacing judges or lawyers.[12] Nevertheless, as Aletras has highlighted, these algorithms present the potential of being used as assisting tools.[13] Such a potential use of predictive algorithms as tools supporting judges in the proceedings of the ECtHR that lead to a decision over a case is the focus of this research.

1.2 The right to a fair hearing

The right to a fair trial (Article 6 ECHR) represents a core value of the European Convention on Human Rights and reserves the procedural rights of the parties of judicial proceedings.[14] The right to a fair trial, as interpreted by the Guide on the European Convention of Human Rights, is consisted of four main aspects, namely the right to have access to court, the right to a public and fair hearing by an impartial tribunal, within a reasonable time and the right to a reasoned judgment.[15] For the aim of this research, the right to a fair hearing will be discussed.

The foundation of the right to a fair hearing is laid down in Article 14 of the International Covenant on Civil and Political Rights.[16] The core principle enshrined in this article is the equality of all persons before the courts and tribunals.[17] More specifically, in Kaufman v. Belgium the Court stated that *"everyone who is a party to…proceedings shall have a reasonable opportunity of presenting his case to the Court under conditions which do not place him at substantial disadvantage vis-à-vis his opponent"*.[18] Although this notion is mainly referring to criminal cases, the Court has developed a rich case law supporting its establishment in civil cases as well.[19]

On the basis of those aspects of the right to a fair hearing, this research examines whether and in what manner these aspects could be impacted by the potential use of predictive algorithms as judges' assisting tools in the process of determining the judgment. Would the individuality of the cases and the parties' right to defend themselves continue to be preserved in such a scenario?

1.3 Background of the importance of the subject

[12] Medvedeva, M., Vols, M., & Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y , 2

[13] Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., & Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93 , 3

[14] Convention for the Protection of Human Rights and Fundamental Freedoms as amended by Protocols Nos. 11 and 14, supplemented by Protocols Nos. 1, 4, 6, 7, 12, 13 and 16, 4 November 1950. Available from: https://www.echr.coe.int/Documents/Convention_ENG.pdf [Accessed 30 January 2019].

[15] European Court of Human Rights, Guide on Article 6 of the European Convention on Human Rights (Council of Europe, 2021) 37.

[16] Right to a fair hearing. (2019). Www.Qhrc.Qld.Gov.Au. https://www.qhrc.qld.gov.au/your-rights/human-rights-law/right-to-a-fair-hearing#:%7E:text=A%20person%20charged%20with%20a,a%20fair%20and%20public%20hearing

[17] International Covenant on Civil and Political Rights, 23 March 1976. Available at: https://www.ohchr.org/en/professionalinterest/pages/ccpr.aspx#:~:text=Article%2014&text=All%20persons%20shall%20be%20equal,impartial%20tribunal%20established%20by%20law

[18] Commission decision of 9th December 1986, D.R. 50, p. 98, at p. 115. 10938/84

[19] Rozakis, C. The right to a fair trial in civil cases. Judicial Studies Institute Journal, https://www.judicialstudiesjournal.ie/assets/uploads/documents/pdfs/2004-Edition-02/article/the-right-to-a-fair-trial-in-civil-cases.pdf , 7

In the modern age, computer algorithms have reached an increasingly wide use throughout our economy and society. Whenever a computer is used, chances are AI algorithms are involved somehow, making decisions that have far-reaching consequences.[20] Even if we do not realize it, intelligent algorithms are all around us. And the judicial world is no exception, as technology is already reshaping the justice system.

The introduction to this initiation to automation of the judicial system came with the wide use of the intelligent Online Dispute Resolution systems: the Dutch Platform *Rechtwijzer* and the British Columbia Civil Resolution Tribunal in Canada (established in 2012 and first used in 2016[21]).[22] *Rechtwijzer* System was an online platform for resolving interpersonal disputes such as divorce and separation. It was using algorithms to identify places of agreement and recommend solutions like those that had been proposed in previous cases. The software consisted of three phases: diagnosis, intake for the initiating party, and intake for the responding party. The disputants were also informed of the processes that were relevant to them, like property division and child support. The whole process was designed to be fully automated and only the final agreement was reviewed by a neutral lawyer. Because court procedures were prescribed by legislation and did not allow implementation of innovative technologies, this project was not executed, but it clearly indicates the tension of judicial reformation in Europe, based on intelligent algorithms.[23]On the other hand, the British Columbia Civil Resolution Tribunal also indicates the very realistic aspect of such innovations, as it is currently widely used to diagnose disputes deriving, for instance, from vehicle injuries, small claims, accommodation, and housing. For the domains which the Civil Resolution Tribunal is dealing with, there are no paper-based alternatives available.[24]

At an even more advanced level, the Estonian Ministry of Justice, in July 2019, initiated a project building AI software that hears and decides on lower value claims. According to this innovation, small contract disputes worth up to €7.000,- are delegated to an online court run exclusively by AI and without any human intervention.[25]

It is becoming apparent that the deployment of artificial intelligence algorithms in the field of law is not science fiction anymore. As today's reality indicates, artificial intelligence is gaining – and it is expected to take – a very active role in the judicial system. Besides the aforementioned initiatives, the most up-to-date exploitation of AI is in the form of predictive algorithms, predicting judicial behavior and/or the outcome of cases.

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[20] Peter K. Yu, 'The Algorithmic Divide and Equality in the Age of Artificial Intelligence' (2020) 72 Fla L Rev 331

[21] Privacy, J. (2019, January 2). Civil Resolution Tribunal Act - Province of British Columbia. British Columbia. https://www2.gov.bc.ca/gov/content/justice/about-bcs-justice-system/legislation-policy/legislation-updates/civil-resolution-tribunal-act

[22] Zeleznikow, J. (2021). Using Artificial Intelligence to provide Intelligent Dispute Resolution Support. Group Decision and Negotiation, 30(4), 789–812. https://doi.org/10.1007/s10726-021-09734-1

[23]Rechtwijzer: Why Online Supported Dispute Resolution Is Hard to Implement. (2017). www.hiil.org. Retrieved June 21, 2017, from https://www.hiil.org/news/rechtwijzer-why-online-supported-dispute-resolution-is-hard-to-implement/

[24]Zeleznikow, J. (2021). Using Artificial Intelligence to provide Intelligent Dispute Resolution Support. Group Decision and Negotiation, 30(4), 789–812. https://doi.org/10.1007/s10726-021-09734-1, p.15

[25] Niiler, E. (2019, March 25). Can AI Be a Fair Judge in Court? Estonia Thinks So. Wired. https://www.wired.com/story/can-ai-be-fair-judge-court-estonia-thinks-so/

To understand how contemporary and urging discussions about predictive algorithms are, a closer look at France's example is more than enough. In June 2019, the French government established a new law specifically prohibiting judicial analytics: "*The identity data of magistrates and members of the judiciary cannot be reused with the purpose or effect of evaluating, analysing, comparing or predicting their actual or alleged professional practices*".[26] The ban is referring to algorithms that use judges' data to analyze a specific judge's judicial behavior and predict how the given judge will rule in a similar future case.[27]

Concerns regarding this complete ban of algorithms predicting judicial behavior have gained utmost attention. On the one hand, the prohibition was mainly based on worries about the exploitation of judges' personal data and the reduction of the need for lawyers, as the parties' strategies in court could be optimized using those algorithms.[28] On the other hand, many criticized that decision, arguing that these types of studies could improve the judicial system, revealing dysfunctions.[29]

Similar debates are being raised by the potential use of predictive algorithms predicting the European Court of Human Rights decisions. Although the systems developed by Aletras et al. and Medvedeva et al. do not focus on the judicial behavior of specific judges, they aim to uncover patterns that could help predicting the rulings of the European Court of Human Rights regarding the violation or no violation of specific articles of the ECHR. In that context, these AI algorithms could have promising potential within the judicial system (increasing the system's accuracy and objectivity), but at the same time they spotlight concerns about the use of such machines on fundamental human rights.

1.4 Overview of relevant concerns addressed in academic literature

The risks and potential consequences of such innovations, inferred by scholars, are focused on a variety of aspects. Among those, the principle of the priority of law.[30] The power of predicting judicial decisions raises the prospect of creating a standardized framework where judgments will not be a product of case-by-case reasoning by the courts, but rather an output based on statistical calculation.[31] The risk that lurks is the one of regulating the judge's sovereignty and her/his discretion. As Tania Sourdin indicates, it has been noted that even if AI systems can

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[26] Bufithis, G. (2019, June 9). Understanding the French ban on judicial analytics – Gregory Bufithis. GregoryBufithis. https://www.gregorybufithis.com/2019/06/09/understanding-the-french-ban-on-judicial-analytics/

[27] Szczudlik, K. (2019, June 24). AI must not predict how judges in France will rule. Newtech.Law. https://newtech.law/en/ai-must-not-predict-how-judges-in-france-will-rule/

[28] Livermore, M. D. R. (2019, June 21). France Kicks Data Scientists Out of Its Courts. Slate Magazine. https://slate.com/technology/2019/06/france-has-banned-judicial-analytics-to-analyze-the-courts.html

[29] Bufithis, G. (2019, June 9). Understanding the French ban on judicial analytics – Gregory Bufithis. GregoryBufithis. https://www.gregorybufithis.com/2019/06/09/understanding-the-french-ban-on-judicial-analytics/

[30] de la Rosa, F. E., & Zeleznikow, J. (2021b). Making intelligent online dispute resolution tools available to self-represented litigants in the public justice system. Proceedings of the Eighteenth International Conference on Artificial Intelligence and Law. https://doi.org/10.1145/3462757.3466077, 198.

[31] de la Rosa, F. E., & Zeleznikow, J. (2021b). Making intelligent online dispute resolution tools available to self-represented litigants in the public justice system. Proceedings of the Eighteenth International Conference on Artificial Intelligence and Law. https://doi.org/10.1145/3462757.3466077, 4.

mimic human way of thinking, they cannot yet duplicate it.[32] Judges, besides understanding the law, should also understand to whom the law is applied. This capability of human judges leads to instances where top courts reject their own precedents or judges reach different opinions as they move up the appeal pyramid. Predictive algorithms are not capable of such analysis on the data they measure.[33]

Another issue that widely concerns scholars is the fact that algorithms might discriminate against the vulnerable, the disadvantaged and/or marginalized groups of population.[34] Predictive algorithms take specific information as an input to produce an output, but – since their functioning is based on machine learning – human intervention and interaction are not required for this output to be provided. This algorithmic design can make it very difficult to detect and prove masked discrimination.[35] For the machine to learn, the data generated from the algorithm are being fed back and becoming the new training and feedback data, creating self-reinforced loops in the case of discrimination.[36] A relevant example coming from case law is the one of Loomis case (*State of Wisconsin v. Loomis*). In this case it was found that *COMPAS* (the system of AI algorithms used to predict the outcome of cases before the Supreme Court of the United States and the proportion of recidivism of defendants[37]) was biased against black defendants, overestimating the likelihood of their recidivism, while underestimating that of white ones.[38] AI algorithms' results can potentially be compromised by racism, sexism and other prejudices.[39]

This observation is also closely linked to algorithms' opacity. The parties – as anyone besides the experts does not acquire enough knowledge and the transparency needed is not available – have to face their inability to comprehend the algorithms behind the prediction and thus they might derail to a very weak position, not being able to prove their claims.[40] Transparency, regarding the court proceedings, is the notion mirroring the parties' right to verify the grounds on which a judgment was founded.[41]

Finally, another important concern is deriving from the fact that these predictive algorithms can be exploited by the private sector. As it has been pointed

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[32] Sourdin, T., & Cornes, R. (2018). Do Judges Need to Be Human? The Implications of Technology for Responsive Judging. The Responsive Judge, 87–119. https://doi.org/10.1007/978-981-13-1023-2_4 , 16.

[33] Momin M Malik, 'A Hierarchy of Limitations in Machine Learning' (2020)<[2002.05193]_A Hierarchy of Limitations in Machine Learning (arxiv.org)>, 6.

[34]Peter K. Yu, 'The Algorithmic Divide and Equality in the Age of Artificial Intelligence' (2020) 72 Fla L Rev 331, p. 26

[35] Peter K. Yu, 'The Algorithmic Divide and Equality in the Age of Artificial Intelligence' (2020) 72 Fla L Rev 331, p. 28

[36] Ronald Yu & Gabriele Spina Ali, What's Inside the Black Box? AI Challenges for Lawyers and Researchers, 19 LEGAL INFO. MGMT. 2, 4 (2019)

[37] Washington, A. L. (2019). How to Argue with an Algorithm: Lessons from the COMPAS ProPublica Debate. Social Science Research Network. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3357874, 19.

[38] Sourdin, T., & Cornes, R. (2018). Do Judges Need to Be Human? The Implications of Technology for Responsive Judging. The Responsive Judge, 87–119. https://doi.org/10.1007/978-981-13-1023-2_4 , 4.

[39] Livermore, M. D. R. (2019, June 21). France Kicks Data Scientists Out of Its Courts. Slate Magazine. https://slate.com/technology/2019/06/france-has-banned-judicial-analytics-to-analyze-the-courts.html

[40] Themeli, E., & Philipsen, S. (2021). AI as the Court: Assessing AI Deployment in Civil Cases. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3791553, 6.

[41] Themeli, E., & Philipsen, S. (2021). AI as the Court: Assessing AI Deployment in Civil Cases. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3791553, 13.

out, the software used by the AI system might be developed by a private company.[42] The source would most definitely be protected by Intellectual Property laws, impelling the proper understanding of how the outputs have been generated. The fact that predictive algorithms are being trained by extrajudicial actors (such as, in the case of Aletras et al. and Medvedeva et al., AI developers) makes it even more difficult to understand the functioning of those algorithms and ensure they have been trained with immune input data. Even further, there is the concern of turning judicial data into commercial goods, as it had happened in the US, where the access to judicial databases was set behind paywall by the judiciary in 2019.[43]

All the aforementioned concerns continue to be more than relevant in the case of predictive algorithms as well. However, the dive into the background that's been shaped until now regarding AI systems (potentially) used in the judicial proceedings revealed that the risks posed for the right to a fair hearing in the case of predictive algorithms used as judges assisting tools in the ECtHR has not yet been addressed.

1.5 Central research questions and sub-questions

As a result of the aforementioned, the central research question is: What could be a potential implementation scenario of predictive algorithms as tools assisting judges of the European Court of Human Rights in the decision-making process and to what extent would it pose a risk of impoverishment of the right to a fair hearing?

In support of the abovementioned central question, the following sub-questions will be asked:
- To what extent could the complexity in the functioning of predictive algorithms lead to an inability of the parties to defend themselves before the ECtHR?
- How would different implementation scenarios of predictive algorithms assisting judges of the ECtHR in the decision-making process impact the right to a fair hearing and therefore the position of the parties and the judges within the judicial proceedings?
- To what extent could the functioning of predictive algorithms compromise the right to an individual judgment, as a component of the right to a fair hearing?

1.6 Methodology

The methodology by which the research questions will be answered is based on a case study analyzed mainly in a doctrinal legal research approach. As there are still no conditions set as to how the predictive algorithms discussed in this research could be implemented in the ECtHR proceedings, this research aims in presenting a case study in the form of a thought experiment, setting potential implementation conditions and the impact they might have on the right to a fair hearing. The backbone of this study is structured by academic literature, to understand the use and the extent to which predictive algorithms could be used in connection with the European Court of Human Rights, and also technical papers on the functioning of those AI systems.

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[42] Zalnieriute, M., & Bell, F. (2019). Technology and the Judicial Role. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3492868 , 24.

[43] Livermore, M. D. R. (2019, June 21). France Kicks Data Scientists Out of Its Courts. Slate Magazine. https://slate.com/technology/2019/06/france-has-banned-judicial-analytics-to-analyze-the-courts.html

More specifically, the first sub-question will be mainly addressed in a desk study, by studying and reviewing the existing information to examine whether and to what extend the complexity of predictive algorithms' functioning would make it impossible for the parties to truly understand how their case is being assessed. The patterns these algorithms could reveal to judges will be approached using papers on AI models and legal doctrine. Alongside with that, the impact of such process on the right of the parties to defend themselves will be analyzed using academic literature.

Moving forward to the second chapter, this will be analyzed within the context of a thought experiment. Different implementation scenarios will be presented and, with the support of legal doctrine and academic literature, the impact on the different components of the right to a fair hearing will be assessed.

With regard to the third sub-question, this will be addressed by following mainly the same structure. The functioning of predictive algorithms regarding their claimed inability to balance the meaning behind the data they process will be analyzed with the use of technical papers on AI algorithms. Following this assessment, the potential impact of such inability on the examination of the cases brought before the ECtHR will be analyzed using legal philosophy and doctrine. The existing academic literature will assist on understanding the notion and importance of the individuality of cases.

It must be noted that this thesis is not focused on proving that AI systems predicting the decisions of the European Court of Human Rights need to be banned. The motive of this thesis' analysis is deriving from the need to be aware of the potential impact on the right to a fair hearing, in order to implement those systems with the least possible implications.

1.7 Overview of chapters

Following the above introduction, the second chapter consists of an overview of the link between the complexity of the functioning of predictive algorithms with the right of the parties to defend themselves. Through this analysis, what is mainly assessed is the risk that lurks for the parties if they cannot truly understand how their case is being examined, which might lead to an impoverishment of the right to a fair hearing.

The conditions of the thought experiment at hand are being set more clearly in the third chapter. There, different implementation scenarios are being presented, as well as the differences in the potential impact these could have on the components f the right to a fair hearing.

The fourth chapter focuses on the individuality of the case as a component of the right to a fair hearing. This is being analyzed under the perspective of predictive algorithms assessing each case solely comparing it with previous cases addressed by the Court. In that context, the functioning of the predictive algorithms in discussion is presented in more detail, as well.

The final chapter will be the one summarizing the outcomes and pointing out potential measures for addressing them.

Chapter2. The function of predictive algorithms vs. The right to a fair hearing

2.1. Introduction

For this second chapter of this research, a closer understanding of the right to a fair hearing and the advantages deriving for the parties is necessary. As it was already pointed out in the introduction chapter, the foundation of the right to a fair hearing is laid down in Article 14 of the International Covenant on Civil and Political Rights.[44] The essence of the right is vitally linked with the parties' right to be heard, defend themselves, be able to present and explain their perspective of the case. On this basis, the objective of a judge's decision in civil cases entails determining what actually occurred[45], following the reasoning and the arguments provided by the parties.

2.2 The guarantees deriving from the right to a fair hearing

Determining whether the right to a "fair hearing" has been infringed, requires the evaluation of the entire proceedings. In other words, it boils down to determining whether the process as a whole has been "fair".[46] The fulfillment of the fairness standard requires that each party be given a proper opportunity to participate and be heard.[47]

More specifically, for the question of whether the proceedings in their entirety have been "fair" to be answered, it is essential to evaluate whether each party participated properly in every step of these proceedings.[48] The notion of "proper participation", though, requires further explanation. According to Settem, one of the components of the participation principle, namely the adversarial principle, is conceptualized as a party's right to argue their case before the court reaches its decision and to reflect on "all relevant aspects of the case".[49] This is most particularly true when interpreting the adversarial principle in the context of the European Court of Human Rights, the author clarifies.[50] The overall objective of the interpretation of the right to a fair hearing is to highlight the importance of the parties be given the opportunity to "influence the Court's decision"[51] and to have an active participation in the process that will lead to such decision.

Moreover, it is essential to highlight at this point that another important component of the right to a fair hearing is the fact that "justice must not only be done, it must also be seen to be done".[52] In principle, for transparency in judicial

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[44]Right to a fair hearing. (2019). Www.Qhrc.Qld.Gov.Au. https://www.qhrc.qld.gov.au/your-rights/human-rights-law/right-to-a-fair-hearing#:%7E:text=A%20person%20charged%20with%20a,a%20fair%20and%20public%20hearing

[45]Lindenbergh, V. (2021, December 11). Legal Certainty and the Possibility of Computer Decision Making in the Courtroom. Medium. https://towardsdatascience.com/legal-certainty-and-the-possibility-of-computer-decision-making-in-the-courtroom-ac4b1a6c42d1

[46]Settem, O. J. (2015). Fundamental Aspects of the 'Fair Hearing' Right. Applications of the "Fair Hearing" Norm in ECHR Article 6(1) to Civil Proceedings, 75–212. https://doi.org/10.1007/978-3-319-24883-7_5 , 1.

[47] Ibid. p. 15

[48] Ibid. p. 19

[49] Ibid. p. 25

[50] Ibid. p. 26

[51] Ibid. p. 25

[52]Themeli, E., &Philipsen, S. (2021b). AI as the Court: Assessing AI Deployment in Civil Cases. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3791553 , 13.

proceedings to be preserved, the parties should be able to check and understand the grounds on which a judge's decision was founded.[53]

However, every attempt of interpreting human rights, and, in this particular case, the right to a fair hearing as a component of the right to a fair trial, is based on the assumption that the right will be exercised and construed in the context of human interaction. Since the publication of Aletras et al. and Medvedeva et al. studies, the analysis of a case and the decision-making process over it by the European Court of Human Rights could potentially not be just about human interaction. The potential of predictive algorithms implemented as tools assisting judges in the decision-making process within the ECtHR calls for an evaluation of whether the function of these systems would still allow the fulfillment of all requirements of the fair hearing right's fairness standard.

2.3 The current global state of use of AI in judicial proceedings

It is acknowledged by both Aletras and Medvedeva that the development of predictive algorithms unveiling the foundation of the judicial decisions and predicting violations of specific Articles of the Convention on Human Rights does not aim to replace the judge. It does aim, though, in these AI systems to have a role as judges' assisting tools.[54] According to an interview with Medvedeva for *The Law Of Tech* podcast, the model performs two tasks. Firstly, it classifies final decisions of the ECtHR and, secondly, predicts future decisions of the ECtHR.[55] Although it is being strongly stressed that the purpose of these systems at this point in time is academic research, judges can find it appealing and realistic for such predictive algorithms to be used as their assistants, as Medvedeva highlights after her discussion with a Dutch judge. Hence, even though the exact use case of these predictive algorithms outside the academic research sphere is only based on assumptions now, the door for further discussions about such use is wide open.

According to Medvedeva, there are several ways in which algorithms using machine learning and natural language processing can assist judges. Legal text classification is one of the main ways that Medvedeva foresees as a useful tool, saving judges time and effort when analyzing the existing case law.[56] In a similar note, algorithms like the ones described, are also capable to support judges by identifying eviction judgments within the published case law.[57] Both of these two ways of assistance aim to automate, and, thus, speeding up the process by, for instance, letting judges decide together cases that concern the same legal issues. Similarly, Brazilian judiciary has already tried such a technological initiative with *VICTOR*. This system

[53]Themeli, E., &Philipsen, S. (2021b). AI as the Court: Assessing AI Deployment in Civil Cases. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3791553 , 14.

[54]Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., &Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93 , 3

[55]Interview with The Law of Tech, "Using Machine Learning To Predict Court Decisions Of The ECtHR W/ Masha Medvedeva".

[56]Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643 , 23.

[57]Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643 , 67.

is capable of reading each extraordinary appeal submitted to the Brazilian Supreme Court (STF) and determines which ones are related to particular issues.[58]

For the research at hand, the most relevant use is the one of algorithms predicting the outcome of a new case in the ECtHR and whether there could be a realistic scenario for them to be implemented. The compulsory use of AI in the decision-making process is already a reality in some courts, and, in particular, in Chinese Courts. More specifically, the system that is used by the China's Supreme People's Court (SPC) is the system of similar judgments for similar cases, requiring for judging standards for a case which is currently being examined and previous cases that have been resolved be consistent.[59] The system ensures such consistency by supervising judges in the process of hearing cases. Such implementation is based on the SPC's concerns that judges judging without any supervision might lead in inconsistencies in judging criteria from judge to judge.

Nevertheless, the Chinese Court is not the only one worried about such lack of consistency in judgments. Similar studies have been published raising the same question about the rulings of ECtHR as well.[60]Considering that the main supporting arguments for the use of predictive algorithms are related to the potential of such systems making the judicial system more objective and accurate, implementing AI systems to support ECtHR judges in the process leading to the decision-making over a case does not seem like science fiction anymore.

As the actual circumstances under which AI systems predicting the outcome of a case could be implemented in the proceedings of the Court are far from being determined, this thesis is intended to be used as a thought experiment to evaluate whether different implementation scenarios could be realistic, without infringing the parties' right to a fair hearing. The scenarios taken into consideration are divided by their potential to intrude and disrupt the establishment of judicial proceedings regarding the fair hearing right as we know it. Hence, based on the above-mentioned discussions regarding the use of AI in judicial systems all over the world, and in Europe in particular, three implementation scenarios will be presented, as the more reasonable ones.

If predictive algorithms are to be used in a way that would influence the judges in their decision over a case, this could be done under two possible conditions. The system could be available for judges to consult it whenever they believe they would need its support or the Court could formally adopt the AI algorithms as a formal decision aid to judges. In an even stricter implementation scenario, the AI could be built into the Court's proceedings, via a contract with a provider. At this point, to better understand whether each of these use-cases could be realistic and before we dive into their implementation details, it would be necessary to analyze more in depth how the predictive algorithms at hand actually function at the moment and how they could impact the right to a fair hearing if such function don't be adjusted as we will discuss later on.

2.4 The functionalities of Aletras et al. and Medvedeva et al. predictive algorithms

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[58]De Sanctis, F. M. (2021). Artificial Intelligence and Innovation in Brazilian Justice. International Annals of Criminology, 59(1), 1–10. https://doi.org/10.1017/cri.2021.4, 2.

[59] The Diplomat. (2019, January 19). Why Are Chinese Courts Turning to AI? https://thediplomat.com/2019/01/why-are-chinese-courts-turning-to-ai/

[60] Helfer, L. R., & Voeten, E. (2020). Walking Back Human Rights in Europe? European Journal of International Law, 31(3), 797–827. https://doi.org/10.1093/ejil/chaa071, 27.

To predict future decisions of the ECtHR, the algorithm takes the documents that are published before the final decision is made – sometimes years before the Court communicates the cases – and analyzes the facts in these cases, which constitute a summary of the events the applicant described to the Court. The algorithm analyzes these facts and tries to identify how the Court will make its decision. For the Medvedeva et al.'s model, the arguments of the parties are not of interest to the system and are not part of the input data the system processes to reach its prediction.[61] During its training phase, the algorithm identifies the most important features of the case at hand and labels them as leading to the verdict of "violation" or "no violation".[62] It analyzes which parts of the text belong to which class, which facts of the case are more important for the one verdict or the other.

The predictive algorithms examined in the context of this research are AI systems that use natural language processing and machine learning to predict the outcome of a case brought before the European Court of Human Rights.[63] The process of prediction occurs without human interaction and, more importantly, without the judge's supervision on which facts the system identifies as important. In more detail, the systems in discussion are non-neural machine learning algorithms basing their function in Support Vector Machine (SVM).[64] SVMs divide the data points according to their labels in the dataset (i.e., training data) and choose the simplest (linear) equation that reliably distinguishes between data points with different labels.[65] During the SVMs training phase, different weights are allocated to the various pieces of information provided to the system (i.e. n-grams) and a hyperplane, which increases the distance between the two classes, is created.[66] The significance of each n-gram to the separation can then be determined using these weights. According to Medvedeva, the n-grams that were determined as the most important ones on the previous cases, will lead the machine learning algorithm to the correct classification of the new cases, as belonging in the verdict of violation or no violation.[67] Hence, such algorithms function based on the notion of similarity and the only parts of the process that are visible to the judge and the parties are the input data and the outcome. Even the input data though are in the form of contextual information and the parties would most likely not be able to precisely control the exact information being used as input.

On the contrary to the above, the essence of the right to a fair hearing can be crystallized as the parties' right to actively participate in the proceedings leading to the judge's decision – in the sense that they should be able to argue their case and reflect on all aspects of it that could influence the verdict. In the case of predictive algorithms, the parties would likely lose control over the process and experience a degradation of their right to defend themselves via real participation in the

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[61] Medvedeva, M., Vols, M., &Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y ,12.

[62] Medvedeva, M., Vols, M., &Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y , 6.

[63] Medvedeva M, Vols M and Wieling M, 'Using machine learning to predict decisions of the European Court of Human Rights (2019) 28(2) Artificial Intelligence and Law 237 <http://dx.doi.org/10.1007/s10506-019-09255-y> accessed 27 October 2021

[64] Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643, 32.

[65] Ibid.

[66] Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643 , 102, 92.

[67] Ibid p 93

process.[68]The machine's prediction – in the case that it would become available to the judge and therefore it could influence her/his opinion, as it will be further analyzed – could constitute part of the allegations made against a party. Hence, based on the right to a fair hearing, the party should have the chance to be heard and respond to these allegations.

To better understand that, it would be essential to highlight that the whole functioning of the AI systems at hand is based on deciding which data should be used as input for the algorithm to produce an accurate outcome. Taking as an example the model presented by Aletras et al., for the algorithm to produce its prediction, the circumstances of the case are being processed, meaning all actions and events that gave rise to the alleged violation.[69] In addition to these data and, unlike Medvedeva et al.'s model, Aletras et al. designed their system to also analyze the main arguments provided by the parties and the legal arguments made by the Court.[70] AI developers, as it is becoming apparent, employ different datasets to create the predictive system. These datasets constitute the factors taken into account by the algorithm and, thus, the variables might affect the outcome provided by the system.[71] Indeed, the two systems presented by Aletras et al. and Medvedeva et al. differ regarding their accuracy, achieving an average score of 79%[72] and 75%[73] respectively. Hence, the algorithm's outcome is dependent on the input data that was used for its training.

Besides the fact that these percentages differ with each other and besides the link they have with each algorithm's input data, it is also of great importance to point out that such levels of accuracy might not be as high as they may sound. If we divide a range equally, then 100-87,5% would mean very good, 87,5-75% would mean good, 75-62,5% would mean satisfactory, and 62,5-50% would mean bad.[74] This indicates that we consider accuracy meaningful from 50%, which implies that we could equally well toss a coin. On top of that, in datasets with values as important as facts in court cases where human rights are at stake, while the model can achieve a high accuracy value, even a minor misprediction is costly.[75] Therefore, it is highly questionable how much it matters if the model achieves even 99% accuracy when a single case is enough to sabotage the whole system. This accuracy paradox becomes even clearer when we keep in mind that accuracy is the proportion of correct classifications among all classifications. As judges always have some discretion when identifying the

[68]Simmons, R. (2018). Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3156510 , 21-22.

[69]Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., &Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93 , 4.

[70] Ibid. p. 11

[71]Christin, A., Rosenbalt, A., & Boyd, D. (2015). Courts and Predictive Algorithms. Data & Civil Rights, http://www.law.nyu.edu/sites/default/files/upload_documents/Angele%20Christin.pdf , 6.

[72]Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., &Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93 , 2.

[73] Medvedeva, M., Vols, M., &Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y ,1.

[74]Hoppe, Thomas. (2018). Re: Is there a guide to know if the predictive accuracy and precision threshold is good/bad?. Retrieved from: https://www.researchgate.net/post/Is-there-a-guide-to-know-if-the-predictive-accuracy-and-precision-threshold-is-good-bad/5ad75eb896b7e43d05440e6e/citation/download.

[75]Bressler, N. (2022, February 9). How to Check the Accuracy of Your Machine Learning Model. Deepchecks. https://deepchecks.com/how-to-check-the-accuracy-of-your-machine-learning-model/

relevant facts in a case, predicting their decision becomes a moving target and thus accuracy as a metric for a predictive algorithm's utility depends very much on probability and randomness.

The result of the algorithm's prediction is dependent on the data the system will analyze.[76]As the process of programming is sophisticated and requires expertise, the system bases its prediction on academic expertise, not that of the judges. The parties' characteristics and all relevant factors of the case are being entered into the system by AI developers with no legal expertise. Thus, if judges don't have an active participation on the chosen data that the system would analyze and on evaluating the outcome, the algorithm's prediction could be dependent on AI developers with no legal knowledge.

2.5 The right to a reasoned judgment and how predictive algorithms could affect it

It is widely claimed that machine learning – the foundation of such predictive algorithms' functioning – nowadays remains a black-box that cannot be studied by anyone but a few experts.[77] Explained in a little more detail, "black-box AI" refers to algorithm-based systems functioning in a way that only input and output data are visible to the user, and even more to people with no technical background, who might not understand what happens while the algorithm is analyzing the data and how precisely the outcome is being reached.[78] Although the models presented by Medvedeva et al. and Aletras et al. are explainable, so they cannot be considered as "black box AI" systems, there is no step-by-step explanation.[79] In that sense, the stakeholders – the judge and the parties, who would most likely not have a technical background – could be able to understand the functioning of the system, but they might not be able to get an understanding of the significance the algorithm chose to attach to each word and phrase. What is known is that the system can link a certain fact of a case and a certain argument of the judge with a certain decision. However, this would only be an educated guess, based on quantitative analysis;[80] the value the algorithm would give to each of the features it analyzes to reach its prediction is opaque. Therefore, the parties' potential difficulty of identifying the features that lead to the algorithm's prediction could put a barrier to their ability to contest that prediction.[81] Hence, algorithmic opacity could have a serious impact on the adversarial principle, as it could lead to a lack of means for the affected party to verify or challenge the allegations against them. The lack of understanding of how the decision was made and whether the relevant rules were respected lurks the danger for parties lacking evidence and arguments to support their claims.

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[76]Deeks, A. (2019). The Judicial Demand for Explainable Artificial Intelligence. Columbia Law Review, 119(7). https://www.jstor.org/stable/26810851?seq=1 , 6.
[77]Montanez, G. D. (2017). Why Machine Learning Works. School of Computer Science, Carnegie Mellon University Pittsburgh. http://reports-archive.adm.cs.cmu.edu/anon/anon/ml2017/CMU-ML-17-100.pdf
[78]Ebers, M. (2021). Regulating Explainable AI in the European Union. An Overview of the Current Legal Framework(s). SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3901732 , 3-4.
[79]Interview with The Law of Tech, "Using Machine Learning To Predict Court Decisions Of The ECtHR W/ Masha Medvedeva"
[80]Medvedeva, M., Vols, M., &Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y ,2.
[81] Ibid. p. 10.

The possible inability to dissect the reasons behind the predictive algorithm's outcome, then, could be proven to be harmful for the parties.[82] At this point, it is also important to keep in mind that the systems at hand focus on specific data that have been trained to recognize as leading to the verdict of "violation" or "no violation" respectively; meaning that these systems are focusing on specific information while leaving out others, which have been shorted as irrelevant for the judgment of the case. Since AI developers are the ones handling the algorithm's functioning and complexity, it has been argued that they would also be the ones defining fairness.[83] Due to algorithmic opacity, not even the system's developers, but especially the parties and the judges, might not be able to have control over or at least understand how the algorithm ranked its input data and on which basis it classified it the way it did to reach a specific outcome.[84] It is becoming obvious then that, in such a case, the "fairness standard" of the right to a fair hearing would be left in the hands of non-legal experts or, more worryingly, in the intelligence of the algorithmic system employed.

All these concerns become even more pressing once we realize the impact such algorithmic prediction could have on the judge's decision. Studies have shown that people tend to follow the algorithm's guidance, because the quantitative assessment operated by the system seems more objective and valid.[85] Consequently, it would be difficult for judges not to be influenced by the algorithm's prediction if it would be presented to them before their final judgment. The algorithm, based on its functioning, uses the facts of the case that are described to the Court by the applicant, before the Court even starts actually dealing with the case.[86] Hence, it is rational to assume that the machine's prediction would be available before the final judgment. That is why, in a scenario like that, it would be difficult for the affected party to identify whether and to what extent the algorithm's suggestion indeed influenced the judge's decision. Moreover, such case could also present the concern that judges, influenced by the prediction and convinced for its validity, could for their decision in a way so that the prediction is confirmed.

2.6 Conclusions

To conclude, as indicated above, the right to a fair hearing can be conceptualized as the right of the parties to actively participate in every step of the proceedings leading to the judge's decision over the case. The notion of active participation is closely linked to the interaction of the parties with each other and with the judge, in order to be able to reflect on all relevant aspects of the case that might influence the decision on the judgment. The potential implementation of predictive algorithms as judges' assisting tools could disrupt the interpretation of the right to a

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[82]Deeks, A. (2019). The Judicial Demand for Explainable Artificial Intelligence. Columbia Law Review, 119(7). https://www.jstor.org/stable/26810851?seq=1 , 6.

[83]Washington, A. (2018). How to Argue with an Algorithm: Lessons from the COMPAS-ProPublica Debate.   Heinonline. https://heinonline.org/HOL/Page?handle=hein.journals/jtelhtel17&id=145&collection=journals&index = , 22.

[84] Ibid. p. 1.

[85]Christin, A., Rosenbalt, A., & Boyd, D. (2015). Courts and Predictive Algorithms. Data & Civil Rights, http://www.law.nyu.edu/sites/default/files/upload_documents/Angele%20Christin.pdf , 7.

[86]Interview with The Law of Tech, "Using Machine Learning To Predict Court Decisions Of The ECtHR W/ Masha Medvedeva"

fair hearing and its components as we know it; if predictive algorithms become part of the proceedings, every requirement set out by the right to a fair hearing should be fulfilled also during the interaction of the parties and judges with the AI system.

Predictive algorithms' outcome depends on the data the algorithm was trained with and the input data it has been given to analyze. While these data are determined by the AI developers, it seems like people with no legal expertise are defining "fairness". Though, even if the data the algorithm would take into account would be determined by the judges (or even the parties) the uncertainty of which of this data the algorithm actually counts as valuable to reach its prediction still remains. Hence, the opacity regarding the step-by-step process the system follows to predict each outcome, as well as regarding the importance the algorithm attaches to each piece of information it analyzes, raise concerns about whether the parties involved in a case would actually have a fair opportunity to actively participate in the decision-making process and effectively reflect and influence the outcome. On top of that, the lack of means of the affected party to identify whether and to what extend the judge's decision was influenced by the algorithm's prediction strengthens even more the menace towards the right to a fair hearing.

Chapter3. Assessing three implementation scenarios and their impacts

3.1 Introduction

The use of predictive algorithms in the proceedings of the European Court of Human Rights could potentially disrupt the balance of the decision-making process and have an impact on the right to a fair hearing. More specifically, the analysis in the previous chapter showed that the potential implementation of predictive algorithms in the process leading to the decision-making over a case calls for an evaluation of whether the function of these systems would still allow the fulfillment of all requirements of the fair hearing right's fairness standard.[87] Although the doors for such discussions are wide open, we are still in a very early stage; to move forward, it is of great importance to set the conditions of such a potential evolution in the ECtHR proceedings in the context of a thought experiment and assess the potential impact on the humans involved.

3.2 Setting the conditions for three implementation scenarios

Moving forward, the actual conditions of a potential implementation of outcome prediction algorithms using machine learning and natural language processing within the proceedings of the European Court of Human Rights need to be defined. Setting the models developed by Aletras et al. and by Medvedeva et al. as the example to assess such implementation, it is essential to highlight that there could be multiple use-case scenarios. In chapter 2, the focus was mainly on the scenario where such predictive algorithms would be used as judges' assisting tools. Naturally, a direct response to such an assumption could be that judges will never be forced to base their decision-making on the prediction of an AI system that raises so many questions, and therefore an analysis of the potential concerns raised by such an assumption is not relevant. Studies have already tested the performance of predictive algorithms in forecasting in comparison to human's, showing algorithm's excellence[88], and - even more convincingly - we already have examples of the use of such AI technology in the judicial system (e.g., COMPAS[89]).

In this "brave new world" we are talking about, predictive algorithms could be implemented in the Court's proceedings in multiple ways, certain of which will be used as the foundation for the though experiment conducted in this thesis. More specifically, in a stricter use-case, the AI system could be built into the Court's processes, via a contract with a provider, meaning that the Court and the judges would use one particular model, developed in the private sector (1st implementation scenario). In a more realistic scenario, the system could simply be available, and judges could be free to consult it whenever they wish (2nd implementation scenario). Finally, somewhere in between these two aforementioned scenarios there could be a third scenario where the Court could formally adopt the system of predictive algorithms as a formal decision aid to judges (3rd implementation scenario).

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[87]Settem, O. J. (2015). Fundamental Aspects of the 'Fair Hearing' Right. Applications of the "Fair Hearing" Norm in ECHR Article 6(1) to Civil Proceedings, 75–212. https://doi.org/10.1007/978-3-319-24883-7_5 , 15

[88]Simmons R, "Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System" [2018] SSRN Electronic Journal, 5-6.

[89] Francesco Contini, 'Artificial Intelligence and the Transformation of Humans, Law and Technology Interactions in Judicial Proceedings' (2020) 2 Law, Tech & Hum 4, 13

3.3 A potential formal adoption of predictive algorithms by the ECtHR

"Judging" is not an activity with a core approach that remains constant regardless of the situation[90]; it changes according to the level of each particular court, each particular judge, and the complexity of the case. This relativity of judgment towards the context of the case and the discretion of the judge has regularly brought to the fore discussions about the need of more objective judging factors. Thus, having an AI system providing a balancing check to decision-making and beneficially impacting the accuracy and objectivity of the judicial proceedings seems like a promising solution.[91]

As it has been previously argued, the potential implementation of systems like the models presented by Aletras et al. and Medvedeva et al. in the ECtHR's proceedings calls for a reevaluation of whether the parties interested would actually have a fair opportunity to participate in the decision-making process.[92] According to Chevigny, "participation" is a notion that has a core role in defining "fairness";[93] parties' belief of whether a certain interaction with authority is fair and legitimate is mostly dependent on whether they believe that the procedure leading to the outcome of the interaction was fair, not the outcome as such. In that sense, "process-control" is an essential criterion to evaluate procedural fairness.[94]

Studies have shown that, although predictive algorithms significantly outperform humans in outcome prediction, people on average do not seem to trust this technology.[95] Therefore, to secure that the ones being judged would accept the systems which would support the judgment, perceived fairness (not only actual fairness) would also be of great importance.[96] It only sounds rational to question whether the central position of the parties being judged in the decision-making process is being preserved in the case where they would be subjected to systems they seem not to accept as trustworthy.

For predictive algorithms to serve as an efficient solution to relativity of judgments and judges' discretion, the use of predictive algorithms should be formally adopted within the process that leads to the decision over a case. Otherwise, there will be uncertainty as of whether the system was actually used and whether it influenced the judgment. Thus, under the conditions of such a formal adoption of the systems in discussion, what is of great interest to highlight is that the algorithm's prediction will then be a legally endorsed component of the judgment. However, as promising as predictive algorithm's use towards more accurate and objective decisions may sound,

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[90]Morison J and Harkens A, "Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making" (2019) 39 Legal Studies 618, 12.

[91] Interview with The Law of Tech, "Using Machine Learning To Predict Court Decisions Of The ECtHR W/ Masha Medvedeva"

[92]Deeks, A. (2019). The Judicial Demand for Explainable Artificial Intelligence. Columbia Law Review, 119(7). https://www.jstor.org/stable/26810851?seq=1 , 6.

[93]Paul G. Chevigny, 'Social Psychology of Procedural Justice, The. By E. Allan Lind' (1989) 64 NYU L Rev 1211, 3.

[94]Paul G. Chevigny, 'Social Psychology of Procedural Justice, The. By E. Allan Lind' (1989) 64 NYU L Rev 1211, 8.

[95]Simmons R, "Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System" [2018] SSRN Electronic Journal, 20, 22.

[96]Simmons R, "Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System" [2018] SSRN Electronic Journal, 10.

such an implementation scenario calls for attention to be paid on the lurking danger that these systems might undermine the legitimacy of the judicial system instead.[97]

3.4 A potential loose implementation of predictive algorithms within the ECtHR

Although use-cases can differ from the one implementation scenario to the other, what remains the same is the concern that the parties might not be able to preserve an overview and control on how and to what extent the prediction influenced the judge and determined the judgment.[98] That would be particularly true in the scenario where judges would just have access to these systems and would be able to consult them whenever they believe is necessary. In such a case, what is questionable is whether the parties involved could preserve an overview on whether the judgment was influenced by the algorithm's prediction or not.

No matter how sophisticated these AI systems are, delivering justice is argued to be even more sophisticated.[99] According to scholars, what differentiates judgment from other decisions is the fact that it gives "formal and substantive expression to the influence of reasoned argument".[100]Besides the legal expertise required, delivering justice is a process with social aspects, as well. It has been a topic of debate the claim that, even though working procedures and legal processes could change and new conflict and trial formats could become available, the practice of law will always be social in its core and dependent on the requirements of human actors.[101]The concern once again pointed out by such a debate is that of people losing their central and active position during the decision-making process. Provision of reasoning and interpersonal communication between the parties interested and the decision-making instrument are considered to be two of the main factors aiding in counterbalance a potential feeling of lack of process control by the subjects of the judgment.[102] In the case of predictive algorithms used as described above, these two factors seem to get weakened.

According to the Ethical Charter on the use of AI in judicial systems published by the Council of Europe, the use of AI should be done "responsible, with due regard for the fundamental rights of individuals as set out in the European Convention on Human Rights and the Convention on the Protection of Personal Data".[103] One of the principles that the Charter highlights as fulfillment requirements is the user control principle. Aiming to "ensure that users are informed actors and in control of the choices made" by the AI systems, this principal rings once again the bell for the need

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[97] Simmons R, "Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System" [2018] SSRN Electronic Journal, 9.

[98]Interview with The Law of Tech, "Using Machine Learning To Predict Court Decisions Of The ECtHR W/ Masha Medvedeva"

[99]Morison J and Harkens A, "Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making" (2019) 39 Legal Studies 618, 2.

[100]Morison J and Harkens A, "Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making" (2019) 39 Legal Studies 618, 11.

[101]Morison J and Harkens A, "Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making" (2019) 39 Legal Studies 618, 14.

[102]Simmons R, "Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System" [2018] SSRN Electronic Journal, 17.

[103]Council of Europe, European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c

of process control.[104] In the case of the predictive algorithms discussed in this research, the judges would be the ones deciding which data of each particular case the system will take into account. In that sense, the judges would be the users. However, even though – in the particular thought experiment – the judges would choose which facts of a case the algorithm would analyze, they could not precisely control which of them the algorithm would actually take into account, since that is closely dependent on the data the system is trained with.[105]Especially in the scenario where the technology is simple available, without having been formally implemented and used, the possibilities for judges using it in a formal way, by having been trained on how to use, understand, and weigh the outcomes predicted, are even less.

The conditions set in the context of this research do not include a complete shift of ownership of the procedure from judges to the AI systems. In other words, the final say upon a case would still be with the judge. However, it sure could be challenging for her/him to reject a "disinterested" and "science-based" algorithmic prediction.[106] In that sense, the algorithms' outcome would constitute part of the allegations against a party, while that party could not be in a position to measure whether and in what percentage the decision was influenced by the outcome.[107]

The use of predictive algorithms in judicial proceedings has legal implications and these implications should be legally assessed and authorized. Core component of "judging" is interpreting the set of commands that is law. Human interpretation leaves room for slightly different interpretations of the law according to the circumstances. Algorithmic AI systems use "pre-packed" interpretations of the law to produce an outcome.[108]That is the way how the process control could potentially shift from humans to AI machines; the human judges could fall into the trap of trying to find the reasoning and justification that supports the suggestion of the system, when it should be the other way around.[109]

3.5 A potential implementation of a predictive model provided by the private sector

As it has been extensively analyzed in Chapter 2, the ability for the parties to be aware of and comment on all evidence introduced or observations filed with the intention of influencing the Court's judgment is essentially what the right to adversarial procedures – as a core component of the right to a fair hearing – entails.[110] Furthermore, for adversarial principle to be respected, another aspect that should be preserved is algorithmic transparency, in comprehensible human language.[111]

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[104]Contini F, "Artificial Intelligence and the Transformation of Humans, Law and Technology Interactions in Judicial Proceedings" (2020) 2 Law, Technology and Humans 4, 3.

[105]Medvedeva, M., Vols, M., &Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266.

[106] Footnote 25 replace here.

[107]Ulenaers J, "The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?" (2020) 11 Asian Journal of Law and Economics, 18.

[108]Contini F, "Artificial Intelligence and the Transformation of Humans, Law and Technology Interactions in Judicial Proceedings" (2020) 2 Law, Technology and Humans 4, 5.

[109]Ulenaers J, "The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?" (2020) 11 Asian Journal of Law and Economics, 11.

[110]Ulenaers J, "The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?" (2020) 11 Asian Journal of Law and Economics, 25.

[111]Ulenaers J, "The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?" (2020) 11 Asian Journal of Law and Economics, 26.

That being said, it would also be useful to assess a scenario according to which the AI system could be built into the Court's proceedings, via a contract with a provider, meaning that the Court and the judges would have to use one particular model, developed in the private sector. In such a case, the concern that is worthy of investigation is whether the parties to a trial would have a fair chance to appropriately comment on all of the evidence if algorithms are classified as trade secrets.[112] More specifically, under this third scenario, the Court would have to cooperate with the private sector – with a specific provider, whose algorithms would most definitely be considered as industrial secrets using methods that have not been disclosed.[113] The examples we already have from the criminal justice system have shown that providers of predictive algorithms reinforce the opaqueness and incomprehensibility of the systems by asserting that their software's inner workings are trade secrets.[114] This situation could lead in creating new chances for technical developers in the private sector, who might eventually take over control and improperly dominate the market.[115] Especially with regards to the right to fair hearing, such augmentation of the lack of transparency of these AI systems would increase the risk for the decision-making process ending up being performed in secret, without public scrutiny.[116]

3.6 Conclusion

By assessing the afore mentioned scenarios, it is becoming more and more clear that a human centric orientation of the judicial proceedings in the ECtHR is not only about having judges take the final decision over a case, but also about parties preserving their control over all the stages of the decision-making process, by actively participate exercising their right to fair hearing On the one hand, a legal endorsement of the predictive algorithms at hand within the ECtHR's proceedings would suggest parties having to deal with a prediction potentially constituting one of the foundations of the judgment, while they could have no means to actually follow the reasoning behind such prediction. On the other hand, in the scenario where the AI systems are not legally endorsed, there would be no way for the parties to know whether and to what extend the outcome influenced the judges' decision. It is a totally different case if the prediction is available to the judges so she/he can use it before she reaches the final decision over the case, rather than consult it afterwards, as a second opinion and as an opportunity to potentially reconsider her/his levels of infallibility. Hence, the different implementation scenarios have different potential implications as well. Therefore, not only the implementation as such should be legally assessed but also the question of – if these systems are ever going to be components of the decision-making process – exactly how and in which stages of this process it would be safe for the judges to use them so the fair hearing right won't be compromised.

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[112] Ibid.

[113] Contini F, "Artificial Intelligence and the Transformation of Humans, Law and Technology Interactions in Judicial Proceedings" (2020) 2 Law, Technology and Humans 4, 11.

[114] Simmons R, "Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System" [2018] SSRN Electronic Journal, 18.

[115] Morison J and Harkens A, "Re-Engineering Justice? Robot Judges, Computerised Courts and (Semi) Automated Legal Decision-Making" (2019) 39 Legal Studies 618, 14.

[116] Ulenaers J, "The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?" (2020) 11 Asian Journal of Law and Economics, 29.

Chapter4. Predictive algorithms, the notion of similarity and the principle of individual judgment

4.1 Introduction

When attempting to interpret the right to a fair hearing with regards to the civil procedure, it is essential to bear in mind that the objective of civil law entails determining what actually occurred.[117]The right to a fair hearing, as a component of the right to a fair trial (Article 6 ECHR), is vitally linked with the parties' right to be heard, defend themselves, be able to present and explain their perspective of the case. Furthermore, according to the right to a fair hearing, a court is required to conduct a thorough review of the parties' complaints, arguments, and evidence in order to determine their relevance.[118] This obligation of the courts is closely linked with the principle of individual judgment. Each case should be assessed and examined individually, based on its specific facts. Although a detailed understanding of the individual case in connection to past decisions in comparable cases is required for a judge's decision, a court decision should ultimately adapt the law to the specific facts of the case.[119]

The technology assessed in the context of this research is AI systems that use natural language processing and machine learning to process judgments from previous cases and use them as a basis to predict the outcome of a new case.[120] In more detail, the systems in discussion are non-neural machine learning algorithms basing their function in Support Vector Machine (SVM).[121] SVMs divide the data points according to their labels in the dataset (i.e., training data) and choose the simplest (linear) equation that reliably distinguishes between data points with different labels.[122] During the SVMs training phase, different weights are allocated to the various pieces of information provided to the system (i.e. n-grams) and a hyperplane, which increases the distance between the two classes, is created.[123]The significance of each n-gram to the separation can then be determined using these weights. According to Medvedeva, the n-grams that were determined as the most important ones on the previous cases, will lead the machine learning algorithm to the correct classification of the new cases, as belonging in the verdict of violation or no violation.[124]

4.2 The notion of similarity and its meaning as a foundation of legal judgments

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[117]Lindenbergh, V. (2021, December 11). Legal Certainty and the Possibility of Computer Decision Making in the Courtroom. Medium. https://towardsdatascience.com/legal-certainty-and-the-possibility-of-computer-decision-making-in-the-courtroom-ac4b1a6c42d1

[118]Rozakis, C. The right to a fair trial in civil cases. Judicial Studies Institute Journal, https://www.judicialstudiesjournal.ie/assets/uploads/documents/pdfs/2004-Edition-02/article/the-right-to-a-fair-trial-in-civil-cases.pdf, 8

[119]Themeli, E., &Philipsen, S. (2021). AI as the Court: Assessing AI Deployment in Civil Cases. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3791553, p.16

[120] Medvedeva M, Vols M and Wieling M, 'Using machine learning to predict decisions of the European Court of Human Rights (2019) 28(2) Artificial Intelligence and Law 237 <http://dx.doi.org/10.1007/s10506-019-09255-y> accessed 27 October 2021

[121]Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643, 32.

[122]Ibid.

[123]Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643, 102, 92.

[124]Ibid p 93

Hence, the machine learning systems at hand function based on the notion of similarity.[125] The textual content of a case used as input is being compared to the cases already analyzed by the algorithm. Based on their similarity, the data of the new case are being matched with the data previously sorted by their potential of leading to "violation" or "no violation" of a specific Article of the European Convention on Human Rights;[126] the decision is being determined by the algorithm based on previous cases with the same keywords.[127] Instead of being assessed according to the case's context, the weight of the new input data is being measured compared to the n-grams built during the models training phase. That way, the outcome on the case processed is dependent only on facts already analyzed by the Court, actually using as a basis quantitative and not qualitative criteria.[128]

As Searle has noted, these predictive algorithms possess the ability to process operations regarding the case data but are not able to interpret the meaning behind this data.[129] When deciding to use machine learning, Malik explains, another decision is also being made: the one of using quantitative analysis instead of qualitative.[130] Hence, a rational question that could be raised is whether the individuality of each case would be preserved.

It has been claimed that, in the context of judicial proceedings, machine learning techniques are useful only when the new information used as input is similar to the information the algorithm has already analyzed.[131] Non-neural predictive algorithms capability is limited in processing the new data exactly as they did with their training data. Hence, even if the new input is not exactly similar to the information the system previously processed, it will treat it as such anyway.

The SVMs in discussion are capable of determining the importance each n-gram had for the data to be classified as belonging to the verdict of violation or no violation respectively. However, they do not have the power to measure the actual weight that each piece of information has for each particular case. As Medvedeva acknowledges, while the system's performance is higher in cases with similar facts and comparable rulings, the algorithm is anticipated to have lower performance scores when a number of several different issues is covered by the same article of the ECHR.[132] This is being even more clearly illustrated by the developers' observation that, because of phrases related to prison appearing to be associated with the verdict

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[125]Aletras, N., Tsarapatsanis, D., Preoţiuc-Pietro, D., &Lampos, V. (2016). Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science, 2, e93. https://doi.org/10.7717/peerj-cs.93 , 2

[126] Medvedeva, M., Vols, M., &Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y , 7

[127]Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643, 93.

[128]Medvedeva, M., Vols, M., &Wieling, M. (2019). Using machine learning to predict decisions of the European Court of Human Rights. Artificial Intelligence and Law, 28(2), 237–266. https://doi.org/10.1007/s10506-019-09255-y , 2

[129]Sourdin, T., &Cornes, R. (2018). Do Judges Need to Be Human? The Implications of Technology for Responsive Judging. The Responsive Judge, 87–119. https://doi.org/10.1007/978-981-13-1023-2_4 , 16.

[130] Momin M Malik, 'A Hierarchy of Limitations in Machine Learning' (2020)<[2002.05193]_A Hierarchy of Limitations in Machine Learning (arxiv.org)> , 2.

[131]Sourdin, T., &Cornes, R. (2018). Do Judges Need to Be Human? The Implications of Technology for Responsive Judging. The Responsive Judge, 87–119. https://doi.org/10.1007/978-981-13-1023-2_4, 14.

[132]Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643, 101.

of no violation, the system's classification is expected to be incorrect in the cases of violation which contain such words.[133] Thus, the concern raised by a potential use of such a technology in the judicial proceeding is that it might lead to a "one size fits all" solution in the decision-making process.

4.3 The notion of "meaning-making" and its significance to fair judgment

One core quality that judges should have to fairly perform their duties is being aware about and sensitive towards the contextual elements of each case that help interpret the intent of the law and human behavior when assessing that case.[134] As discussed above, in the heart of the fair hearing right is the parties right to present their case, explain the facts that form it and have them assessed and examined individually, based on the context of each case and the definition its facts get within that context. To conceptualize and illustrate this principle, it's valuable to link it with what is called "meaning-making". According to Malik, meaning-making is about the decision of language categories that people use to define, defend, and explain their reality and their behavior.[135] This concept further supports the realization of how important it is to measure the weight a word, a sentence, an act have in relation to the other facts of a case. Meanings change and, for a justified and fair decision to be made, facts should be balanced and interpreted respectively, based on an individual assessment aligned with the right to a fair hearing. The predictive algorithms in discussion do not possess the capability to understand "meaning-making".

Judging is a lot more sophisticated than a pure comparison of data which leads to a decision. The European Court of Human Rights itself acknowledges that it is among its duties to uphold the international norms of human rights throughout Europe.[136] Hence, ECtHR judgments are not simply decisions on facts, but rather judgments with social and political impact. ECtHR judgments have to shape society while following society's evolution. For a societal interpretation of the meaning of the facts which constitute a case, a qualitative analysis – rather than just a quantitative one – is essential.[137] Assessing a case using qualitative criteria includes balancing the meaning of the facts from the perspective of those involved and according to the context of the case brought in front of the Court; on the contrary, assessing the same case on the basis of quantitative analysis is about looking for similar features that would link the case at hand with previously processed cases and thus would further link it with the classification of either "violation" or "no violation". Cases brought before the European Court of Human Rights are a whole lot more complex than text that needs to be classified.

The ability of predictive algorithms in discussion to only use the notion of similarity to assess data is the main reason behind scholars' arguments that - to some extent - applying a principle to new factual conditions will always call for a fresh

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[133]Medvedeva, M. (2022). Identification, Categorisation and Forecasting of Court Decisions. University of Groningen. https://doi.org/10.33612/diss.236807643, 102.
[134]Sourdin, T., &Cornes, R. (2018). Do Judges Need to Be Human? The Implications of Technology for Responsive Judging. The Responsive Judge, 87–119. https://doi.org/10.1007/978-981-13-1023-2_4, 13.
[135]Momin M Malik, 'A Hierarchy of Limitations in Machine Learning' (2020)<[2002.05193] A Hierarchy of Limitations in Machine Learning (arxiv.org)> , 7.
[136]Johnson, P. (2014). Sociology and the European Court of Human Rights. The Sociological Review, 62(3), 547–564. https://doi.org/10.1111/1467-954x.12180, 4.
[137]Momin M Malik, 'A Hierarchy of Limitations in Machine Learning' (2020)<[2002.05193] A Hierarchy of Limitations in Machine Learning (arxiv.org)> , 6.

analysis of the presented situation, outside the scope of what machine learning is capable of.[138] The foundation of this argument and of this Thesis is the concern that a case-by-case evaluation is required because no two cases can be identified as identical in advance (so their facts can be treated as the same) without prior examination; whether that be because of the open-textured meaning of terms, the ambiguity of conflicting rules, the proper weighting of standards or principles in particular cases, or another characteristic of the process of evaluating new cases, it is impossible to determine the facts of a case to be the same as the ones of an earlier one without evaluating the circumstances of that new case.[139] Features that were irrelevant in previous cases might be surprisingly relevant in a new one. Such features would not be taken into account by the predictive algorithm, because these AI systems can only take into account the features they have been trained to consider.[140]

4.4 The impact of the algorithms' leaning on correlations to decide upon a case

For the prediction to be produced, predictive AI relies on the discovery of correlations, rather than independent analysis of the facts.[141] On top of that, analyzing the facts available from published Court decisions does not provide much about how (and how much) these data influenced the decision; it only indicates what the Court defines as legally important.[142] Leaning on correlations to decide upon a case lurks a serious risk of undermining the role of the parties in the decision-making process. Under these conditions, the parties could lose their central position during the decision-making process and their right for their case to be individually assessed could be impoverished. In a case study where the data (from the new case) that the algorithm takes into account to produce its prediction are already determined based on the data the system was trained with, the parties' right to participate in accordance with the right to a fair hearing could get weakened, as they could not actually have a say in influencing the judgment.

The overall objective of the interpretation of the right to a fair hearing is to highlight the importance of the parties be given the opportunity to influence the Court's decision and to have an active participation in the process leading to that decision.[143]One of the components of the participation principles, the adversarial principle, is conceptualized as the parties' right to argue their case before the Court reaches its decision and to reflect on "all relevant aspects of the case".[144] In a scenario where the parties are not capable of balancing the facts of each case according to the context and their own perspective, predictive algorithms would possess the danger of treating the party's participation in the decision-making process as meaningless.

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[138]Sourdin, T., &Cornes, R. (2018). Do Judges Need to Be Human? The Implications of Technology for Responsive Judging. The Responsive Judge, 87–119. https://doi.org/10.1007/978-981-13-1023-2_4, 14.

[139]Binns, R. (2020). Human Judgment in algorithmic loops: Individual justice and automated decision-making. Regulation &Amp; Governance, 16(1), 197–211. https://doi.org/10.1111/rego.12358, 5.

[140] Ibid. p 6

[141]Mark K. Osbeck. (2018). Lawyer as Soothsayer: Exploring the Important Role of Outcome Prediction in the Practice of Law. Penn State Law Review, 123(1), 10. http://repository.law.umich.edu/law_econ_current/152/, 58.

[142] Ibid. p 61

[143]Settem, O. J. (2015). Fundamental Aspects of the 'Fair Hearing' Right. Applications of the "Fair Hearing" Norm in ECHR Article 6(1) to Civil Proceedings, 75–212. https://doi.org/10.1007/978-3-319-24883-7_5 , 25.

[144] Ibid.

4.5 Conclusion

The most commonly used argument in favor of the use of predictive AI systems in the decision-making process is that they could bring an era of more accurate and objective decisions. In contrast with judges' discretion, predictive algorithms do not have the ability to show mercy, they cannot be influenced by the circumstances; their decisions do not involve sensitivity.[145] By dehumanizing the decision-making process, the intention is to have more objective criteria when examining a case. On the contrary, legal judgments contain an unavoidable component of contextual interpretation that defies codification into one-size-fits-all applicable standards. Ignoring this would put society at danger of a despotic formalism where laws are applied regardless of the situation.[146] Hence, not only should we care about limiting power by regulation, but also about avoiding the rules from being applied in an automated and oppressive way.[147]

There is much more in the cases brought before the ECtHR than just contextual information that needs to be categorized; even worse, classified solely based on its similarity to previously processed data. The interpretation of the right to a fair hearing as the power of the parties to be heard and influence the judgment by presenting their case and its context, raise a serious concern about the use of systems that would treat the facts of that case in the same way regardless of the situation. By treating all cases as by default similar, the right to a fair hearing would get impoverished; an one-size-fits-all solution lurks the serious danger of converting the parties right to participation to meaningless and powerless, when it should be preserved as the exact opposite.

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[145]Simmons, R. (2018). Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3156510, 23.
[146]Binns, R. (2020). Human Judgment in algorithmic loops: Individual justice and automated decision-making. Regulation &Amp; Governance, 16(1), 197–211. https://doi.org/10.1111/rego.12358, 3.
[147] Ibid. p 4

Chapter5. Conclusion

This research should be considered as a though experiment examining the potential of predictive algorithms being implemented in the European Court of Human Rights as judges' assisting tools. In the context of this thesis, the focus is on scenarios where predictive algorithms could be part of the process leading to the decision-making over a case.

As indicated, while seeking to interpret the right to a fair hearing in relation to the civil procedure, it is crucial to keep in mind that the goal of civil law is to ascertain what actually happened.[148] Hence, the right of the parties to be heard, to present and clarify their arguments, and to defend themselves should be at the heart of the judicial proceedings leading to the judgment over a case.

Even though these particular models developed by Aletras et al. and Medvedeva et al. are understandable and cannot be described as "black box" AI systems, there is still no step-by-step explanation.[149] Thus, there lurks the danger for the parties involved not being able to grasp the meaning the algorithm would decide to assign to each word and phrase and therefore not fully comprehending how the system came up with each specific prediction. On the contrary to that, the essence of the right to a fair hearing can be crystallized as the parties' right to reflect on all relevant aspects of the case that could influence the judgment.[150] If used by the judges, the algorithm's prediction could constitute part of the allegations made against a party. According to the fair hearing right, the parties should have the opportunity to respond to these allegations, something that might not be possible if they do not have a clear understanding of how the prediction would be generated and based on what factors.

In a use-case where the systems are simply available for the judges to consult them if they wish, there could be the danger for the parties not knowing whether and to what extend the system's prediction influenced the judgment and for the judges not having the proper preparation and education so they can correctly interpret the algorithms outcome. Moving forward to a more detailed implementation scenario, the AI technology would be built into the Court's proceedings via a partnership with the private sector. Then, although a particular model would be used and thus it could increase the possibilities for the humans involved to get a better understanding of its functioning, in practice the algorithm would most definitely be considered industrial secret using non-disclosed methods.[151]

It is becoming apparent that, for AI algorithms predicting the outcome of a new case to have a realistic potential in being implemented without infringing the right to fair hearing, safeguards must be in place. More specifically, for the parties' difficulty in challenging the prediction as part of the allegations against them to be minimized, the functioning of the system and the methods used by the algorithm should be included in the reasoning of the judgment. For that to be feasible, the Court

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[148] Lindenbergh, V. (2021, December 11). Legal Certainty and the Possibility of Computer Decision Making in the Courtroom. Medium. https://towardsdatascience.com/legal-certainty-and-the-possibility-of-computer-decision-making-in-the-courtroom-ac4b1a6c42d1

[149] Interview with The Law of Tech, "Using Machine Learning To Predict Court Decisions Of The ECtHR W/ Masha Medvedeva"

[150] Settem, O. J. (2015). Fundamental Aspects of the 'Fair Hearing' Right. Applications of the "Fair Hearing" Norm in ECHR Article 6(1) to Civil Proceedings, 75–212. https://doi.org/10.1007/978-3-319-24883-7_5 , 25.

[151] Ulenaers J, "The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?" (2020) 11 Asian Journal of Law and Economics, 26.

should formally adopt such a solution so that the procedural use of these algorithms be prescribed by legislation. That way, the parties would understand the algorithms functioning and would have an insight on how and at what stage of the process the judge consulted the algorithm.

However, a formal adoption of predictive algorithms that would allow for the abovementioned safeguards to be in place would be difficult if the Court uses different kinds of predictive algorithms. Hence, adopting a particular model is the suggested solution. The required condition, though, should be that a partnership with the private sector should lead by legislation to the methods that the algorithm uses being open to public scrutiny.

Another important factor of the functioning of predictive algorithms is that the outcome of the case is solely dependent on the facts that the Court has already analyzed. Instead of being examined based on the context of the case, the weight of the new input data is being measured based on its similarity to the n-grams created during the model's training phase. At the same time, the essence of the right to fair hearing is all about people preserving control of the judicial proceedings. Thus, for that control not to be shifted to AI or AI developers with no legal expertise, the suggested safeguard would be for judges to always be the users of the algorithm. That means that judges should be the ones deciding which data the algorithm will analyze to come up with the respective outcome about each new case, so that they can also preserve their control over the meaning each word and phrase take in each case's different contexts.[152]

Moving back to the central question of the thesis, it is becoming obvious that predictive algorithms having any involvement in the decision of the judgment could result in serious implications on the right to a fair hearing and the humans concerned central position in the process. However, the AI systems in discussion do not present only concerning potentials for the judicial system; their promising influence towards more objective and accurate decisions could confine the levels of judges' discretion. For that not to result in an one-size-fits-all despotic formalism, though, safeguards would be more than necessary. That being said, the suggested implementation scenario that derives from this thesis' analysis as the most suitable in a potential adoption of predictive algorithms by the ECtHR is the one calling for the systems' use to be procedurally legislated. More specifically, it is suggested the Court uses one particular model so its functioning can be listed in the reasoning of the judgment. That way the parties would have a better understanding as of how their case was treated by the algorithm and thus more chances to be able to challenge the prediction. For that to be feasible, the algorithmic prediction should be formally adopted as part of the Court's proceedings, so the parties know in what stage of the process the judge consulted the algorithm. Such transparency in the judicial procedure could increase the parties' ability to understand how the prediction influenced the judgment. For the decision over the judgment to continue to be with the judge, though, it would be also of great importance the judges be the users of the algorithm, by means of deciding which features of the case will be considered. Finally, for the control over the system's functioning to be preserved, in the case that the model used would be developed by the private sector, it should be legislated that their methods should be disclosed and open to the public.

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[152] Momin M Malik, 'A Hierarchy of Limitations in Machine Learning' (2020)<[2002.05193] A Hierarchy of Limitations in Machine Learning (arxiv.org)> , 7.

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