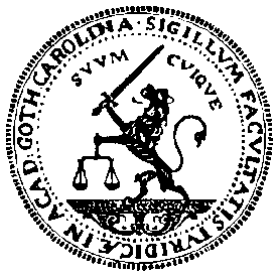

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How Does the Use of Artificial Intelligence Affect the Concept of Fair Trial?

JAMM07 Master Thesis

International Human Rights Law
30 higher education credits

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Term: Spring 2019

Contents

Summary

The purpose of this thesis is to function as a path to further discussion regarding human rights and the use of artificial intelligence in the court proceedings. Artificial intelligence ('AI') technology has become a highly relevant topic to many parts of our lives. AI is used and will be used in different ways as a part of the court proceedings; namely, for collecting and sorting out information, suggesting and predicting decisions, in the decision making, and in the appeal process.

This thesis introduces four examples of the possible use of AI in the court proceedings. Additionally, the thesis introduces how the AI is currently used in the judiciary, and how it could be used in the judiciary in the future. Example of the use of AI from Finland is also introduced. However, it has been seen that the use of AI is limited to specific tasks and that the use of AI in the court proceedings could affect the elements of fair trial protected in the Article 6 of the European Convention on Human Rights ('ECHR'). This thesis attempts to provide an answer to the question: "How does the use of artificial intelligence in the court proceedings affect the elements of fair trial?".

The research is concentrating into the following elements of fair trial: the reasonable time requirement, an independent and impartial tribunal, equality of arms, immediacy, and the right to get reasoned judgement. The thesis highlights the positive and the negative implications for the elements of right to a fair trial, following from the use of AI in the court proceedings.

All in all, it seems that there would be more negative implications, than positive implications following from the use of AI in the court proceedings. The use of AI systems in the court proceedings could harm the independency of the judiciary and the impartiality of the process. Imbalances between the parties who have different technological abilities could make the appeal process incredibly hard, and in turn affect the principle of equality of arms. Furthermore, the use of predictive justice systems could cause imbalances between the parties and have negative implications for the principle of the equality of arms. In some cases AI may have to anticipate the judgement for the case if it cannot otherwise effectively do the required research. AI

would then be giving guidelines for the judge on how to decide the case, which would mean that judge might base his or her decisions into some other AI generated materials. This would have negative implications for the principle of immediacy. The use of AI in the court proceedings could make the whole reasoning of the decisions complicated to understand, it would lack transparency, and it would not be a sufficient reasoning for a decision.

Positive implications are mainly related to the length and cost of the proceedings. The use of AI in the court proceeding speeds up the whole process and improves legal protection and legal certainty. This could in addition save a lot of money. There could be also less mistakes in the proceedings, since AI could eliminate human failures.

Preface

First of all, I want to thank my supervisor, Dr. Karol Nowak, Director of the Master programme of International Human Rights Law at Lund University, for his continuous guidance, support and encourage during this whole thesis process. His invaluable feedback has been extremely helpful during the process.

Additionally, I want to thank Professor Emeritus Göran Melander from the Raoul Wallenberg Institute for his guidance and valuable comments during this thesis process.

I would like to express my sincere gratitude to Marko Loisa from the Ministry of Justice of Finland for taking the time for my interview, and for his invaluable information regarding the AIPA-project.

I am also grateful to the Unit for Human Rights Courts and Conventions of the Ministry for Foreign Affairs of Finland for inspiring me and sharing their knowledge with me.

Lastly, I want to thank my family and friends for their support during this thesis process and the entire time I have studied abroad. Especially many thanks to Hannah Bagdasar for proof-reading my thesis and for her valuable comments on this paper.

May 2019

Helinä Heikkinen

Abbreviations

AI	Artificial intelligence
AIPA	Aineistopankki (Digital material bank)
CEPEJ	European Commission for the Efficiency of Justice
COMPAS	Correctional Offender Management Profiling for Alternative Sanctions
ECHR/ The Convention	European Convention on Human Rights
ECtHR	European Court of Human Rights
The Charter	European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and Their Environment
The Report	Report by the Secretary General for the Ministerial Session in Helsinki
UDHR	Universal Declaration of Human Rights
UN	United Nations

1 Introduction

1.1 Introduction to the topic and formulation of the issue

The topic of this thesis is artificial intelligence ('AI') and its effects on the specific elements of fair trial. The purpose of this thesis is to function as a path to further discussion regarding human rights and the use of artificial intelligence in the court proceedings. This topic is important since the use of artificial intelligence in court proceedings will happen sooner or later, whether we wanted it or not. The main research question of this paper is: *How does the use of artificial intelligence in the court proceedings affect the elements of fair trial?*

Right to a fair trial is one of the most fundamental human rights and it has been secured for example in the Article 6 of the European Convention on Human Rights ('ECHR') and by Article 10 of the Universal Declaration of Human Rights ('UDHR'). The standards established for fair trial in Article 6 of the ECHR are: right to a fair and public trial, reasonable time requirement, independent and impartial tribunal and public pronouncing of judgements.[1] Additionally, Article 6 of the ECHR includes elements that cannot be read straight from the wording of the Article.[2] These are for example: equality of arms, immediacy and the right to a reasoned judgement.[3]

AI technology has become a highly relevant topic to many parts of our lives. AI is changing many aspects of our society and of course the field of law is not excluded from this development.[4] AI is used and will be used in different ways as a part of the court proceedings; namely, for collecting and sorting out information, suggesting and predicting decisions, in the decision making and in the appeal process.

[1] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 365.
[2] *Ibid.*
[3] *Ibid.*
[4] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 41.

However, it has been seen that the use of AI is limited to specific tasks,[5] and that the use of AI in the court proceedings could affect the elements of fair trial.[6] Transparency of AI is also one concern.

AI's impact on human rights is a highly relevant topic, and issues relating to this theme were underlined for example at the high-level conference held in Helsinki in February 2019.[7] Problems created by the use of AI in the judicial systems are also highlighted in the European Ethical Charter on the use of the artificial intelligence in judicial systems and their environments[8] ('The Charter') which was adopted in December 2018. The Charter is the first European instrument to set out substantial and methodological principles that apply to the automated processing of judicial decisions and data, based on the AI techniques.[9] The principles of the Charter are supporting the findings presented in this thesis.

The main purpose of this thesis is to highlight the positive and the negative implications for the elements of right to a fair trial, following from the use of AI in the court proceedings. Since the author is from Finland and has had the opportunity to learn from the Finnish court system, the focus point of this thesis is Finland. Additionally, the thesis introduces an example of the use of AI in the court proceedings from Finland.

[5] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 41.
[6] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018.
[7] The high-level conference 'Governing the Game Changer – Impacts of artificial intelligence development on human rights, democracy and the rule of law was co-organized by the Finnish Presidency of the Council of Europe Committee of Ministers and the Council of Europe on 26-27 February 2019 in Helsinki, Finland < https://rm.coe.int/conference-report-28march-final-1-/168093bc52>.
[8] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018.
[9] <https://rm.coe.int/presentation-note-en-for-publication-4-december-2018/16808f699d>, Accessed 27 April 2019.

1.2 Outline and limitation of the study

This research focuses on the positive and negative implications of the use of artificial intelligence as a part of court proceedings. The thesis examines whether the use of artificial intelligence affects the concept of fair trial and if the consequences are positive or negative.

Artificial intelligence is very complicated subject, and therefore this thesis aims to explain the functioning of AI as simply as possible. This thesis is written with the supposition that the reader has basic knowledge regarding human rights and fair trial. As a result, the author does not give exhausting definitions or explanations regarding the principles of fair trial.

Article 6 paragraph 1 of the ECHR applies to all legal processes: civil process, administrative process and criminal process.[10] These, and the limited length of the thesis are the reasons why this thesis will be focusing mostly on paragraph 1 of the Article 6 of the ECHR. The standards for fair trial set under Article 6 paragraph 1 of the ECHR are at least: right to a fair and public trial, the reasonable time requirement, an independent and impartial tribunal, and the public pronouncing of judgements.[11] Right to a fair trial includes also other elements that cannot be read straight from the wording of the Article.[12]

However, this thesis is limited to study only the following elements of fair trial: the reasonable time requirement, independency and impartiality of a tribunal, equality of arms, immediacy, and the right to get reasoned judgement. The author has chosen these elements of fair trial because the author believes that they are the elements that are most affected by the use of AI in the court proceedings. The European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment supports

[10] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 305.
[11] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 365.
[12] *Ibid.*

the selection of these elements.[13] It would be also interesting to study the effect on the elements of right of access to a court, the adversarial principle and the elements regarding purely criminal proceedings, but it is not possible to include every element in this thesis due to its limited length.

In the meaning of this thesis, artificial intelligence means a non-biological autonomous entity which has the ability to learn from itself.[14] AI is an entity of scientific methods, theories and techniques aiming to reproduce the cognitive abilities of humans by machine.[15] In the meaning of this thesis the term 'court proceedings' refers to the overall proceeding relating to the handling of a court case. This includes the pre-trial stage and the trial stage.

This thesis concentrates on the situation in Europe and specifically in Finland. For the determination of fair trial, the main document used is the European Convention on Human Rights. However, some examples from the United Stated are also introduced, since the use of AI in the court proceedings is utilized much more in the United States.

[13] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018.
[14] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 42.
[15] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 69.

1.3 Research methodology

The main methodologies adopted in this thesis are the hermeneutic discipline and argumentative discipline.[16] Texts and documents are the main research object in the hermeneutic discipline and the author is interpreting them.[17] This is illustrated through the use of case law and academic literature. The argumentative discipline is similar to hermeneutic discipline, but there is argumentation to support the legal interpretation.[18] Additionally, elements of legal dogmatic research method are used.

This thesis aims to find out both positive and negative implications of the use of artificial intelligence in the court proceedings, and the findings made from the academic documents are backed up with argumentation. A fairly critical approach is used when the implications of artificial intelligence are dealt with.

The European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment has a central role in this thesis, and is used to support the arguments of the thesis. In addition, the author has used existing case law and several academic articles from various authors and scholars. Interviews are used to give different perspectives for this research.

[16] Methodologies of legal research: what kind of method for what kind of discipline? Van Hoecke, M. (2011) Oxford: Hart, 2011, p. 4.
[17] *Ibid.*
[18] *Ibid.*

1.4 Structure of the study

This thesis is divided into four main chapters. It begins with the introduction of the topic, outline, research methodology and the structure of the study (*Chapter 1*). The purpose of the first chapter is to give a brief introduction to the topic and the research methodology used in the thesis.

The thesis is divided in two main parts (*Chapter 2 and Chapter 3*). The first part is focused on AI and the second part on the fair trial. Examples of the use of AI in court proceedings are introduced in chapter 2 and later these examples are compared to the elements of fair trial in chapter 3 to answer the research question.

The second chapter of the paper is focused on the artificial intelligence. This chapter explains what is artificial intelligence and how it can be used in court proceedings. The second chapter starts with how to define artificial intelligence; how artificial intelligence functions and how artificial intelligence makes decisions. The second chapter introduces four ways to use AI in the court which are: 1) for collecting and sorting out information 2) suggesting and predicting decisions 3) in the decision making and 4) in the appeal process. The second chapter also introduces the Finnish AIPA-project, explain what the project is, how the AIPA system works, and lastly, the main goals of the AIPA system. Lastly, the main objectives of the use of artificial intelligence in the courts and the benefits of its use are introduced.

The third chapter is focusing on the concept of fair trial and AI. First, the definition of fair trial is introduced. Secondly, the effects of the use of artificial intelligence on the elements of fair trial are dealt with. Regarding the fair trial the following elements are discussed: the reasonable time requirement, an independent and impartial tribunal, equality of arms, immediacy, and the right to get reasoned judgement. The chapter ends by answering the question: How does the use of artificial intelligence affect the concept of fair trial? Both positive and negative implications of the use of artificial intelligence in the court proceedings are addressed.

The last chapter (*Chapter 4*) includes the concluding remarks and summarises the outcome of the research.

2 The use of artificial intelligence in courts

2.1 What is AI, and how does it function in court proceedings?

Until recently, laws have only had one subject: humans.[19] Now, the time of artificial intelligence has arrived, and because of this it is essential to be able to define what AI is. However, even AI researchers have no exact definition for AI.[20] Typically, AI is autonomous and adaptive: it has the ability to perform tasks in complex environments without constant guidance by a user, and it has the ability to improve performances by learning from experience.[21] AI is a collection of concepts, problems, and methods for solving them.[22]

When exploring the concept of AI, two classifications can be distinguished: narrow and general.[23] Narrow (weak) AI denotes the ability of a system to achieve a certain stipulated goal, or set of goals, by using techniques which qualify as intelligent.[24] These goals might include, for example, natural language processing functions like translation.[25] Narrow AI refers to AI that is able to handle one task at the time.[26] A narrow AI system is suited only to the task for which it has been designed.[27] Today, the majority of AI systems in the world are closer to this narrow and limited type.[28]

General (strong) AI has the ability to achieve an unlimited range of goals, and even to set new goals independently, including situations of uncertainty or vagueness.[29] General AI refers to a machine that can handle any intellectual task.[30] General AI encompasses many of the attributes we think of as intelligence in humans; however, general AI approaching the level of human capabilities does not exist yet.[31]

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[19] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 1.
[20] Elements of AI – course material, < https://www.elementsofai.com/fi/>.
[21] *Ibid.*
[22] *Ibid.*
[23] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 6.
[24] *Ibid.*
[25] *Ibid.*
[26] Elements of AI – course material, < https://www.elementsofai.com/fi/>.
[27] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 6.
[28] *Ibid.*
[29] *Ibid.*
[30] Elements of AI – course material, < https://www.elementsofai.com/fi/>.
[31] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 6.

It is important to mention, that narrow and general AI are not sealed from each other, and as AI becomes more advanced, it will move further away from the narrow paradigm and closer to the general one.[32] This is because AI systems learn to upgrade themselves[33]. Some methods are clearly AI, and others not AI, but there are also methods that involve 'a pinch of AI'.[34] Thus, sometimes it would be more appropriate to talk about the 'AIness' of something, rather than arguing whether or not something is AI.[35]

Introducing artificial intelligence to the judiciary will be a gradual and slow process that will most likely start with the parallel existence of AI assistance and human judges, meaning that both human judges and AI are working together in the court.[36] Legal work consists of routine tasks such as sifting of documents, searching for irregularities in large amounts of data, and analysing numerous cases – all of which could be a suitable use for AI.[37]

AI can be utilized in many ways in the court proceedings. AI-powered information systems can improve the document analysis for legal use.[38] Machines can review documents and flag them useful to a case.[39] AI tools can confirm facts and figures and evaluate the decisions from prior cases to provide counselling concerning other cases.[40] Artificial intelligence can help in the legal research and to perform due diligence with clients already in the pre-trial stage.[41] The use of AI in the judiciary could help minimising the influence of extraneous factors such as exhaustion and emotional instability that humans might suffer from.[42] However, AI-powered decision

[32] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 7.
[33] *Ibid.*
[34] Elements of AI – course material, <https://www.elementsofai.com/fi/>.
[35] *Ibid.*
[36] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 41.
[37] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 43.
[38] <https://www.forbes.com/sites/bernardmarr/2018/05/23/how-ai-and-machine-learning-are-transforming-law-firms-and-the-legal-sector/ >Accessed 2 May 2019.
[39] *Ibid.*
[40] *Ibid.*
[41] *Ibid.*
[42] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 44.

making might reveal different human-made structural biases that originate from the legal system, from the AI's training data or from the AI's programming itself.[43]

2.1.1 Defining artificial intelligence

First of all, it must be stated that it is extremely hard to define artificial intelligence. However, it is necessary to be able to define and understand the concept that the thesis is based upon, so let's give it a try.

The word 'artificial' means something synthetic and which does not occur in nature.[44] The definition of the word 'intelligence' is where the difficulties come in. Intelligence describes a range of different attributes or abilities[45], and this is what makes it so hard to define.

There are two categories that the universal definitions of AI fall into: 1) human-centric and 2) rationalist.[46] The human-centric definition compares AI and human. The most famous example of human-centric definition of AI is known as the 'Turing Test'.[47] In 1950, Alan Turing asked whether machines could think. He suggested an experiment called 'the Imitation Game'.[48] In the game, a human supervisor must try to identify which of the two players is a man pretending to be a woman, using only written questions and answers.[49] Turing proposed a version of the game, where AI takes the place of the man. If the machine succeeds in persuading the invigilator that it is not only a human, but also the female player, then the AI has demonstrated intelligence.[50] The modernised and simplified version of this is if the computer can fool a sufficient proportion of human judges into believing that it is a human, then it has won, and considered intelligent.[51]

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[43] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 44.
[44] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 7.
[45] *Ibid.*
[46] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 9.
[47] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 10.
[48] *Ibid.*
[49] *Ibid.*
[50] *Ibid.*
[51] *Ibid.*

Rationalist definitions of AI avoid the link to humanity by focusing on thinking or acting rationally.[52] This means, that an AI systems have goals and reasons towards these goals, and this makes it intelligent.[53] To act rationally means that the AI system performs in a manner that can be described as goal-directed.[54]

It has been stated that it might not be possible to have a universal definition of intelligence.[55] Since this thesis is concentrating on legal research, we will follow the definition of intelligence laid down by researcher and lawyer J. Turner.[56] According to Turner, intelligence refers to the ability to make choices and it is the nature and effect of these choices that is usually the main concern. In the meaning of this thesis, artificial intelligence means a non-biological autonomous entity which has the ability to give rules to itself[57] and the ability to make choices by an evaluative process.[58] AI is an entity of scientific methods, theories and techniques which is aiming to reproduce, by a machine, the cognitive abilities of humans.[59]

2.1.2 How does artificial intelligence function?

AI uses machine learning to function. Machine learning provides computer systems with the ability to automatically learn and improve from experience without being programmed.[60] In machine learning, an algorithm is given to an AI program to help it learn on its own.[61] Deep learning is a subfield of machine learning and it uses artificial neural networks that learn by processing data.[62] Thus, neural networks enable deep

[52] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 13.
[53] *Ibid.*
[54] *Ibid.*
[55] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 15.
[56] *Ibid.*
[57] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 42.
[58] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 15.
[59] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 69.
[60] Elements of AI – course material, <https://www.elementsofai.com/fi/>.
[61] <https://dzone.com/articles/exploring-ai-algorithms>, Accessed 14 March 2019.
[62] Elements of AI – course material, <https://www.elementsofai.com/fi/>.

learning. AI needs a huge amount of data to learn trough machine learning, and big data is used for this.[63] Machine learning, deep learning, and neural networks are addressed in the next chapter.

2.1.2.1 Algorithms

An algorithm is a procedure or a formula that is used for solving a problem.[64] Algorithms are finite sequences of formal rules that make it possible to obtain a result from the initial input of information.[65] An algorithm is "a set of step by step instructions, to be carried out quite mechanically, so as to achieve some desired result".[66] In machine learning, an algorithm is given to an AI program to help it learn on its own.[67] Algorithms are the backbone of an intelligent AI.[68] An algorithm process allows humans to replicate the outcome of the objective with greater consistency.[69] Process also allows us to study and understand the theoretical basis for the outcome.[70]An algorithm is simply a formula intending to accomplish a goal and it involves both data and a procedure.[71] An algorithm can be compared to a recipe, involving both ingredients and a procedure.[72]

Algorithmic process will always have some natural variation and error within the process.[73] A well-defined process along with a well-developed theoretical basis will allow us to understand variations and errors in order to respond effectively to the

[63] Artificial Intelligence, Robotics, Privacy and Data Protection, Room document for the 38th International Conference of Data Protection and Privacy Commissioners, 2016, p.4.
[64] What is An Algorithm? And Why Don't We Use 'Em? R. Nelson, APA Magazine 2016, p. 49-68, p. 49.
[65] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 69.
[66] A History of Algorithms: From the Pebble to The Microchip, J-L. Chabert, 1999, p. 1.
[67]< https://dzone.com/articles/exploring-ai-algorithms>, Accessed 14 March 2019.
[68] *Ibid.*
[69] What is An Algorithm? And Why Don't We Use 'Em? R. Nelson, APA Magazine 2016, p. 49-68, p. 50.
[70] *Ibid.*
[71] *Ibid.*
[72] *Ibid.*
[73] What is An Algorithm? And Why Don't We Use 'Em? R. Nelson, APA Magazine 2016, p. 49-68, p. 51.

potential error.[74] Adding ingredients (data) can change the character of an algorithm and thus also the result of the process.[75] An algorithm consists of a matter of input data, a structured process, and an output or result.[76] Structure increasing reliability enables the potential for automation, which enables the potential for making reliable use of more complex and powerful process.[77]

2.1.2.2 Decision trees

AI consists of logical decision trees, which are in the format: "if X, then Y".[78] A decision tree is a set of rules or instructions for the AI, and it informs the AI what to do with the given input information.[79] The decision-making process of AI is deterministic, meaning that each step can be tracked back to decisions made by a programmer no matter how many stages the process has.[80]

Algorithm process will also allow humans to study and understand the theoretical basis for the outcome by using decision trees. A decision tree is a tool that uses a tree-like model of decisions and their possible consequences. By using a decision tree it is possible to follow how AI came into a decision. A decision tree is one way to display an algorithm that only contains conditional control statements. Decision trees are used to discover, understand, and communicate the structure of a decision.[81]

Simple decision trees are easy to understand and interpret, but a small change in data can lead to a large change in the structure of the optimal decision tree. The use of

[74] What is An Algorithm? And Why Don't We Use 'Em? R. Nelson, APA Magazine 2016, p. 49-68, p. 50.
[75] What is An Algorithm? And Why Don't We Use 'Em? R. Nelson, APA Magazine 2016, p. 49-68, p. 51.
[76] What is An Algorithm? And Why Don't We Use 'Em? R. Nelson, APA Magazine 2016, p. 49-68, p. 64.
[77] *Ibid.*
[78] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 18.
[79] *Ibid.*
[80] *Ibid.*
[81] A framework for sensitivity analysis of decision trees". *Central European Journal of Operations Research*. 26 (1) Kamiński, B.; Jakubczyk, M.; Szufel, P. (2017), p.135–159, p. 136.

decision trees is important when considering the use of AI in the court, since it is very useful for the judges, appellants, and the public to see how the AI came into a decision.

2.1.2.3 Big data

The availability of data is an essential condition for the development of AI, the more data available, the more AI is able to improve its predictive ability.[82]

Big data refers to the practice of combining huge volumes of diversely sourced information and analysing this information by using AI.[83] The relation between AI and big data is two-way: AI needs a huge amount of data to learn through machine learning, and big data can be used for this.[84] In the other direction, big data needs AI techniques to extracts value from big datasets.[85]

It is important to discuss big data, since one of the main issue regarding big data is whether the information provided to individuals is transparent.[86] If individuals are not provided with appropriate information and control, individuals might be subject to decisions that they do not understand and that they have no control over.[87] There are two main factors that complicate the access to appropriate information: 1) secrecy, and 2) expression of reasoning. Secrecy has been claimed when data is processed on grounds of trade secrets. The difficulty in providing an explanation for a prediction based on AI algorithm, that has been created by using machine learning, is that the logic behind the machine reasoning may not ne expressible in human terms.[88]

[82] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 18.
[83] Artificial Intelligence, Robotics, Privacy and Data Protection, Room document for the 38th International Conference of Data Protection and Privacy Commissioners, 2016, p. 4.
[84] *Ibid.*
[85] *Ibid.*
[86] *Ibid.*
[87] *Ibid.*
[88] *Ibid.*

Another major concern relating to AI and big data is the bias included in them. Bias comes through the input dataset provided for training the AI.[89] As the machine learns from the provided information and has no means to contrast that information with a bigger picture, all bias that are included in the training set will influence the outcome of the AI's work.[90] If the predictions made by AI are used in the decision making, a circle of self-fulling prophecies can be created since the feedback the machine receives might reinforce the bias present in the first place.[91]

As stated, the logic behind the machine reasoning may not be expressible in human terms[92] and it might be very hard to understand. Thus, following chapter attempts to explain how machines think, to make it more understandable.

2.1.3 How does the machine think?

2.1.3.1 Machine learning

It is important to understand how the AI forms its decisions and how it functions, so that we can later understand how it might affect the elements of fair trial. In order to address this, this chapter introduces briefly 'how machine thinks'.

Machine learning can be said to be a subfield of AI. Machine learning enables AI solutions that are adaptive.[93] Machine learning is defined as systems that improve their performances in a given task with more and more experience or data.[94] Machine learning makes it possible to construct a mathematical model from data which incorporates a large number of variables that are not known in advance.[95] Machine learning is defined as a field of study that gives the machines the ability to learn

[89] Artificial Intelligence, Robotics, Privacy and Data Protection, Room document for the 38th International Conference of Data Protection and Privacy Commissioners, 2016, p. 4.
[90] *Ibid.*
[91] *Ibid.*
[92] *Ibid.*
[93] Elements of AI – course material, <https://www.elementsofai.com/fi/>.
[94] *Ibid.*
[95] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 72.

without being explicitly programmed.[96] The field of machine learning studies the construction of algorithms that can learn from and make predictions on data.[97] These algorithms operate by building a model from training data, in order to make data-driven predictions or decisions.[98] Within the field of big data, machine learning is used to extract models from big datasets to make predictions, this is called predictive analysis.[99]

Machine learning algorithms are used as powerful generalizers and predictors.[100] Algorithms learn with training data that is fed to them. The accuracy of these algorithms is known to improve with greater quantities of data to train on.[101] Algorithms learn with training data and develop all the time more and more. A machine learning algorithm generally includes two parallel operations: 1) classifier, and 2) learner.[102] Classifiers take input (a set of features) and produce an output (a category).[103] For example, if an algorithm is used for searching a certain type of cases, a classifier takes a certain set of features (such as events of the case, articles, or the outcome of the case) and produces one of two output categories (cases that fulfil the features or cases that do not). However, machine learning algorithms called 'learners' must first train on the data.[104] After the training, the result is a matrix of weights that will then be used by the classifier to determine the classification for new input data.[105]

[96] Artificial Intelligence, Robotics, Privacy and Data Protection, Room document for the 38th International Conference of Data Protection and Privacy Commissioners, 2016, p. 19.
[97] *Ibid.*
[98] *Ibid.*
[99] *Ibid.*
[100] How the machine 'thinks': Understanding opacity in machine learning alorithms, J. Burrell, 2016, p. 5.
[101] *Ibid.*
[102] *Ibid.*
[103] *Ibid.*
[104] *Ibid.*
[105] *Ibid.*

2.1.3.2 Deep learning

Deep learning is a subfield of machine learning. The name refers to the depth of deep learning relating to the complexity of a mathematical model. The increased computing power of modern computers has allowed researchers to increase this complexity to reach levels that appear not only quantitative but also qualitatively different from before.[106] The learning process is constantly developing.

Deep learning employs artificial neural networks (which are dealt in the next sub-chapter) that learn by processing data.[107] Multiple layers of neural networks work together to determine a single output from many inputs and the machines learn through positive and negative outcomes of the tasks that they carry out.[108]

Machine learning uses a number of models that are implemented in a code in different ways.[109] These are for example: neural networks, decision trees, Naïve Bayes and logistic regressions.[110] The choice of model depends on the domain, its demonstrated accuracy in classification, and available computational resources.[111]

2.1.3.3 Neural network

Neural networks are computer systems modelled to resemble the neural connections in the human brain.[112] They are computer systems made for large number of interconnected units, each of which can usually compute only one thing.[113] These systems learn to performs tasks by considering examples, generally without being

[106] Elements of AI – course material, <https://www.elementsofai.com/fi/>.
[107] <https://www.innoplexus.com/blog/how-artificial-intelligence-works/>, Accessed 14 April 2019.
[108] *Ibid.*
[109] How the machine 'thinks': Understanding opacity in machine learning alorithms, J. Burrell, 2016, p. 5.
[110] *Ibid.*
[111] *Ibid.*
[112] <https://www.innoplexus.com/blog/how-artificial-intelligence-works/>, Accessed 14 April 2019.
[113] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 18.

programmed with any task-specific rules.[114] In the design of a neural network, a set of input nodes connects to a second set of nodes called the 'hidden' layer and then to an output layer.[115] Neural network enables deep learning.[116] Every input node is connected to a hidden layer node and each hidden layer node is connected to an output in the design of the neural network.[117] In this way, they form a network as described in the following figure 1.

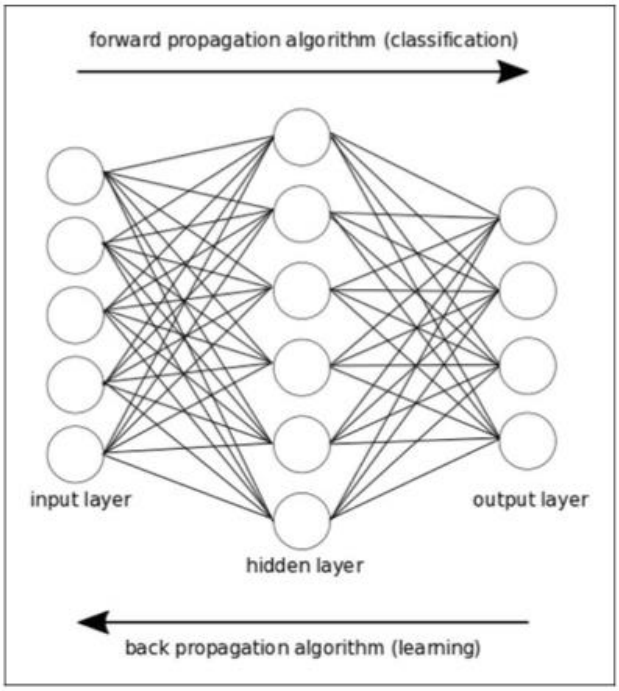

Figure 1. Graphical description of a neural network.[118]

Artificial neural networks use 'weights' in order to determine the connectivity between inputs and outputs.[119] Artificial neural networks can be designed to alter themselves

[114] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 73.
[115] How the machine 'thinks': Understanding opacity in machine learning alorithms, J. Burrell, 2016, p. 5.
[116] <https://www.innoplexus.com/blog/how-artificial-intelligence-works/>, Accessed 14 April 2019.
[117] How the machine 'thinks': Understanding opacity in machine learning alorithms, J. Burrell, 2016, p. 6.
[118] How the machine 'thinks': Understanding opacity in machine learning alorithms, J. Burrell, 2016, p. 6.
[119] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 19.

by changing the weights on the connections which makes activity in one unit more or less likely to excite activity in another unit.[120] In machine learning systems, the weights can be re-calibrated by the system over time in order to optimize outcomes.[121] Weights are associated with each of the connecting lines and the optimal values for the matrix of weights are what the learning algorithm learns.[122] Neural networks learn by processing training examples and they learn best from examples that come in the form of big data sets.[123]

It is important to note, that the models created by machine learning will not be understandable for humans in most cases.[124] The criteria that a machine learning algorithm may find to classify input data, or the memory as weights in a neural network, will most probably lack expressivity and this has a big impact when discussing algorithmic transparency.[125] This is a good example of the importance of the reasoning when interpreting a decision made by AI.

[120] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 19.
[121] *Ibid.*
[122] How the machine 'thinks': Understanding opacity in machine learning alorithms, J. Burrell, 2016, p. 6.
[123] <https://www.innoplexus.com/blog/how-artificial-intelligence-works/>, Accessed 14 April 2019.
[124] Artificial Intelligence, Robotics, Privacy and Data Protection, Room document for the 38th International Conference of Data Protection and Privacy Commissioners, 2016, p. 19.
[125] *Ibid.*

2.2 Examples of the use of AI in courts

As already highlighted in the Chapter 2.1, AI can be used in many ways in the court proceedings. AI-powered information systems can improve the document analysis and search for legal use.[126] AI tools can confirm facts and figures and evaluate the decisions from prior cases to provide counselling concerning other cases.[127] AI can also be part of the decision-making process.

The use of AI in the decision-making could help to minimise the influence of extraneous factors such as exhaustion and emotional instability that humans might suffer from.[128] AIs of today are able to operate some of these skills individually, but they cannot combine these skills yet.[129] Technology is not yet ready to produce an AI with a skill-set that is broad enough to work, for example, as a judge.[130] The work of a good judge consists of a mix of skills including research, language, logic, creative problem solving and social skills and these would be very hard for a machine to achieve.[131]

In the near future, AI's most important role would be to assist humans. When a judge is appointed, the representative equips the judge with the necessary democratic legitimacy to rule on a case[132].The judge may not delegate the judgement to someone else.[133] If an assistant is used to delegate a specific administrative or legal task, the judge needs to stay involved by ensuring functioning control and communication between judge and assistant, no matter if a human or an AI provides the assistance.[134]

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[126] <https://www.forbes.com/sites/bernardmarr/2018/05/23/how-ai-and-machine-learning-are-transforming-law-firms-and-the-legal-sector/>, Accessed 2 May 2019.
[127] *Ibid.*
[128] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 44.
[129] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 46.
[130] The age of Em. Work, Love, and Life when Robots Rule the Earth, R. Hanson, Oxford University Press, 2016.
[131] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 46.
[132] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 47.
[133] *Ibid.*
[134] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 47.

The products of the judiciary include judgements that order consequences such as large fines, prison sentences and the granting or denial of parole.[135] The judgements made by the judiciary are important and the outcome may have a huge change on one's life. Thus, it is necessary to understand how AI could be used in the court proceedings and what are the consequences that follow.

AI can be used in the court proceedings at least in four ways: 1) for collecting and sorting out information 2) for suggesting and predicting decisions 3) in the decision-making and 4) in the appeal process. These four categories represent the different stages of the proceedings, first pre-trial stages, then moving on to the trial stage and later the appeal stage.

2.2.1 Example 1: AI used for collecting and sorting out relevant information

Collecting and sorting out relevant information is possibly the most time-consuming job to do relating to a court case. Both judges and the parties involved are interested in the case law or other relevant documents that relate to a certain case. This means that there needs to be someone who's task is to find the needed documents from huge databases, and here is where the 'librarian' comes into the picture.

The librarian's job in a court or in a law firm is to find requested literature relevant to a specific case.[136] The nature of this task can vary between relatively simple commands like "find document x by author y", and complex requests, such as "find all relevant literature for case z and list them by relevance".[137] Legal research cannot be reduced to only collecting articles or cases that somehow relate to the case under judgement.[138] Legal research underlies in the connections and links drawn between the individual pieces of information and the way this information is connected and structured

[135] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 48.
[136] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 50.
[137] *Ibid.*
[138] *Ibid.*

influences further research.[139] Thus, finding information and transforming it into legal expertise is a reciprocal process and therefore, delegating legal research might cause relinquishment of some decision-making authority.[140]

Before the internet, the judges provided a human librarian with information and the librarian came up with suggested results.[141] The judges did not know how the librarians came to their results, but they had the opportunity to ask them.[142] Today, most legal research happens through various legal databases which are searchable through algorithms online.[143]

An algorithm is "a set of step by step instructions, to be carried out quite mechanically, so as to achieve some desired result".[144] Algorithms are more effective in terms of capacity and speed, but less transparent than a human librarian.[145] Search algorithms of legal databases are often trade secrets, and thus lack transparency on purpose.[146] AI is in the next stage of this development; it is capable of altering its own search parameters that can carry out legal research even more efficiently.[147] However, this makes it even more challenging to provide the user with transparency regarding AIs functioning.

From the development from human librarian, to algorithms and to AI, it gets harder and harder to ensure the functioning communication between judge and librarian.[148] The outcome of this development can be seen in an example, where a judge or a lawyer orders AI librarian to: "Find the most relevant sources for case x and list them in order of their appearance in the (future) decisions draft".[149] In this case, the AI librarian cannot list the sources in the right order without predicting the structure of the

[139] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 51.
[140] *Ibid.*
[141] *Ibid.*
[142] *Ibid.*
[143] *Ibid.*
[144] A History of Algorithms: From the Pebble to The Microchip, J-L. Chabert, 1999, p.1.
[145] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 52.
[146] *Ibid.*
[147] *Ibid.*
[148] *Ibid.*
[149] *Ibid.*

judgement itself .[150] This would lead the judge to a pre-determined, machine generated result.[151]

In conclusion, assigning legal research to an AI system results to an un-transparent form of delegation of decision-making authority whose extent is hard to predict. This might lead to the situation introduced above, where the AI librarian is only meant to do legal research, but it is already anticipating the judgement for the case since otherwise it cannot do the required research. AI is thus giving guidelines for the judge on how to decide the case.

2.2.2 Example 2: AI used to suggest or to predict decisions

AI can be used to suggest decisions or to predict decisions. Predictive AI tools are designed to be used by legal departments, insurers and lawyers to anticipate the outcome of the proceeding before going to court, but they could also be used to assist judges in their decision-making.[152] The processing made by AI can be designed with the aim of assisting in the provisions of legal advice, helping in drafting or in the decision-making process.[153]

The first scenario refers to a method used mainly by law firms, where AI is used to predict the decision of the court before actually going to the court. The second scenario refers to refers to a situation where AI is used for making suggestion as to how the judge should decide a case.

[150] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 52.
[151] *Ibid.*
[152] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 30.
[153] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 5.

2.2.2.1 Predicting decisions before going to court

Predictive AI tools make proposals to establish the probabilities of the success or failure of a case before a court.[154] The probabilities are established through methods of natural language processing and machine learning.[155] As mentioned earlier, predictive justice systems are designed to be used by legal departments, insurers and lawyers to anticipate the outcome of litigation.[156] They are currently in the use of big law firms.

Machine learning is at the heart of processing of judicial decisions using AI.[157] In most cases the objective of the system is to identify the correlations between the different parameters of decision, and through the use of machine learning infer one or more models.[158] These models would be later used to predict or foresee a future judicial decision.[159]

Predictive justice systems provide a graphic representation of the probability of success for each outcome of a dispute based on criteria entered by the user.[160] It would be very useful to see what are your chances of success with your case before going to court. However, it is possible that when hearing bad news from the machine, individuals decide not to go to a court just based on machine's opinion.

[154] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 29.
[155] *Ibid.*
[156] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 30.
[157] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 29.
[158] *Ibid.*
[159] *Ibid.*
[160] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 30.

2.2.2.2 Suggesting decisions for judges

This second scenario refers to a situation where the case has been brought to a court and AI is used to suggest decision. After AI has done legal research and used its skills to draft a suggestion decision to the judge, the judge can either decide to cooperate with the AI's submission by citing it or choose to ignore the AI's opinion.[161] Judicial decision processing made with assistive AI tools is likely in civil, commercial and administrative matters.[162] It helps to improve the predictability of the application of the law and consistency of court decisions.[163]

But is it possible to use AI only as an assistive tool? Once there are expert machines, it will be easier to argue in some cases that the machines should be used to their full potential (instead of human judges), because the evidence will suggest that in those circumstances they will deliver better results than human experts.[164] This could lead to situation were the machines are held so intelligent or fair, that judges become nothing more than a middleman for purely machine-generated decisions.[165]

Hence, it is essential that the processing made by AI, whether designed with the aim of assisting in the provisions of legal advice, helping in drafting or in the decision-making process, is carried out with transparency, impartiality and equity, certified by an external and independent expert assessment.[166]

[161] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 53.
[162] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 5.
[163] *Ibid.*
[164] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 55.
[165] *Ibid.*
[166] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 5.

2.2.3 Example 3: AI in the decicion making

The third scenario is probably not happening in the near future, at least regarding complex cases that require judicial judgement, but in this scenario AI would have a judicial power to decide cases autonomously. This third scenario separates the human judge's work and the AI's work from each other.[167] In this scenario, parties would be required to bring a case before the AI judge before appealing to the human judge.[168] Thus, AI would autonomously solve simple cases and more complicated cases would end up either straight before a human judge or appealing would bring a case to a human judge.

If the human judge and the AI judge disagree over a case, there would be three possible reasons for this: the AI made a mistake, the human judge made a mistake or the case allows more than one correct interpretation.[169] AI is able to decide on simple cases much faster and more accurately than a human being ever could, and this would increase judicial efficiency.[170] However, evidence has shown that AI's decisions over plain cases rarely get overturned[171]. This could have the effect, that to save legal costs, appellants might only bring complex cases before a human judge.[172] AI specialist M. Loisa from the Ministry of Justice of Finland has stated that AI could be first used in general courts in cases that do not involve judicial judgement.[173] These kinds of cases could be for example divorce cases, total debt cases, or restraining order cases in which templates are used when the case is initiated.[174]The templates send to the court by the applicant would be a great starting point for the use of AI.

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[167] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 55.
[168] *Ibid.*
[169] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 56.
[170] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 57.
[171] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 56.
[172] *Ibid.*
[173] Interview with Marko Loisa the project director of AIPA-project, 1 March 2019.
[174] <https://oikeus.fi/karajaoikeudet/keski-suomenkarajaoikeus/fi/index/keski-suomenkarajaoikeudessakaytettavialomakkeita.html> Accessed 26 May 2019.

On the other hand, it is possible that both the human judge and the AI make incorrect decisions. However, statistics will suggest that it is more likely that the human judge is wrong that the AI.[175] However, in this scenario, the AI is a black box that does not provide explanation for its decisions.[176] The explanation matters when both AI judge and a human judge make equal results, and thus an understandable justification is more essential than a higher probability of correctness.[177] Consequently, the superiority of AI would end where complex cases arise, the limiting factor being humanity of a human judge.[178]

Judges should be able at any moment to review judicial decisions and the data used to produce a result.[179] The Charter is offering solutions for the problems of AI decisions making. According to the Charter: "The user must be informed in clear and understandable language whether or not the solution offered by the AI tools are binding, of the different options available, and that he or she has the right to legal advice and the right to access a court. He or she must also be clearly informed of any prior processing of a case by AI before or during a judicial process and have right to object, so that his or her case can be heard directly by a court within the meaning of Article 6 of the ECHR."[180] AI tools used in the decision-making must be used with respect for the principle of the rule of law and for the judges' independence in their decision-making process.[181]

[175] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 57.
[176] *Ibid.*
[177] *Ibid.*
[178] *Ibid.*
[179] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 12.
[180] *Ibid.*
[181] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 8.

2.2.4 Example 4: AI and appeal process

Appeals are an essential thing to consider when talking about decisions made by AI. If AI would be already used in the decision-making as suggested above, the use of AI needs to be taken into account in the appeal process as well. How would the appeal process work if AI would be the one making decisions? Some believe that lodging an appeal against AI's decision would automatically invalidate it and a human judge would then decide on the case.[182] But in this case should the court also provide the decision tree to the appellant so that they have the possibility to see how AI has come in to the decision? If AI is suggesting or drafting parts of the decision it is necessary that the logic behind the decisions of the AI is shown to the applicant so that the applicant has the opportunity to see that their arguments have been examined, and then has the possibility to make an appeal.

As explained in the Chapter 2.1.2., AIs consist of logical decision trees, which are a set of rules or instructions for the AI and they inform the AI what to do with the given input.[183] The decision-making process of AI is deterministic, meaning that each step can be tracked back to decisions made by a programmer no matter how many stages the process has.[184] A decision tree shows all the possible outcomes of a case and helps to evaluate the costs, risks and outcomes of each possibility.[185] Decision tree lists the most likely possibilities for the outcome of the case.[186]

Decision trees can be very simple, when the case to solve is simple. In this example the question given to AI is a simple one. Following Figure 2 is introducing the possible outcomes of a simple question.

[182] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 55.
[183] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2019, p. 18.
[184] *Ibid.*
[185] <http://decisiontree.kleinmediation.com/site/about>, Accessed 13 April 2019.
[186] *Ibid.*

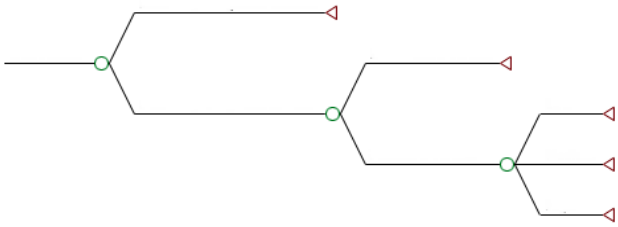

Figure 2. Graphical description of a simple decision tree. Green circles represent the points where AI is deciding on alternative options. Red triangles are the possible solution to the question.[187]

But when the case has more components and more possible outcomes, the decision tree can be very complicated to understand and to follow. Eventually, the decision tree might end up looking like the one in Figure 3 below.

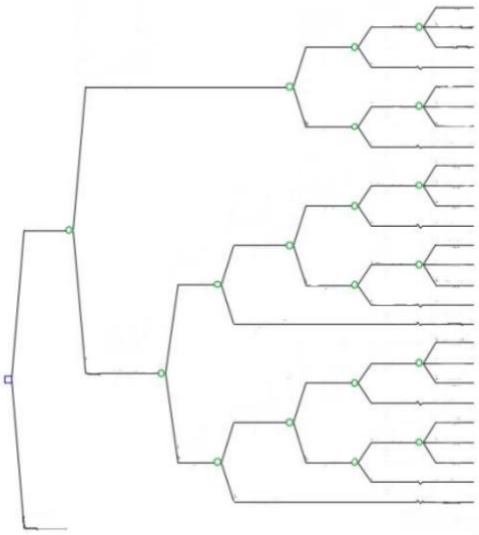

Figure 3. Graphical description of a complicated decision tree. Green circles represent again the points where AI is deciding on alternative options. This complicated decision tree shows that there might be over 20 possible solutions to the question.[188]

Typically court cases are complicated, have a lot of moving components and "if x then y" type of options that would complicate the decision trees made by the AI. If AI is drafting a judgement or even a part of a judgement for a human judge, the logic behind

[187] <http://decisiontree.kleinmediation.com/site/about>, Accessed 13 April 2019.
[188] <http://settlementperspectives.com/2009/07/advanced-decision-tree-analysis-in-litigation-an-interview-with-marc-victor-part-i/>, Accessed 13 April 2019.

the decision making and reasoning of the AI must be shown to the applicant at least in a form of a decision tree. However, if even a simple question inside a case can create a decision tree like the one in Figure 3, is there any chance that an appellant would understand the whole process behind the machine thinking so that they would have de facto possibility to comment on AI's logic in their appeal?

2.2.5 Current examples of the use of AI

In 2018, the use of AI algorithms in European judicial systems remained primarily in the private-sectors; they are used, for example, by insurance companies, legal departments, lawyers, and individuals.[189] However, public decision-makers are starting to wish to see the AI tools used by the private sector integrated into public policies.[190]

At the moment, AI can and is used in the legal sector in different forms: advanced case-law search engines, online dispute resolution, assistance in drafting, predictive analysis, categorisation of contracts, and 'chatbots' that are used to inform litigants or support them in their legal proceedings.[191] This means that from the above described ways to use AI in the judiciary, examples 1 and 2 are already in the use.

The use of AI in the judiciary is much more further in the United States than it is in Europe. In the United States robot lawyers are already at work and legal tech start-ups are offering new applications to lawyers, allowing in depth access to judicial information and case law. Some private companies are already aiming to predict judges' decisions with predictive justice tools, as described in the example 2.[192]

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[189] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 14.
[190] *Ibid.*
[191] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 16.
[192] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 14.

However, it has been revealed that in the United States there are discriminatory effects of the algorithm used in COMPAS software ('Correctional Offender Management Profiling for Alternative Sanctions').[193] COMPAS aims to evaluate the risk of individuals committing the crime again when the judge is determining the sentence for an individual[194]. This algorithm was developed by a private company and it must be used by judges in certain American States.[195] It includes 137 questions that either the defendant must answer or the information is pulled from criminal records.[196] Based on the answers, the algorithm rates the person on a scale from 1 (low risk) to 10 (high risk).[197] The rate is an aid to judicial decision-making, and the conclusions are one of the variabilities considered by the judge when deciding on the sentence of a person.[198] However, the African-American populations were assigned a recidivism high-risk rate twice that of the other populations, and thus were receiving longer sentences only based on their race.[199] Here, the algorithm itself was discriminatory and this leads to a situation where the past behaviour of a certain group may decide the fate of an individual.[200] This is definitely not the optimal outcome of the use of the AI in the judiciary.

But, what will happen next in the Europe? Project director M. Loisa from the Ministry of Justice of Finland has stated that AI could possibly be first used in general courts in cases that do not involve judicial judgement.[201] These kinds of cases could be for example divorce cases or restraining order cases in which certain conditions must be fulfilled to decide the case[202]. Templates are used in these type of cases[203], and the

[193] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 52.
[194] *Ibid.*
[195] *Ibid.*
[196] *Ibid.*
[197] *Ibid.*
[198] *Ibid.*
[199] *Ibid.*
[200] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 54.
[201] Interview with Marko Loisa the project director of AIPA-project, 1 March 2019.
[202] *Ibid.*
[203] <https://oikeus.fi/karajaoikeudet/keski-suomenkarajaoikeus/fi/index/keski-suomenkarajaoikeudessakaytettavialomakkeita.html> Accessed 26 May 2019.

templates send by the applicant would be a great starting point for the use of AI. AI could support the process or even decide these types of cases.[204]

Traffic control appeals would be also a possible starting point for the use of AI in the judiciary, because of their schematic nature. Currently, the so called summary fines, can be solved in Finnish prosecution offices using the AIPA-systemjust with just two mouse clicks, and the machine is handling everything else.[205] This is possible when there is no need to make any changes in the case at hand[206]. The AIPA-system does not use AI here but it uses traditional automation to support the end-user in the prosecution office[207]. M. Loisa highlights, that AI is still not ready to solve cases that require judicial judgement.[208]

[204] Interview with Marko Loisa the project director of AIPA-project, 1 March 2019.
[205] *Ibid.*
[206] *Ibid.*
[207] *Ibid.*
[208] *Ibid.*

2.3 Future example from Finland: the AIPA-system

2.3.1 AIPA – the project for the digitalisation of the general courts and prosecution offices in Finland

The following chapter introduces an AI example from Finland. AIPA ('Aineistopankki', 'Digital material bank') is a system that will create a common digital database for prosecution offices and general courts, and which can, and probably will be later accompanied with AI. For the purposes of the next chapter, the author has interviewed M. Loisa from the Ministry of Justice of Finland. M. Loisa is the project director of the AIPA-project and has a wide knowledge regarding the use of AI in the judiciary.

Ministry of justice of Finland established the AIPA-project in 2010.[209] The main goal of the AIPA-project is to move into digitalised work methods and to create a common system that supports new working methods. The system can be used for example by the prosecution offices and general courts (District courts, Courts of Appeal and Supreme Court).[210] As a part of the project, a new IT-system is being built to support the digital working methods. The AIPA-system will support the electronic handling of cases and it will be used for the whole legal process.[211] The author has chosen to use the AIPA system as an example because it has been stated that AIPA system is creating a base for the use of AI in the court proceedings in Finland.[212]

The AIPA-project aims to be a revolution of the working methods.[213] From the beginning of the AIPA-project, the power to decide has been given to the legal professionals, judges, prosecutors and secretaries, who work at the general courts and

[209] <https://oikeusministerio.fi/en/project?tunnus=OM007:00/2015>, Accessed 23 February 2019.
[210] *Ibid.*
[211] *Ibid.*
[212] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 98, Interview with Marko Loisa the project director of AIPA-project, 1 March 2019.
[213] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 96.

prosecution offices.[214] The AIPA-project office is responsible for the whole project, both the change management and the IT-system.[215]There are 10 professionals from the courts and prosecution offices who work fulltime for the project.[216]

The legal experts in the AIPA-project office work together with the IT-experts day to day.[217] In the AIPA-project, the IT- system will be built gradually in parts.[218] The first part of the AIPA-system has been in use in the prosecution offices from February 2017.[219]

The AIPA-system has been taken into use step by step.[220] The AIPA-system was first taken into use in the prosecution offices to handle summary fines.[221] The second phase of the project is focusing on the processing of so called secret coercive measures.[222] While writing this paper, the third phase of the AIPA-project is going on. The third phase of the project was taken into pilot use in the end of 2018 and it is focusing on petitionary cases concerning family law issues.[223]

After the project, the development will continue in maintenance.[224] The digital working methods and the AIPA system will build a base for future development.[225] M. Loisa, the project director of AIPA from Ministry of justice has stated that: "We have

[214] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 96.
[215] *Ibid.*
[216] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 97.
[217] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 98.
[218] *Ibid.*
[219] *Ibid.*
[220] <https://www.eduskunta.fi/FI/vaski/JulkaisuMetatieto/Documents/EDK-2018-AK-178370.pdf>.
[221] <https://www.eduskunta.fi/FI/vaski/JulkaisuMetatieto/Documents/EDK-2018-AK-178370.pdf> 4 April 2019.
[222] *Ibid.*
[223] *Ibid.*
[224] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 98.
[225] *Ibid.*

to be ready for the next steps, that will include the use of AI and sophisticated analytics tools, for example".[226]

2.3.2 How does the AIPA-system work?

The AIPA-system's main function is to support digitalized work functions (working without papers) and to update the old methods to fit the digitalized world.[227] The AIPA-system is a whole new case management and document management information system that is used with all prosecutor offices and general courts. This system will make it easier to share information between different authorities in different phases of the proceedings.[228] All the documents following from a court proceeding would be also archived digitally.[229]

The AIPA-system is the first step towards the use of artificial intelligence in the court proceedings in Finland. Artificial intelligence can at its best mimic certain operations of human mind and it is a large factor sifting the way that legal work is done in the future.

2.3.3 Main goals of the AIPA-system

The new digital working method and a modern IT-system that supporting it will guarantee that the courts and prosecution offices can maintain a high level of legal security also in the future.[230] Because of the budget pressures of the public sector, steps must be taken to ensure that the rights of private persons, companies, and organizations

[226] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 98, Interview with Marko Loisa the head of the AIPA-project, 1 March 2019.
[227] <https://www.eduskunta.fi/FI/vaski/JulkaisuMetatieto/Documents/EDK-2018-AK-178370.pdf>.4 April 2019.
[228] <https://oikeusministerio.fi/en/project?tunnus=OM007:00/2015>, Accessed 23 February 2019.
[229] *Ibid.*
[230] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 99.

are met in time and concerned with a high quality.[231] This needs to continue in the future as well.[232]

The AIPA-system is promising the following results for the community: better customer service, a more effective system, less mistakes, shorter processing times and that the users of the AIPA-system can focus on the essential work while routine tasks are automated.[233] It has also been stated that the AIPA-system will improve legal protection and the process will be more transparent.[234]

The AIPA-system is the first step towards the use of artificial intelligence in the court proceedings.[235] To enable the use of artificial intelligence in the court proceedings, the first step is to create a working information system. The project director of AIPA-project, M-Loisa highlights, that since the AIPA-system will include all the information in an electronical form, it will make it possible to start to utilize this information with the help of AI.[236]The AIPA-system will probably be later accompanied with AI[237]. AI could be used in the form of analytical tools, for example, finding information and materials for the judge to use in the deciding a case outcome.[238] This kind of AI tool can be called decision support elements.[239] AI can be also used in the automatic anonymization of decisions. Here, the AI would be able to identify an individual's personal information and then anonymize this information so that even more decisions could be introduced to the public.[240] Currently, this is done manually in Finland, and AI can help to bring more information to the public by speeding up the anonymization process.[241]

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[231] Legal Tech Lab, Law and Digitalisation: Rethinking Legal Services, R. Koulu, J. Hakkarainen, 2018, p. 99.
[232] *Ibid.*
[233] <https://vm.fi/documents/10623/1252073/7+Vatu_case_OM_AIPA.pdf/773474ad-2427-439c-a6df-5c1089b7c4a5/7+Vatu_case_OM_AIPA.pdf.pdf> Accessed 23 February 2019.
[234] *Ibid.*
[235] <https://oikeusministerio.fi/en/project?tunnus=OM007:00/2015>, Accessed 23 February 2019.
[236] Interview with Marko Loisa the project director of AIPA-project, 1 March 2019.
[237] *Ibid.*
[238] *Ibid.*
[239] *Ibid.*
[240] *Ibid.*
[241] *Ibid.*

The project director of the AIPA-project, M. Loisa, highlights that at the moment artificial intelligence has been used in law offices to analyse document masses, for example.[242] He underlines that in the future the possibilities to use AI in the legal field are various.[243] AI could be used, for example, in a form of an application for individuals to follow their cases and to improve their access to justice.[244] AI dispute resolution or predictive AI applications are also another option.[245] This also raises the question as to whether the State should offer these kinds of online dispute resolution services outside the courts. M. Loisa sees that online dispute resolution might lower the risk of high litigation costs and therefore improve individuals' access to justice.

All in all, the AIPA-system can offer different options for the use of AI in the judiciary. AI could be used for the anonymization of decision and dispute resolution, but even in the decisions making as a decision making support element.

[242] Interview with Marko Loisa the project director of AIPA-project, 1 March 2019.
[243] *Ibid.*
[244] *Ibid.*
[245] *Ibid.*

2.4 Concluding observations regarding the use of AI in the courts

Digitalization is evolving all the time, and there are plans to use of artificial intelligence more and more as a part of the court proceedings and even in the decision making. The objective of the use of AI in the court proceedings is to help humans and machines collaborate successfully, complimenting one another with technical objectivity and human experience.[246]

There are many benefits following from the use of AI in the courts. The main benefit is that AI is faster than the human mind could ever be. The use of AI in the court proceeding speeds up the whole process and possibly improves the legal protection. AI can also help in the anonymization of the judgments, and bring more information to the public.

Furthermore, AI systems aim to reduce biased rulings that could be influenced by a defendant's race, gender, or appearance.[247] AI can provide oversight over justice structures, monitor the legal process, and have control over the accountability of the judicial system.[248]

There can be less mistakes in the proceedings, since AI could eliminate human failures. AI could also promote the legal certainty with the possibilities of doing more research than it is possible for human to do. Digitalization and the use of AI systems would also have great effect on the environment, since it would highly reduce, for example, the amount of printed papers, and entire proceedings could be handled without papers. The use of AI would eventually of course save money, since the proceedings in whole would be less time consuming.

[246]<https://medium.com/@oleksii_kh/ai-is-entering-judicial-system-do-we-want-it-there-632f56347c51> Accessed 13 April 2019.
[247]<https://learningenglish.voanews.com/a/ai-used-by-judges-to-rule-on-prisoners/4236134.html>, Accessed 13 April 2019.
[248]<https://medium.com/@oleksii_kh/ai-is-entering-judicial-system-do-we-want-it-there-632f56347c51>, Accessed 13 April 2019.

3 Concept of fair trial under Article 6 of the ECHR and AI

3.1 Definition of fair trial under Article 6 of the ECHR

Article 6 of European Convention on Human Rights guarantees everyone the right to a fair trial. The Article applies when person's rights and duties, or criminal charges against them are decided.[249] Principles of a fair trial are also elaborated in numerous United Nations ('UN') treaties, declarations, and guiding principles. Article 6 of the ECHR safeguards certain processual rights and thus gives the process certain guarantees to reach certain already existing rights.[250] Article 6 paragraph 1 of the ECHR states the following:

"*In determination of his civil rights and obligations or of any criminal charge against him, everyone is entitled to a fair and public hearing within a reasonable time by an independent and impartial tribunal established by law. Judgement shall be pronounced publicly but the press and public may be excluded from all or part of the trial in the interests of morals, public order or national security in a democratic society, where the interests of juveniles or the protection of the private life of the parties so require, or to the extant strictly necessary in the opinion of the court in special circumstances where publicity would prejudice the interests of justice*".

Article 6 paragraph 1 of the ECHR applies to all legal processes: civil process, administrative process, and criminal process.[251] Paragraphs 2 and 3 apply only to criminal processes, and because of this, this thesis will be focusing only on paragraph 1 of the Article 6 of the ECHR. Typically, the right to a fair trial concerns trials in a court.[252] Additionally, in some cases it concerns stages before and after the court proceeding.[253] In criminal cases, the standards of fair trial concern where applicable also pre-trial investigation and prosecution.[254] In an individual case, the judge is the

[249] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 304.
[250] *Ibid.*
[251] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 305.
[252] *Ibid.*
[253] *Ibid.*
[254] *Ibid*., ECtHR, *Salduz v. Turkey*, no. 36391/02, 27.11.2008, § 50.

one who has to take care that the standards of fair trial are respected.[255] Additionally, all public authorities such as prosecutors, police, and other authorities are also responsible for securing the standards of fair trial.[256]

According to Article 1 of the ECHR, the contracting State commits to the guaranteeing the rights and freedoms as defined by the Convention, to all people under its jurisdiction.[257] In Finland, the right to a fair trial has been additionally secured in the Constitution of Finland in paragraph 21.

Finland has had many cases regarding the right to a fair trial in the European Court of Human Rights.[258] More than half (60.37 %) of the findings of violations in Finland concerned Article 6 of the ECHR, which has to do with length of the proceedings.[259] Length of the proceedings is a common problem not only in Finland, but in other States as well.

As long as the question is of a case that includes "civil right and obligations" or "criminal charges" the person has a right to a fair trial according to Article 6 of the ECHR. The standards for a fair trial are that there is at least: the right to a fair and public trial, a reasonable time requirement, an independent and impartial tribunal, and a public pronouncing of judgements.[260] Additionally, the Article includes elements that cannot be read straight from the wording of the Article.[261] These are, for example, access to court, equality of arms, and right to get a reasoned judgement.[262]

According to the Article 6 paragraph 1 of the ECHR "Everyone is entitled to a fair…hearing by a tribunal…". The requirement of fairness applies to the proceedings

[255] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 306.
[256] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 307.
[257] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 305.
[258] <https://rm.coe.int/1680709748> Accessed 2 May 2019.
[259]<https://www.echr.coe.int/Documents/Facts_Figures_Finland_ENG.pdf > Accessed 2 May 2019.
[260] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 365.
[261] *Ibid.*
[262] *Ibid.*

in their entity and it is not confined to the hearing between parties.[263] Whether or not the proceedings are fair is determined examining the proceedings in their entity.[264]

It has been stated in the European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment that, "When AI tools are used to resolve a dispute or as a tool to assist in judicial decision-making or to give guidance to the public, it is essential to ensure that they do not undermine the guarantees of the right of access to the judge and the right to a fair trial (equality of arms and respect for the adversarial process)."[265] AI tools must be used with due to respect for the principle of the rule of law and judges' independence in their decision-making process.[266]

In the following chapter the elements of fair trial, that the author believes are first endangered by the use of AI, are compared with the examples of the use of AI in the court proceedings. These elements are reasonable time requirement, independent and impartial tribunal, equality of arms, immediacy and right to get reasoned judgement.[267]

[263] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p.50, ECtHR, *Stran Greek Refineries and Stratis Andreadia v Greece*, no. 13427/87, 9.12.1994, § 49.
[264] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p. 52.
[265] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 8.
[266] *Ibid.*
[267] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 365.

3.2 How artificial intelligence affects the elements of fair trial?

3.2.1 Reasonable time requirement

3.2.1.1 Definition

According to Article 6 of the ECHR everyone is entitled to a fair and public hearing within a reasonable time. The purpose of this rule is to protect the parties of the case from unreasonable prolongation of the proceedings.[268] Prolongation of the proceedings might endanger the effectiveness and credibility of the process.[269]

The reasonable time requirement concerns all criminal, civil and administrative cases.[270] In civil cases, the length of the proceedings is typically measured from the moment the action was instituted before the competent court.[271] In criminal cases, the length of the proceedings is measured when the applicant has heard for the first time that or he or she has been targeted by security action.[272] In administrative cases, the length of the proceedings is typically measured from the arrival of the appeal to a court.[273] The time taken into account ends in civil, criminal, and administrative proceedings when the highest court gives its final judgement and the proceedings actually become effective.[274]

The reasonableness of the length of the proceedings must be assessed individually in each case and the particular circumstances of the case must be taken into account.[275] The reasonableness of the length of proceedings must be assessed in the light of the

[268] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 462.
[269] *Ibid.*
[270] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 463.
[271] *Ibid.*, ECtHR, *Petikon Oy and Parviainen v. Finland,* no. 26189/06, 27.1.2009, § 27, European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p. 74.
[272] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 464.
[273] *Ibid.*
[274] *Ibid.*
[275] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p. 75, ECtHR, *Frydler v. France*, no.30979/96, 27.6.2000, § 43.

following criteria: the complexity of the case, the conduct of the applicant and the relevant authorities and what was at stake for the applicant in the case.[276] The complexity of a case may relate to both to the facts of the case and to the law.[277] It is possible that the complexity of the domestic proceedings explains the length of the proceedings.[278] Furthermore, applicant's behaviour constitutes an objective fact which might affect the length of the proceedings, and cannot be attributed to the respondent State.[279] This must be taken into account when determining whether the reasonable time has exceeded.[280] Only delays attributable to the respondent State may justify a failure to comply with the reasonable time requirement.[281] It must be noted, that the State is also responsible for its authorities.[282]

Finland has had many judgements from the ECtHR regarding the reasonable time requirement, and the length of the proceedings.[283] More than half (60.37 %) of the findings of violations in Finland concerned Article 6 of the ECHR, which has to do with length of the proceedings.[284] For example, on 3 November 2009 ECtHR gave three judgement where it ruled that Finland had too lengthy proceedings.[285] In these judgements, the proceeding in the three court instances had lasted from six to nine years.

3.2.1.2 Artificial intelligence and reasonable time

The use of artificial intelligence can significantly speed up the court proceedings, since going through large databases to find, for example, relevant case law, is the most time consuming part for humans. From the four examples of the use of AI introduced in

[276] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p. 75.
[277] *Ibid.*
[278] *Ibid.*
[279] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p. 76.
[280] *Ibid.*
[281] *Ibid.*
[282] *Ibid.*
[283] <https://www.echr.coe.int/Documents/Facts_Figures_Finland_ENG.pdf>, Accessed 2 May 2019.
[284] *Ibid.*
[285]<http://finland.org.in/public/default.aspx?contentid=179698&nodeid=34935&contentlan=1&culture=fi-FI> Accessed 12 April 2019.

Chapter 2, examples 1, 2 and 3 (AI used for collecting and sorting out information, AI used for suggesting and predicting decisions, AI in the decision-making) would have an effect on the reasonable time requirement.

Today, most legal research happens through various legal databases that are searchable through algorithms online.[286] Algorithms are more effective than humans in terms of capacity and speed.[287] AI can be used tools as for example finding information and materials for the judge to decide the case.[288] AIs are able to decide simple cases much faster, and with more accuracy, than a human being ever could, and this would in turn increase judicial efficiency.[289] As mentioned earlier, the use of the AIPA-system can bring together all the documents that the authorities use, and with the help of AI these documents can be exploited more effectively. AI can be also used in the automatic anonymization of decisions, which would speed up the whole process, and help to keep the public informed about the decisions.

Thus, the use of AI tools in the court proceeding can have positive effects from the point of view of the principle of reasonable time. AI can go through large data bases and help to collect information. AI can also be used to predict the judgements by the judges and even before an individual decides to take the case in to a court. AI could be used to decide simple cases and even help with the anonymization of the decisions.

[286] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 51.
[287] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 52.
[288] Interview with Marko Loisa the head of the AIPA-project, 1 March 2019.
[289] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 57.

3.2.2 Independecy and impartiality

3.2.2.1 Definition

The right to a fair trial in Article 6 paragraph 1 of the ECHR requires that a case be heard by an 'independent and impartial tribunal' established by law.[290] Basis for the independent and impartial tribunal are in a close relation with each other, and as such are often considered together, and so are they in this thesis. A tribunal that is not independent is unlikely to be impartial either.[291] Courts are formed by judges and thus it is required that judges are also independent and impartial.

Independency requires independency regarding executive power and independency regarding the parties of the case. In determining whether a judicial body can be considered to be 'independent,' the ECtHR has outlined the following criteria[292]: the manner of appointment of its members and the duration of their term of office; the existence of guarantees against outside pressure, and whether the body presents an appearance of independence. Additionally, a court should be fully independent of the executive and of the parties to a dispute.[293] States must also ensure that there are safeguards to preserve the independence of the judiciary.[294]

Article 6 paragraph 1 of the ECHR also requires a tribunal to be impartial. Impartiality means that the tribunal or its judges are not challengeable, nor they do they have any bias towards the issue in question.[295] There are two aspects to the impartiality. First, judges of the court must be subjectively impartial, which means that they must act

[290] European Court of Human Rights Guide on Article 6, Right to a fair trial, criminal limb, p. 15.
[291] Ihmisoikeudet - Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 475.
[292] ECtHR, *Findlay v. the United Kingdom*, Application no. 22107/93, § 73.
[293] International Human Rights Law, D. Moeckli, S. Shah and S. Sivakumaran, 2nd edition, Oxford University Press, 2014, p. 275.
[294] *Ibid.*
[295] Ihmisoikeudet - Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Taletnt 2017, p. 481.

without any personal bias towards either party. Secondly, the judges must not allow for preconceptions about the action before them.[296]

In order to satisfy the required impartiality of a tribunal as a condition to fair trial in Article 6 paragraph 1, the tribunal must comply with both a subjective and an objective test.[297] According to the case-law: "The existence of impartiality for the purposes of Article 6 of the Convention must be determined according to a subjective test, that is based on the personal conviction of a particular judge in a given case, and also according to an objective test, that is ascertaining whether the judge offered guarantees sufficient to exclude any legitimate doubt in this respect".[298] The court and its judges must appear to the impartial observer to be free from bias.[299]

3.2.2.2 Artificial intelligence, independency and impartiality

It has been assumed as a fact that AI used in judiciary may have indirect effects on the independency and impartiality of the judiciary, especially in systems where the independence of the judiciary is not fully achieved. In these systems, there is a risk of indirect pressure towards judges when decisions are made, and this risk cannot be ruled out.[300] From the four examples of the use of AI introduced in Chapter 2 at least examples 1, 2 and 3 (AI used for collecting and sorting out information, AI used for suggesting and predicting decisions, AI in the decision-making) can affect the independency and impartiality of the judiciary.

AI tools should be used with due to respect for the principle of the rule of law, and judges' independence in their decision-making process.[301] From the perspective of the

[296] International Human Rights Law, D. Moeckli, S. Shah and S. Sivakumaran, 2nd edition, Oxford University Press, 2014, p. 275.
[297] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31 December 2018, Council of Europe p. 45
[298] ECtHR, *Hauschildt v. Denmark,*, 24.5.1989, § 46.
[299] International Human Rights Law, D. Moeckli, S. Shah and S. Sivakumaran, 2nd edition, Oxford University Press, 2014, p. 275.
[300] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 48.
[301] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 8.

use of AI, the main element is whether the court presents an appearance of independence. Thus, when using AI tools in the court proceedings it should be considered, whether the AI can be independent, and can the use of AI affect the appearance of independence of the court in question.

At least three sources of AI bias can be recognized. First, implicit bias, which can be absorbed automatically in the utilization of machine learning from ordinary cultures.[302] Second, accidental bias, which can be introduced through ignorance by an insufficiently diverse or uncareful development teams.[303] And finally, deliberate bias, in which biases are introduced intentionally.[304]

In order to develop an AI algorithm, data sets are used, and the information is collected and fed to AI to humanize its reasoning.[305] This is done by humans. AI learns from what humans have written, filmed or recorded, and as a result it can be argued that AI is almost as impartial or biased as a human is.[306] This means that if AI is used as a part of the court proceedings for sorting out facts or suggesting decisions, and the AI itself is biased, the whole decision made by the judges might be discriminatory. This has been seen with the COMPAS system that is used in the United States and was introduced in Chapter 2.2.5.[307] AI would be pressuring the judges to make a decision that is not independently made and that could affect the appearance of independence of the court.

The principle of impartiality can be also affected by the use of AI. It is possible that AI processing methods could reveal existing discrimination through grouping or

[302]Presented at hig-level conference, 26-27 February 2019, Helsinki, Finland <https://rm.coe.int/conference-report-28march-final-1-/168093bc52> p. 4, Accessed 2 May 2019.
[303] *Ibid.*
[304] *Ibid.*
[305] <https://medium.com/@oleksii_kh/ai-is-entering-judicial-system-do-we-want-it-there-632f56347c51>, Accessed 13 April 2019.
[306] *Ibid.*
[307] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 52.

classifying of data relating to individuals or groups of individuals[308], but it can be also the other way around, and AI can be found to be biased. According to European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, public and private stakeholders must ensure that the AI processing methods do not reproduce or aggravate discrimination and that they do not lead to deterministic analyses or uses.[309]

According to the Charter, designers of the machine learning models should be able to draw widely on the expertise of the relevant justice system professionals such as judges, prosecutors, and lawyers.[310] This could be a way to minimise the rise of biased AIs.

As stated earlier, AI could potentially help judges to be more impartial. In theory, AI should offer complete impartiality, free from human fallibilities and prejudices.[311] According to the Charter, the use of machine learning to combat discrimination should be encouraged.[312] Machine learning recognises patterns within data and then makes decisions based on such pattern recognition. If the input data is changed in some way, then the likehood is that the patterns generated will be similarly flawed.[313] Thus, the data that has been entered into the software that the AI algorithm uses has a great impact on the outcome of the process, and this can affect the impartiality of the judiciary.

It has been suggested in the Charter that: "Data based on judicial decisions that is entered into a software which implements a machine learning algorithm should come from certified sources and should not be modified until they have actually been used by the learning mechanism. The whole process must therefore be traceable to ensure

[308] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 9.
[309] *Ibid.*
[310] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 10.
[311] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2018, p. 377.
[312] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 9.
[313] Robot Rules – Regulating Artificial Intelligence, J. Turner, 2018, p. 338.

that no modification has occurred to alter the content or meaning of the decision being processed".[314] The neutrality of algorithms is a myth, since their creators consciously or unintentionally transfer their own value systems into the algorithms.[315]

Thus, it can be concluded that AI is not necessarily impartial while creating or recommending decisions. It has been stated that AI might be affected by the information that has been fed to it, but also by the information that has not been fed to it. Its decisions can be also affected by the bias of that person who decides what kind of information is fed to the machine. It must be also noted that it is almost impossible to check the information fed to the machine, and thus control of bias is extremely hard. This should be enough to prove that the use of AI systems in the court proceedings could harm the independence of the judiciary and the impartiality of the process.

3.2.3 Equality of arms

3.2.3.1 Definition

Although equality of arms is not explicitly provided in the provisions concerning fair trial, all human rights bodies have confirmed that there is a right to access courts of first instance, and that all individuals must have an equal chance to pursue their legal rights.[316]

The right to a fair trial under Article 6 of the ECHR requires the parties to be equal in the trial, and this principle is called the equality of arms. Equality of arms applies to both criminal and civil proceedings and it includes the idea that there is an equal and fair balance between the parties.[317] Equality of arms provides that all parties should

[314] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 10.
[315] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 57.
[316] International Human Rights Law, D. Moeckli, S. Shah and S. Sivakumaran, 2nd edition, Oxford University Press, 2014, p. 273.
[317] Ihmisoikeudet - Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 390.

have same procedural rights unless there is an objective and reasonable justification not to do so, and there is not significant disadvantage to either party.[318]

3.2.3.2 Equality of arms and AI

From the four examples of the use of AI introduced in Chapter 2 at least examples 2 and 3 (AI used for suggesting and predicting decisions and AI in the appeal process) can affect the principle of equality of arms.

Predictive justice systems are designed to be used by legal departments, insurers and lawyers to anticipate the outcome of litigation.[319] They provide a graphic representation of the probability of success for each outcome of a dispute based on criteria entered by the user.[320] This can endanger the principle of the equality of arms, since they could cause imbalances between the parties who have different technological abilities.

The European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment has verified this since it has been stated in the Charter that: "The use of technological means should not cause imbalances between parties, since the use of digital means can indeed facilitate proceedings for certain operators and, on the contrary, pose difficulties for certain population types that are more uncertain or less familiar with computers. It is important that individuals are not left alone in front of their screens, and that they are informed that they can seek legal advice and are assisted where necessary".[321] In a situation where either "chatbots" or other predictive justice systems are used, the balance and equality between the parties can be undermined.

[318] International Human Rights Law, D. Moeckli, S. Shah and S. Sivakumaran, 2nd edition, Oxford University Press, 2014, p. 274.
[319] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 30.
[320] *Ibid.*
[321] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 48.

Additionally, the consequences of the use of AI are seen in the appeal process. If AI is drafting a judgement or even a part of a judgement for a human judge, the logic behind the decision-making and reasoning of the AI must be shown to the applicant at least in a form of a decision tree. Again, imbalances between the parties who have different technological abilities could make the appeal process incredibly hard, and thus affect the principle of equality of arms.

It is possible that the parties would be imbalanced because of their different technological abilities or for example because of their age. Hence, the use of predictive justice systems can cause imbalances between the parties and violate the equality of arms principle.

3.2.4 Immediacy

3.2.4.1 Definition

Immediacy is one of the most important elements to a fair trial in a criminal process. The principle of immediacy applies also to civil processes, but it is looser in the civil cases.[322]

The principle of immediacy has two main elements: the possibility to present the trial materials instantaneously to the tribunal, and that the tribunal should have the same judges for the duration of the proceedings, and the decision of the case.[323] The trial must base the decisions directly to the facts that have been presented and proposed in the hearing.[324] The principle of immediacy also requires that all relevant facts and evidences must be presented to the members of the tribunal by straight means that are detected by sense of sight or sense of hearing.[325]

[322] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 418.
[323] *Ibid.*
[324] *Ibid.*
[325] *Ibid.*

3.2.4.2 Artificial intelligence and immediacy

As suggested earlier, AI can be used in the court proceedings for collecting and sorting out information, suggesting and predicting decisions and in the decision-making process. At least examples 1 and 3 introduced in Chapter 2 (AI used in the court proceedings for collecting and sorting out information and AI used for decision-making) can affect the principle of immediacy.

It has been suggested that legal research and decision-making are interdependent.[326] An example of this would be the following command to AI:" Find the most relevant sources for case x and list them in order of their appearance in the (future) decision draft."[327] This example shows that even if a certain AI is only meant to do legal research, it might already anticipate the judgement for the case since otherwise it cannot do the research[328]. AI is thus giving guidelines for the judge on how to decide the case, which means that a judge might base his or her decisions into some other AI generated materials than the actual trial materials.

This would be even more clear in a situation where AI is actually taking part to the decision-making or even deciding plain cases autonomously. The Charter has suggested that parties must be clearly informed of any prior processing of a case by AI before or during a judicial process and have right to object, so that the case can be heard directly by a court within the meaning of Article 6 of the ECHR."[329]

It must be noted that here are always some bias in the judiciary and it is impossible to totally eliminate them. Therefore, it is possible that the use of AI in the process could increase the already existing bias, and this might in the end affect the principle of immediacy.

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[326] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 52.
[327] *Ibid.*
[328] *Ibid.*
[329] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 12.

3.2.5 Reasoning of judicial decisions

3.2.5.1 Definition

Fair trial under Article 6 paragraph 1 of the ECHR requires that courts give sufficient reasoning for their decisions in criminal, civil and administrative issues.[330] Domestic courts have wide margin of appreciation regarding how they form their decisions.[331] Article 6 of the ECHR does not guarantee a right to appeal. However, if the domestic legal order guarantees an opportunity to appeal, Article 6 of the ECHR applies to every stage of the appeal process and thus the right to a fair trial should be respected also in the appeal process.[332]

Decisions must include the reasons by which the decision is based so that the appellant can use his or her right to appeal.[333] It is also crucial that parties see that their case has been heard.[334] Sufficient reasoning gives an opportunity for the appellant to review that his or her arguments have been examined, and an opportunity for the public to assess the jurisdiction.[335]

The extent to which the duty to give reasons applies varies according to the nature of the decisions and can be determined individually in the light of the circumstances of a certain case.[336] It is for example necessary to take into account the diversity of the submissions and the differences existing in the Contacting States with regard to statutory provisions, customary rules, legal opinion, and the presentation and drafting of judgements.[337]

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[330] Ihmisoikeudet - Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 437.
[331] *Ibid.*
[332] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 334.
[333] Ihmisoikeudet - Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 437, ECtHR, *Hadjianastassiou v. Greece*, no. 12945/87,16.12.1992, § 33.
[334] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p. 66.
[335] Ihmisoikeudet - Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 437, ECtHR, *Tatishvili v. Russia*, no. 1509/02, 22.2.2007, § 58.
[336] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p. 66.
[337] *Ibid.*

3.2.5.2 Artificial intelligence and reasoning of judicial decisions

When AI tools are used as a part of the court proceedings in one some way, this has always some affects to the reasoning of the judicial decisions. AI does not think like human and it cannot form a clear reasoning for its decisions on its own. Proper reasoning for the decision is especially important when appealing, so the way that the use of AI has been taken into account during the appeal process (example 4) might have the greatest affect on the reasoning of judicial decisions.

Transparency is the greatest problem relating to the reasoning of judicial decisions and AI. The European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment has stated that there must be a balance between the intellectual property of certain processing methods and the need for transparency, impartiality, fairness and intellectual integrity when AI tools are used that may have legal consequences or may affects people's lives.[338] This means that these measures should be applied to the whole design and operating chain as the selection process and the quality and organisation of data directly influences the learning phase of an algorithm.[339]

AIs consist of logical decision trees which are like mind maps, giving an explanation on how the AI came up with a certain decision. A decision tree shows all the possible outcomes of a case and helps to evaluate the costs, risks and outcomes of each outcome.[340] Decision tree lists the most likely ways of the outcome of the case.[341] It is only possible to see the whole idea behind the AIs "mind" by opening the whole decision tree. The outcome of decisions including decision trees would be most likely interesting looking and very hard to follow.

[338] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 11.
[339] *Ibid.*
[340] <http://decisiontree.kleinmediation.com/site/about>, Accessed 13 April 2019.
[341] *Ibid.*

Decisions should include the reasons where by which the decision is based, so that the appellant can use his or her right to appeal[342] With the use of AI, these requirements would most likely not be fulfilled, and the reasoning of judgements would change dramatically. It is also important that parties see that their case has been heard.[343] It is hard to create a code of human behaviour since the human behaviour must be transferred into numbers to enable the machine to interpret it. Thus, it would be essential to see how the machine is doing this, and this would be extremely hard to see.

[342] Ihmisoikeudet - Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 437, ECtHR, *Hadjianastassiou v. Greece*, no. 12945/87,16.12.1992, § 33.
[343] European Court of Human Rights Guide on Article 6, Right to a fair trial, civil limb, 31.12.2018, Council of Europe, p. 66.

3.3 How does the use of artificial intelligence affect the concept of fair trial?

3.3.1 Positive implications

There is no doubt that the use of AI in the court proceedings could be very useful in generating processing of the judicial workload faster and more efficient.[344] The use of AI in the court proceedings could strengthen the guarantees of the rule of law and the quality of public justice.[345] All in all, algorithms are more effective than humans in terms of capacity and speed.[346]

The following ways to involve AI in the court proceedings could all have positive implications regarding the reasonable time requirement set out in the Article 6 of the ECHR: 1) AI used for collecting and sorting out information, 2) AI used for suggesting and predicting decisions, and 3) AI in the decision making.

AI systems can go through large data bases and help to collect information. AI can be used to predict the judgements by the judges and even before an individual decides to take the case in to a court. AI can be used to decide plain cases and even help with the anonymization of the decisions. There can be less mistakes in the proceedings, since AI could eliminate human failures. AI could also promote the legal certainty with the possibilities of doing more research than it is possible for human to do.

Finland has received many judgements from the ECtHR regarding the reasonable time and the length of the proceedings.[347] The reason for this is the lack of time following

[344] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 15.
[345] European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, European Commission for the efficiency of justice, Adopted 3-4 December 2018, p. 16.
[346] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 52.
[347] <https://www.echr.coe.int/Documents/Facts_Figures_Finland_ENG.pdf> Accessed 2 April 2019.

from the lack of judges[348] and the fact that the same process is often repeated twice, first in the District Court and after that in the Court of Appeal[349]. This also takes a lot of time. Hence, the use of AI in the court proceedings can help to avoid these kinds of violations regarding the reasonable time requirement.

AI systems could also help to reduce biased rulings, that could be influenced by a defendant's race, gender, or appearance.[350] As such, the use of AI can also have positive implications regarding independency and impartiality of the judiciary. However, it is debatable whether AIs are actually impartial or not since they have the potential to be as biased as ordinary humans.

All in all, keeping the idea of fair trial in mind, there are not too many purely positive implications with regards to using artificial intelligence in court proceedings.

3.3.2 Negative implications

As stated in the report by the Secretary General of the Council of Europe: "The Council of Europe should also further address the potential misuse and negative impact of artificial intelligence on human rights."[351] The report in question underlines the growing concern about the broader implications of the use, and possible abuse, of automated data processing and so does this thesis.[352]

AI can potentially bring many benefits to the society. However, the Secretary General of the Council of Europe has stated that:" progress in this area must not be made at the expense of European core values. The risks that accompany these innovations should

[348]<https://www.ts.fi/uutiset/kotimaa/1074346607/Suomen+ylipitkat+oikeusprosessit+lisaavat+myos+ihmisoikeustuomioistuimen+tyomaaraa> Accessed 26 May 2019.
[349] <https://www.hs.fi/kotimaa/art-2000005730263.html>, Accessed 26 May 2019.
[350]<https://learningenglish.voanews.com/a/ai-used-by-judges-to-rule-on-prisoners/4236134.html>, Accessed 13 April 2019.
[351] Report by the Secretary General for the Ministerial Session in Helsinki, 16 - 17 May 2019, Ready for the Future Challenges – Reinforcing the Council of Europe, T. Jagland, p. 31.
[352] *Ibid.*

not be ignored."[353] It is questionable whether innovations like AI might undermine the human rights, democracy, and rule of law.[354]

This research focuses on the right to a fair trial which is one of the core human rights. This thesis has found many possible negative implications following from the use of AI in regards to the right to a fair trial, and its core elements. These negative implications are summarized in the following paragraph.

The use of AI systems in the court proceedings can harm the independency of the judiciary and the impartiality of the process. Algorithms are created by humans, and the information fed to the systems is selected by humans. This can lead to a situation where the AI is getting biased because of its creator. In the case where AI is used as a part of the court proceedings for sorting out facts or suggesting decisions, and the AI itself is biased, the whole decision made by the judges might be discriminatory. AI could be pressuring the judges to make a decision that is not independently made and that can negatively affect the appearance of independence of the court. However, it must be noted that the programmers, without any judicial background, are most likely more easily influenced than the judges. This should be taken into account, and maybe the programmers should also receive some legal training to avoid bias.

Imbalances between the parties who have different technological abilities could also make the appeal process incredibly hard, and thus affect the principle of equality of arms. Furthermore, the use of predictive justice systems can cause imbalances between the parties and have negative implications for the principle of the equality of arms.

It is possible in some cases, that even if a certain AI is only meant to do legal research, it might already have to anticipate the judgement for the case if it cannot otherwise do the required research.[355] Data given to AI can reflect the social and cultural contexts within which they are gathered, and if AI is fed with data that has existing prejudices,

[353] Report by the Secretary General for the Ministerial Session in Helsinki, 16 - 17 May 2019, Ready for the Future Challenges – Reinforcing the Council of Europe, T. Jagland, p. 31.
[354] *Ibid.*
[355] Artificial Intelligence in Court – Legitimacy Problems of AI Assistance in the Judiciary, T.J. Buocz, Volume 2, Number 1, 2018, p. 41-59, p. 52.

the AI might mirror these prejudices.[356] AI in this case would be giving guidelines for the judge on how to decide the case, which would mean that judges might base their decisions on some other AI generated materials. This would have negative implications for the principle of immediacy.

Since AIs consist of logical decision trees which are similar to mind maps, they can serve as an explanation of how the AI came up with a certain decision and be included in the reasoning of decisions. This would make the whole reasoning of the decisions complicated to understand, it would lack transparency, and it would not be a sufficient reasoning for a decision.

All in all, it seems that there would be more negative implications, than positive implications following from the use of AI in the court proceedings.

[356] Presented at hig-level conference, 26-27 February 2019, Helsinki, Finland <https://rm.coe.int/conference-report-28march-final-1-/168093bc52> p. 9, Accessed 2 May 2019.

4 Concluding remarks

As the author has now established, the right to a fair trial is one of the most fundamental human rights. Article 6 of European Convention on Human Rights guarantees everyone the right to a fair trial. The Article applies when a person's rights and duties or criminal charges against him or her are decided.[357] Principles of the fair trial are also elaborated in numerous UN treaties, declarations, and guiding principles. Article 6 of the ECHR safeguards certain processual rights and thus gives the process certain processual guarantees to reach certain already existing rights.[358]

However, the right to a fair trial is also the right that has brought Finland the most of the violations from the ECtHR. Finland has received all in all 140 judgements from the ECtHR finding a human rights violation, and in 60.37 % of these judgements the violations found concerned Article 6 of the ECHR.[359]

Considering the violations that Finland has received from the ECtHR, it is understandable that Finland wants to bring the use of artificial intelligence into the judiciary. There are many positive implications such as AI being faster than human mind can ever be. The use of AI in the court proceeding speeds up the whole process. AI can potentially improve legal protection and legal certainty. This can in addition save a lot of money. AI could act as oversight over justice structures, monitor the legal process, and have control over the accountability of the judicial system.[360] In addition, there could be less mistakes in the proceedings, since AI can eliminate human failures.

As the Secretary General of the European Council T. Jagland has stated:" Progress in this area must not be made at the expense of European core values. The risks that

[357] Ihmisoikeudet – Käsikirja EIT:n oikeuskäytäntöön, P. Hirvelä, S. Heikkilä, Alma Talent, 2017, p. 304.
[358] *Ibid.*
[359] <https://www.echr.coe.int/Documents/Facts_Figures_Finland_ENG.pdf > Accessed 2 May 2019.
[360]<https://medium.com/@oleksii_kh/ai-is-entering-judicial-system-do-we-want-it-there-632f56347c51>, Accessed 13 April 2019.

accompany these innovations should not be ignored."[361] The author completely agrees with this statement.

The use of AI in the court proceedings can have negative implications on the elements of fair trial. The use of AI systems in the court proceedings can harm the independency of the judiciary and the impartiality of the process. Imbalances between the parties who have different technological abilities can make the appeal process incredibly hard, and in turn affect the principle of equality of arms. Furthermore, the use of predictive justice systems might cause imbalances between the parties and have negative implications for the principle of the equality of arms. AI may already anticipate the judgement for the case since otherwise it cannot effectively do the research. AI would then be giving guidelines for the judge on how to decide the case, which would mean that judge might base his or her decisions into some other AI generated materials. This would have negative implications for the principle of immediacy. The use of AI in the court proceedings could make the whole reasoning of the decisions complicated to understand, it would lack transparency, and it would not be a sufficient reasoning for a decision.

The high-level conference "Governing the Game Changer – Impacts of artificial intelligence development on human rights, democracy and the rule of law" was co-organized by the Finnish Presidency of the Council of Europe Committee of Ministers and the Council of Europe on 26-27 February 2019 in Helsinki, Finland.[362] This conference opened a discussion regarding AI's impact on human rights and introduced solutions on what to do in the future.[363]

Several declarations, charters, and conventions were mentioned in the conference. European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment by CEPEJ, Declaration by the Committee of Ministers on the

[361] Report by the Secretary General for the Ministerial Session in Helsinki, 16 - 17 May 2019, Ready for the Future Challenges – Reinforcing the Council of Europe, T. Jagland, p. 31.
[362] Presented at hig-level conference, 26-27 February 2019, Helsinki, Finland <https://rm.coe.int/conference-report-28march-final-1-/168093bc52> Accessed 2 May 2019.
[363] *Ibid.*

manipulative capabilities of algorithm processes[364] and new Guidelines on Artificial intelligence and data protection[365] were pointed out as current activity in the area. The Secretary General of the European Council T. Jagland stated that: "However, more needs to be done…Measures need to be taken for predicting and counter acting technologies being used against innocent people. This includes the possibility of a binding Framework Convention to ensure that AI is designed, developed, and applied in line with European standards on human rights, democracy, and the rule of law."[366]

The conference was concluded by stating that we need stronger guidelines, ethical frameworks are useful, but they should be based on legal standards.[367] The author agrees with this view, however also believes that more research in this area needs to be done.

[364] <https://search.coe.int/cm/pages/result_details.aspx?ObjectId=090000168092dd4b> Accessed 2 May 2019.
[365]<https://rm.coe.int/guidelines-on-artificial-intelligence-and-data-protection/168091f9d8> 2 May 2019.
[366] Presented at hig-level conference, 26-27 February 2019, Helsinki, Finland <https://rm.coe.int/conference-report-28march-final-1-/168093bc52> p. 3 Accessed 2 may 2019.
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