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EL PROCESO EN TIEMPOS DE CAMBIO

VII PROCESSULUS

ENCUENTRO DE JÓVENES INVESTIGADORES
EN DERECHO PROCESAL

Obra dirigida por:

Paloma Arrabal Platero

Obra coordinada por:

Jesús Conde Fuentes
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EMOTIONAL BIOMETRICS: A PRELIMINARY ANALYSIS OF CRITICAL ASPECTS CONCERNING THE USE OF THE LAST AI FRONTIER IN CRIMINAL PROCEDURE

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ABSTRACT: This work deals with the critical implications of the possible implementation of emotional biometric techniques based on artificial intelligence in criminal proceedings, with a particular focus on their use for assessing the reliability of declarations given by witnesses and defendants. The introduction of such technology in criminal trials would raise problematic issues for multiple aspects of the criminal procedure, many of them unprecedented compared to those related to other already known similar instruments. In the past, lawyers and scholars have already confronted with techniques such as polygraph or Functional Magnetic Resonance Imaging (fMRI), highlighting the problems related to their use in a criminal trial. However, emotional biometric techniques based on artificial intelligence exacerbate these problems and pose new ones. The aim of this work is to develop a preliminary analysis of issues and perspectives of the use of such kind of software under three viewpoints: the possible impact on the declarant's moral freedom; the incidence on the effectiveness of the adversarial principle; the impingement on the legitimacy of the judge.

Este trabajo aborda algunas de las implicaciones de la posible implementación de técnicas biométricas de detección de emociones basadas en inteligencia artificial en el proceso penal, y en especial su uso para evaluar la fiabilidad de las declaraciones de testigos y acusados. La introducción de esta tecnología en el juicio plantearía cuestiones problemáticas sobre múltiples aspectos del proceso penal, muchas de ellas inéditas en comparación con

otros instrumentos similares, como el polígrafo o la Resonancia Magnética Funcional (fMRI). El objetivo de este trabajo es desarrollar un análisis preliminar de los problemas y de las perspectivas de la utilización de este tipo de *software* bajo tres puntos de vista: el posible impacto sobre la libertad moral del declarante; la incidencia en el despliegue efectivo del principio contradictorio; la afectación de la legitimidad del juez.

KEYWORDS: emotion recognition; artificial intelligence; moral freedom; adversarial principle; judge's legitimacy.

PALABRAS CLAVES: reconocimiento de emociones; inteligencia artificial; libertad moral; principio contradictorio; legitimidad del juez.

1. Introduction

The use of scientific tools in order to assess the truthfulness of witnesses and defendants' declarations during a criminal proceeding is not new. The natural inclination of criminal trial to search — or rather, to reconstruct — the truth[1] has led to a cyclic re-emergence of the debate on this subject, revived by each new «discovery» of more or less scientifically solid lie-detecting methods[2]. It was therefore only a matter of time for the new artificial intelligence techniques to bring the dispute back to the scene.

The latest artificial intelligence[3] applications[4] seem to be able to infer the emotional state of a person on the base of the analysis of elements such as

1 On the subject of relationship between truth, evidence and criminal trial in general, see for all Ferrua, La prova nel processo penale, Giappichelli, 2017; Taruffo, Verità e prova nel processo, in Riv. trim. dir. e proc. civ., 2018, n.° 4, 1305 ss.; Ferrer Beltrán, Prueba y verdad en el derecho, Marcial Pons, 2005.

2 On the the methods of lie-detecting that could be used in criminal proceedings in general see, Villamarín López, Neurociencia y detección de la verdad y del engaño en el proceso penal: el Uso del escáner cerebral (fMRI) y del brainfingerprinting (P300), Marcial Pons, Ediciones Jurídicas y Sociales, 2015.

3 Hereinafter, also «AI».

4 On the concrete functioning of these techniques, see EPRS, Person identification, human rights and ethical principles. Rethinking biometrics in the era of artificial intelligence, available at https://www.europarl.europa.eu/stoa/en/document/EPRS_STU(2021)697191, which explicates that emotion recognition relies on machine learning and that «the algorithms used for emotion recognition are often trained with data from databases in which individuals pose, representing manifestations of specific emotions. It is sometimes amalgamated with 'facial expression analysis', understood as 'systems that attempt to automatically analyze and recognize facial motions and facial feature changes from visual information'. In addition to or instead of faces as such, could be analysed for the purposes of emotion recognition body movements or voice tone, for instance. Emotion recognition is indeed not necessarily connected to the visual reading of body expressions but may also occur through sound». Also see Dirin, AI-based Facial Recognition in Emotional Detection, research paper, June 2019, 3; EDPS-TechDispatch # 1_2021, Facial Emotion Recognition,

the movements of the facial muscles and of the body, the tone of voice and other biometric signals[5].

In this scenario, the new proposal for a European regulation put forward by the Commission in April 2021[6], which aspires to a common European regulation on artificial intelligence, makes some preliminary reflections on the subject especially relevant and quite urgent.

The proposal classifies the technologies used in the field of law enforcement to scrutinize the emotional state of a person as «high risk» AI. This means that, in order to circulate in the market, this kind of software must comply with a series of technical requirements that ensure, among other things, the reliability, traceability and therefore the verifiability of the results. However, there are no specific procedural rules and guarantees related to the use of similar systems in criminal proceedings.

European Data Protection Supervisor, 1; Buolamwini, Vicente Ordóñez, Morgenstern, & Learned-Miller, Facial recognition technologies: a primer, May 29, 2020, 8, at https://global-uploads.webflow.com/5e027ca188c99e3515b404b7/5ed1002058516c11edc66a14_FRTsPrimerMay2020.pdf; ARTICLE 19, Emotional Entanglement: China's emotion recognition market and its implications for human rights, 2021, 15; Ko, A Brief Review of Facial Emotion Recognition Based on Visual Information, Sensors (Basel, Switzerland) vol. 18,2 401. 30 January 2018, 3; Policy Department for Citizens' Rights and Constitutional Affairs, Biometric Recognition and Behavioural Detection Assessing the ethical aspects of biometric recognition and behavioural detection techniques with a focus on their current and future use in public spaces, August 2021, available at https://www.europarl.europa.eu/thinktank/en/document/IPOL_STU(2021)696968.

5 The first important studies on emotion recognition techniques were conducted by Paul Ekman (see Ekman & Friesen Unmasking the Face. A Guide to Recognizing Emotions from Facial Clues, Malor Books Los Altos, CA, 2003). The conclusions reached by the scientist regarding the possibility of detecting human emotions are based on the assumption that emotions are expressed in an almost universal way. In recent years, multiple studies have shown that the assumption is incorrect. Particularly known and accredited are the conclusions of Professor Lisa Feldman Barret, who claim that there is no single way to express emotions and that the perception of the latter depends on an unpredictable combination of environmental, social, cultural and relational factors, as well as on the previous experiences of the subject who «decodes» the emotion expressed by the interlocutor. See Feldman Barrett, Adolphs, Marsella, Martinez, Pollak, Emotional Expressions Reconsidered: Challenges to Inferring Emotion From Human Facial Movements, Psychol Sci Public Interest, 2019. See also Schwartz, Don't look now: why you should be worried about machines reading your emotions, The Guardian, 2019, available at https://www.theguardian.com/technology/2019/mar/06/facial-recognition-software-emotional-science. On the scientific validity of neuroscientific techniques in the criminal trial, see Nieva Fenoll, Neurociencia y juicio jurisdiccional: pasado y presente. ¿Futuro?, in Civ. Proc. rev., vol. 7, n.º 3, 2016, 128 ss.

6 European Commission, Proposal for a regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (artificial intelligence act) and amending certain union legislative acts, Brussels, 21.4.21, available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206.

It is largely known that techniques of this kind pose multiple problems when it comes to their implementation at trial[7]. An analysis of the scientific and legal literature on this point reveals that, up to now, the greatest obstacle to a generalization of the use of similar techniques in the criminal trial has been the low reliability of their results[8]. Anticipating the conclusions that will be reached at the end of this work, it seems that the same problem concerns the new emotional detection techniques based on artificial intelligence[9]. Nonetheless, this conclusion is given at the state of the art, thus it is not unchangeable. Nothing excludes — on the contrary, it is likely — that a refinement of similar techniques will lead to a greater scientific solidity in the coming years. For this reason, regardless of the debate related to their reliability, a reflection on the possible impact of these instruments on essential coordinates of the criminal proceedings can no longer be postponed.

Moreover, even if many of the abovementioned problematic aspects had already emerged in relation to the «traditional» lie-detecting techniques (think of the polygraph or the FMRI techniques), the peculiar characteristics of the biometric recognition of emotions pose new challenges and thus require an update of the debate.

The purpose of this work is to lay the foundations for a deeper reflection on three of the many critical aspects of the implementation of emotional biometric techniques based on IA in the criminal trial: the impact on declarant's moral freedom; the alteration of the effective unfolding of the adversarial principle in the evaluation of evidence; the implications on the legitimacy of the judge.

2. The impact of the use of emotional biometric techniques on the declarant's moral freedom

In some legal systems, the fact that the lie-detecting techniques so far known could violate or restrict the moral freedom of the declarant has represented one of the main arguments to exclude the legitimacy of their

7 Just to name a few, the already mentioned scientific validity of the method (therefore, the reliability of the results); the assessment standards to be applied in the evaluation of the evidence acquired through AI techniques; the impact on the privacy rights of individuals, especially when they are based on the use of big data; the impact on the presumption of innocence and the accused's right to silence. In recent years, one of the most debated issues has been the impact of facial recognition techniques on individuals' privacy rights. see Neroni Rezende, Facial recognition in police hands: Assessing the 'Clearview case' from a European perspective, in New Journal of European Criminal Law 11(3), 375-389.

8 See Camon, Le Prove, in VV.AA., Fondamenti di procedura penale, Cedam, 2021, 297. In the Spanish case law, e.g., see **STS 4957/2010, 29th of September**.

9 See footnotes 41 and 42.

use and, as a consequence, the admissibility of their probative results[10]. This conclusion is based on the simple idea that being visibly and physically connected to a machine during the declaration places the subject in a state of impaired freedom, constraining his ability to self-determine in providing answers.

In our case, however, the same outcome does not seem to be so easily supportable: for the first time, we are facing with techniques that can be used without any physical involvement of the declarant[11]. In other words, it is perfectly possible that this last has no idea to be filmed by a video camera connected to an artificial intelligence that scans his physical movements to «guess» his emotions. If and in which way, then, these techniques could impact on the moral freedom of those who are being questioned.

If we refer to moral freedom only as freedom from external manipulations of the psyche, the evidence in question must be excluded from the boundaries of the category. This issue assumes current importance in legal systems, such as for example the Italian one, in which excluding the impact of such kind of evidence on the moral freedom of the declarant essentially means excluding the applicability of the related exclusionary rule[12].It could certainly be argued that the evidence in question could affect other fundamental rights, such as the right to privacy; but unlike what happens, for example, in the Spanish system, in the Italian one this right has neither the same rank, nor the statutory protection that the Constitution grants to moral freedom[13].

10 Notoriously, it happened in the Italian legal system. See, e.g., Sabatini, Poligrafo e libertà morale, in Giust. pen., 1962, I, c. 9; Cordero, Procedura penale, 9a ed., Giuffrè, 2012, 472.

11 Buolamwini, Vicente Ordóñez, Morgenstern, & Learned-Miller, Facial recognition technologies: a primer, *op. cit.*, 8.

12 I am referring to art. 189 Codice di procedura penale, which establishes that when a mean of proof is not regulated by the law, the judge can admit it if it is suitable for ascertaining the facts and does not affect the moral freedom of the person. Concerning the Spanish legal system, the evidence in question could be traced back to the category of those that impact on the moral integrity of the declarant, protected by art. 15 CE. This, at least, if we mean by «moral integrity» also the prohibition of transforming the human being into a mere object. For this interpretation of the concept, see Rebollo Vargas, Delitos contra la integridad moral, in Anuario de derecho penal y ciencias penales, vol. 60, f. 1, 2007, 212. Anyway, it would probably be a hazardous conclusion.

13 In the Spanish legal system, art. 53 CE ensures that only means of evidence provided by law can legitimately impact on a fundamental right. There is no such constitutional provision in the Italian system. This has led to the emergence of a long, and not yet resolved, debate regarding the existence of the category of so-called «unconstitutional evidence», that is, evidence acquired in violation of a fundamental right protected by the Constitution. This would happen for example, in the event that an atypical (i.e. not provided by law) evidence impact on a fundamental right that the Constitution expressly protects through the rule of law. In this case, in fact, the restriction of the fundamental right should be regulated by the parliamentary law. Some sentences of Constitutional Court and many legal scholars admit the existence of this category, assuming the impossibility to use as evidence the probative

This explains the exegetical attempt to extend its boundaries to include the inviolability of the psyche, with the consequent prohibition of the use of tools that allow its indiscriminate exploration[14].

Given the preliminary nature of these few reflections on the subject and the complexity of the matter, taking a position on this point would probably be premature. Nonetheless, it seems to be possible to immediately highlight that, following the approach just mentioned, it could be argued that strict interpretations of the concept of «moral freedom», according to which its effective restriction presuppose the use of techniques capable of «artificially deforming the natural processes of self-determination of the individual» — as stated in a note sentence of the Italian Constitutional Court of 1962[15] —, should be considered outdated. And, in the light of the impressive scientific progress over the last 50 years, this conclusion does not seem so hazardous.

It is true that we are not faced with techniques of manipulation and alteration of psychic processes but, on closer look, the use of these methods actually acts upstream, preventing *tout court* the subject under scrutiny from placing any barrier to the indiscriminate exploration of his mind. Fifty years ago, reducing moral freedom to liberty from external conditioning and manipulation of the psyche was obvious in the absence of technologies, such as those that are being developed nowadays, which promise, in a few years, to make possible the access to the innermost spheres of the human mind.

The problem under discussion is likely to be perceived differently according to the single legal systems and the different exclusionary rules they provide. There is no doubt, however, that in those legal systems in which an adequate statute of protections of technology-linked legal rights is lacking, an updated interpretation of existing fundamental rights is necessary. The only alternative to this would be a modification of the fundamental rights' catalog, so that the protection of individuals before these disruptive technologies can be effective.

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results acquired in violation of the constitutional rules safeguarding fundamental rights. While, however, moral freedom has strong protection in the Italian Constitution, based on rule of law (see art. 13 Italian Constitution), the right to privacy is not expressly enshrined in the Constitution and is historically inferred from art. 2 Italian Constitution, which does not provide for specific limitations in order to restrict the fundamental right in question. See Grevi, Insegnamenti, moniti e silenzi della Corte costituzionale in tema di intercettazioni telefoniche, in Giur. cost., 1973, 341; Vigoriti, Prove illecite e Costituzione, in Riv. dir. proc., 1968, 64 ss.; Nuvolone, Le prove vietate nei paesi di diritto latino, in Riv. dir. proc., 1966, 474. For the case law, see Sez. un., 13th of July 1998, Gallieri and C. cost., 6th of April 1973, n.º 34.

14 With regard to the examination of the defendant, Giuliano Vassalli underlined that it must take place without suggestion or intrusion of external tools of evaluation and that «inconcepibile è sottoporre il soggetto inquisito ad un interrogatorio che, sia pure con il suo consenso, si svolga mentre è possibile sorvegliare tecnicamente, e misurare, le sue reazioni», Vassalli, I metodi di ricerca della verità e la loro incidenza sulla integrità della persona, in Riv. pen., 1972, 415. Also see, in this sense, Cordero, Procedura penale, op. cit, 472.

15 C. cost., 27th of March 1962, n.º 60.

After all, technological progress experienced by artificial intelligence techniques does will not stop. On the contrary, it will have an exponential development due to the inevitable convergence with other existing technologies[16] — especially with the more and more massive use of big data.

The Chilean legislator demonstrated to be perfectly aware of this, being the first to recognize those that are modernly defined as «neuro-rights» in the latest constitutional reform of that country[17]. European institutions do not seem to have the same awareness. As pointed out about the proposed European regulation mentioned in the introduction, «AI Act outlines a robust and innovative framework for AI governance. However, we argue that if fails to regulate practices that attempt to reveal information about a person's mind as high-risk by default».

3. The repercussions on the «physiological» unfolding of the adversarial principle in the evaluation of the evidence

A second problematic aspect on which a serious critical reflection appears to be essential is the possible limitation of correct functioning of confrontation between the parties on the probative value of the declaration.

16 Pérez Estrada, «La inteligencia artificial como prueba científica en el proceso penal español», en *Rev. bras*. dir. proc. pen., 2021, vol. 7, n.° 2, 1389.

17 See Ley 21383, 25th of October 2021, that modified art. 19, n.° 1 of the Constitution, providing that «Scientific and technological development will be at the service of people and will be carried out with respect for life and physical and mental integrity. The law will regulate the requirements, conditions and restrictions for its use on people, especially protecting brain activity, as well as the information deriving from it», available at https://www.bcn.cl/leychile/navegar?idNorma=1166983. For an explicit call for a new set of neuro-rights within the European Union framework, see Policy Department for Citizens' Rights and Constitutional Affairs, Biometric Recognition and Behavioural Detection, cit., 10.
In the sense that the use of emotional biometric techniques based on artificial intelligence could violate human dignity, see EDPB-EDPS, Joint Opinion 5/2021on the proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act), available at https://edpb.europa.eu/system/files/2021-06/edpb-edps_joint_opinion_ai_regulation_en.pdf. A strong encouragement for the introduction and recognition of the so-called «neuro-rights» also comes from the scientific community. See, for example, the Neuro-right Foundation project, created by Rafael Yuste, an internationally renowned neuroscientist. The foundation aims to raise awareness of «United Nations, regional organizations, national governments, companies, entrepreneurs, investors, scientists, and the public at large to raise awareness about the human rights and ethical implications of neurotechnology», as can be read on the foundation's web page, available at https://plum-conch-dwsc.squarespace.com/mission. In particular, the project identifies five neuro-rights whose recognition appears to be undelayable: mental privacy; free will; personal identity; fair access to mental augmentation; protection from bias.

Also in this case, the peculiarities of this technology entail the need to update the terms of the debate that has marked the so far known lie-detecting tools on this point. I am referring to the opacity that characterizes the forms of artificial intelligence based on machine learning. Even if the companies that develop AI software made public the algorithms that the machines use to operate their calculations, it is very often the own IT architecture that does not allow, not even programmers, to reconstruct the statistical associations on the basis of which a certain result was provided[18]. Many authors have highlighted how the opacity of the algorithm violates the defense rights[19] or the principle of equality of arms, as the prosecutor generally has access to more conspicuous resources, on a technological and professional level, to challenge the probative value of the acquired result[20]. This is certainly true, but it only concerns what we could define the subjective aspect of the essence of adversarial principle. Even before the correct balance between the positions

18 As explained by Bonsignore Fouquet, Sobre Inteligencia Artificial, decisiones judiciales y vacíos de argumentación, in Teoría & Derecho. Rev. pens. Jur., 2021, n.º 29, 264, the opacity can be of three types: first of all, it can derive from the industrial secret that could cover to the algorithms that support the functioning of the machine; secondly, the it could depend on the judge's lack of technical skills in understanding the inferences conducted by artificial intelligence, given its high technological character; finally, it could be an opacity in the strict sense. This is the most marked form of opacity, since it concerns the same functioning of machine learning, which is based on the development of new statistical criteria to match dates that are directly developed by the machine and whose reconstruction appears impossible even for same programmers. On the topic, also see Pérez Estrada, La inteligencia artificial como prueba, *op. cit.*, 1392; Contissa & Lasagni, When it is (also) Algorithms and AI that decide on Criminal Matters: In Search of an Effective Remedy, in European Journal Of Crime, Criminal Law And Criminal Justice, 2020, vol. 28, 281.

19 Beriain, & Pérez Estrada, La inteligencia artificial en el proceso penal español: un analisis de su admisibilidad sobre la base de los derechos fundamentales implicados, in Rev. Der. Uned, 552. Also see Nieva Fenoll, Inteligencia artificial y proceso judicial, Marcial Pons, 2018, 102, who claims that the opacity could also affect the right to appeal and revise the judgment, which will have a more assertive argumentation, making more difficult to challenge the result of the AI.

20 In this sense, Schumann Barragan, La inteligencia artificial aplicada al proceso penal desde la perspectiva de la UE, VV. AA., Investigación y proceso penal en el siglo XXI: nuevas tecnologías y protección de datos, Aranzadi, Cizur Menor, 2021, 530; Quattrocolo, Equità del processo penale e automated evidence alla luce della convenzione europea dei diritti dell'uomo, in Rev. italo-española der. proc., 2019, n.º 1, 118; Hoyos Sancho, El libro blanco sobre inteligencia artificial de la Comisión Europea: reflexiones desde las garantías esenciales del proceso penal como «sector de riesgo», in *Revista Española de Derecho Europeo*, 2021, 23. The conclusion is compliant with the jurisprudence of the European Court of Human Rights, which constantly repeated that, in order to respect the right to a fair trial, it is necessary that each party has effective knowledge of the allegations and arguments of the other party and has the concrete possibility of testing and falsifying them. In reverse, «an indirect and purely hypothetical possibility for an accused to comment on prosecution argument» does not satisfy the conventional parameter. See ECHR, Brandstetter v. Austria, 28th of August 1991, application no. 11170/84; 12876/87; 13468/87; ECHR, Bykov v. Russia, 10th of March 2009, application no. 4378/02.

of the parties, however, it is the objective dimension of the adversarial method itself to be affected. I am referring to the cognitive mechanism of falsification[21] on which modern procedural systems found the verification of the facts and in which the role of criticism expressed by the development of confrontation between the parties is precisely to minimize the risk of error[22]. In a system based on free assessment of evidence, the dialectic and critical opposition of the parties is not only a reflection of the exercise of the defense right, but also a precious tool for the judge, insofar as it builds a cognitive platform from which the legal truth can be built in a rational way.

When knowledge is not subjected to a critical scrutiny, it is exposed to the risk of error[23]. In this sense, Bellavista claimed that the criminal trial is the place par excellence dominated by doubt, because the judgment never has a predefined result and the judge never knows the «truth» until the end of the trial. Therefore, in order for the process to take place according to a rational cognitive dynamic, it is more than ever necessary that the ascertainment of truth starts from a state of doubt and the best way to insinuate the doubt in the judge's conscience is precisely represented by the confrontation between the parties[24]. In the light of what has just been said, the problem is not much that the parties do not have the same possibility of «contradicting» and confronting each other, but that they do not have it at all. And the judge would be in the same condition of blindness.

Moreover, even assuming that the algorithm was «transparent» and that the way in which it makes its inferences could be perfectly reconstructed, the risk of a «fideistic» approach[25] of the judge on the result of the AI remains high and

21 For all, see Popper, *The logic of scientific discovery*, Basic Books, 1959.

22 In this sense, see Caianiello, Criminal Process faced with the Challenges of Scientific and Technological Development, in Eur. journ. crim., *Criminal Law and Criminal Justice*, 2019, 267, who underlines that «This approach to criminal proceedings, that we can synthetically define as inspired by the art of doubt, seems nowadays under attack, because of the recent developments at the scientific and technological levels, and of their implication to fact-finding models at trial. In particular, in a cultural and legal framework showing a decreasing sensitivity to the rights of the defence, the «doubt-based» or Socratic traditional approach seems defied by three factors: the digital revolution; the raise and spreading use of neurosciences; and the increasing employment of artificial intelligence in adjudicating cases».

23 Ferrua, La prova nel processo penale, *op. cit.*, 5.

24 Bellavista, Lezioni di diritto processuale penale, Giuffrè, 1965, 184. On the right to confrontation in the US system and its different scope in European continental legal systems, see Bachmaier Winter, Principio de inmediación y confrontation: paralelismos, diferencias y tendencias, in Fundamentos de Derecho Probatorio, eds. Ambos/Malarino, Tirant lo Blanch, 2019, 279-339.

25 See Quattrocolo, Equo processo penale e sfide della società algoritmica, in *BioLaw Journal — Rivista di BioDiritto*, n.° 1, 2019, 141; Contissa & Lasagni, When it is (also) Algorithms and AI that decide on Criminal Matters, *op. cit.*, 293; Caianiello, Criminal Process faced with the Challenges, *op. cit.*, 2019, 267.

would probably bring him to ignore or undervalue the arguments of the parties. It is known that the same problem has already arisen, in general, with reference to scientific evidence, but in this field a generic reference to the principles of the *Daubert* jurisprudence[26] could be insufficient. All the critical issues that have emerged with reference to scientific evidence[27], in fact, are destined to exacerbate due to the relatively new nature of these scientific acquisitions and the very high level of computer engineering on which they are based.

4. Is the legitimacy of the judge at risk?

Since the adversarial principle is a pilar that informs the entire procedural dynamics, its alteration produces some further systematic effects, including that relating to the legitimacy of the judge.

The source of the legitimacy of the judicial power is generally indicated in the popular sovereignty[28], in whose name, as many Constitutions foresee, justice is administered. This reconstruction, however, is partial and to some extent misleading.

In one of his essays, Ferrajoli wrote that the legitimacy of judicial power cannot reside in popular consent, because this would imply subjecting to the logic of the majority a power that must remain free and independent[29]. In this sense, the effective equality of everyone before the law presupposes the impartiality[30] and independence of judgment, the former being an unattainable objective if the latter is not equally ensured in its dimension of submission of the judge to the sole law. But the picture would be incomplete if we did not mention the one that probably constitute the main source, even if less cited,

26 See U.S. S. Court, Daubert v. Merrel Dow Pharmaceuticals, Inc., 509 U.S. 579, 1993.

27 See, in general, Dominioni, La prova penale scientifica. Gli strumenti scientifico-tecnici nuovi o controversi e di elevata specializzazione, Giuffrè, 2005. For a comparative perspective, see BACHMAIER WINTER, Dos modelos de prueba pericial penal en el derecho comparado: Estados Unidos de Norteamérica y Alemania, in Jueces para la Democracia, 2009, n.° 66, 118 ss.

28 Vadillo Ruiz, El poder judicial: artículo 117, in Comentarios a la Constitución española de 1978, dir. by Óscar Alzaga Villaamil, Cortes Generales, 1996-1999, 297.

29 Ferrajoli, Las fuentes de legitimidad de la jurisdicción, Reforma Judicial, in Rev. mex. Just., n.° 15-16, 2010, 14, «para la legitimidad de la jurisdicción, basada en la garantía de la verdad y de las libertades, mientras que no es necesario e incluso puede ser dañino el consenso, es posible pero no deslegitimante el disenso de la mayoría. Con la mayoría, se ha dicho, el juez se vincula solamente a través de su sujeción a la ley, a través de la cual la voluntad mayoritaria se ha expresado con anterioridad a la comisión de los hechos que se someten a juicio».

30 Precisely in this sense, for example, in a sentence of 12 July 1988, n.° 145, the Spanish TC wrote that the impartiality of the judge affects the trust that a democratic society places in its Courts.

of the legitimacy of the judicial power, that is the rational character of the judgment. If jurisdiction did not have a cognitive nature, it could hardly be perceived as legitimate by citizens insofar these ones could barely «accept» a decision susceptible to affect their legal position — even their personal freedom — if that decision did not presuppose the ascertainment, conducted in a rational manner, of one or more facts[31]. Textual demonstrations of this can be found in many modern Constitutions, including the Italian and the Spanish ones: a more evident one, that is the rule according to which sentences must be motivated and the motivation must be based on rational arguments related to the reconstruction of the facts and to the recognition of the applicable legal regulations. A less obvious, but no less important one: the ascertainment of the facts is considered rational as it is conducted according to a certain method, that is, the confrontation of the parties. In this sense — as already mentioned — the lack of effective confrontation between the parties affects the legitimacy of the judge, insofar as it affects one of its cornerstones, namely the cognitive and rational character of the judgment.

These three pillars of the exercise of judicial power (impartiality, independence, rationality) are closely linked. One could not exist without the other: the rational verification of the facts implies the impartial nature of the search for truth that, in turn, requires the independence of the judge from any external conditioning[32].

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31 Ferrajoli, Diritto e ragione. Teoria del garantismo penale, 3° ed., Laterza, 1996, 19 ss.; Ferrajoli, Las fuentes de legitimidad de la jurisdicción, *op. cit.*, 5 ss. As known, to this ineliminable characteristic of the judgment Ferraioli adds that of the necessary protection of fundamental rights. In the sense that the pivot of judicial power is constituted by rationality, see also Di Bitonto, Neuroscienze e processo penale, in Prova scientifica e processo penale, edited by Canzio & Luparia, Cedam, 2017, 746; Di Chiara, Atipicità e sistemi probatori: linee per una fenomenologia generale, in VV.AA., Sicurezza e nuove frontiere tecnologiche, edited by Militello & Spena, Giappichelli, 2018, 371 ss.; Ferrua, Contraddittorio e verità nel processo penale, in Studi sul processo penale. II. Anamorfosi del processo penale, Giappichelli, 1992, 47 ss.

32 In this sense, again, Ferrajoli, Las fuentes de legitimidad de la jurisdicción, *op. cit.*, 11 ss. «la verificación de la verdad, que requiere el carácter necesariamente libre y desinteresado de la búsqueda de lo verdadero a través de pruebas y contrapruebas; la tutela de las libertades —desde la libertad personal hasta la libertad de pensamiento, desde los derechos de defensa hasta las libertades políticas—, las cuales equivalen todas a otros tantos derechos de los individuos contra el poder y los intereses de la mayoría. Ambos fundamentos requieren la separación tanto orgánica como funcional, y por tanto la independencia de los magistrados —de los jueces y del Ministerio Público— no es solamente externa, es decir frente a los poderes políticos de gobierno, sino también interna, es decir frente a vínculos jerárquicos o burocráticos». Also see Montañés Pardo, Art. 120, in VV.AA., Comentarios a la Constitución española, Tomo II, in Boletín Oficial del Estado, BOE, 2018, 690, «la exigencia constitucional de motivación de las resoluciones judiciales guarda una relación directa con los principios de un Estado de Derecho (art. 1.1 CE) y con el carácter vinculante que para jueces y magistrados tiene la ley, a cuyo imperio están sometidos en el ejercicio de su potestad jurisdiccional, como se dispone en el art. 117.1 y 3 CE» y Gutiérrez-Alviz & Víctor Moreno, Actuaciones judiciales, articulo 120, in Comentarios a la

The use of artificial intelligence techniques in order to assess the declarations of one or more declarants could infringe at least two of these assumptions: on the one hand, that of impartiality of the judgement, since it is predictable that, faced with the result of the machine, the judge may be affected by the so called confirmation bias, that is the tendency to uncritically ratify the AI's result[33]; on the other hand, that of the rationality of the judgment, not only because the adversarial mechanism is weakened — as already underlined —, but also because precisely that confirmation bias will determine that the motivation of the sentence proceed in reverse: the judge will tend to develop the arguments in order to confirm the starting point[34]. Indeed, some authors highlighted the risk that the growing reliance on AI to resolve the *res iudicanda* could decree the end of the motivational burden as we know it: the fact that the judge will tend to accept uncritically the decision of the machine could lead to a progressive thinning of the argumentative component of the decision[35].

On the other hand, the judge could not even motivate the decision by reproducing the «reasoning» of the machine. In fact, being the latter based on analogies and statistical associations, it is unable to explain how it reached a

Constitución española de 1978, dir. by Óscar Alzaga Villaamil, Cortes Generales, 1996-1999, 403, according to which «La racionalidad y la razonabilidad del juicio de decisión constituyen elementos imprescindibles no sólo para garantizar un control endoprocesal de las resoluciones judiciales, sino también para medir la credibilidad ciudadana en la Administración de Justicia, para legitimar la actividad judicial y, finalmente, para satisfacer las expectativas sociales depositadas en la aplicación del derecho».

33 Nieva Fenoll and Taruffo also highlight a similar danger, underlining how impartiality, therefore the absence of prejudices of any kind, is an indispensable prerequisite for the evaluation of evidence, Nieva Fenoll & Taruffo, La valoración de la prueba. Marcial Pons Ediciones Jurídicas y Sociales, 2010, 175 ss. Also see Beriain, & Pérez Estrada, La inteligencia artificial en el proceso penal español, *op. cit.*, 551 according to which the free conviction of the judge in the evaluation of the evidence could be affected in a double sense: if the algorithm was not configured in an adequate form or had biases in its structure (which could well depend on the training data that are inserted in input and which could contain biases), the impartiality of the judge would be altered because his judgment would reproduce those prejudices. If, on the other hand, the machine had a high degree of reliability of the results, the impartiality of the judge would equally be affected because he would tend to conform his decisions to the result of the machine. In the sense that the increasing reliance on experts' opinions in general could lead to a loss of autonomy and independence of the judge in the appreciation of evidence, Quattrocolo, Artificial Intelligence, Computational Modelling and Criminal, Springer, 2020, 94.

34 Nieva Fenoll, Inteligencia artificial y proceso judicial, *op. cit.*, 50.

35 Again, Nieva Fenoll, Inteligencia artificial y proceso judicial, *op. cit.* 102; Ubertis, Intelligenza artificiale, giustizia penale, controllo umano significativo, in Sist. pen., 11th November 2020, 13. According to Contissa & Lasagni, When it is (also) Algorithms and AI that decide on Criminal Matters, *op. cit.*, 288, this would also have some negative repercussions on the right to an effective remedy.

certain result. Moreover, for the same reason, it is structurally different from the human reasoning, based on argumentation and inferences conducted according to the laws of causality[36].

Given a similar scenario, some authors proposed to carry out the acquisition of the evidence based on the use in artificial intelligence through an expert evidence. This should consent a recovery of the rationality of the judgment and of the effective confrontation between the parties, providing the judge with the necessary tools to understand and estimate the result of the algorithm[37]. However, this solution does not appear to be conclusive.

To say that the acquisition of evidence with the aid of forms of artificial intelligence systematically requires the knowledge of an expert means to systematically deprive the judge of an incumbent — the evaluation of the evidence — that the procedural law entrusts solely and exclusively to him and for which scientific, technical and artistic skills should not be required as a default solution[38]. The point needs to be further explained.

By its very nature, the expert evidence is needed to compensate for the physiological lack, on the part of the judge, of specialized knowledge in fields of science other than the legal one. Exactly in this, therefore, the presence of the expert in the trial finds its *ratio* and its legitimacy: his knowledge does not overlap that of the judge because his role is not to apply the normal rules of experience (that any judge is supposed to handle). On the contrary, applying artificial intelligence algorithms to the evaluation of the reliability of the declarations collected within the trial would have exactly this effect:

36 Cotino Hueso, Big data e inteligencia artificial. Una aproximación a su tratamiento jurídico desde los derechos fundamentales, Dilemata, 2017, 24, 133 ss. Also see Bonsignore Fouquet, Sobre Inteligencia Artificial, decisiones judiciales y vacíos de argumentación, *op. cit.*, 255, according to which if AI were to replace the human decision maker, it should be able to explain the reasons that have led to the decision and these reasons should also be significant for the people. Nieva Fenoll, Inteligencia artificial y proceso judicial, *op. cit.*, 28, who underlines that the legal reasoning is not always purely logical and does not only consist in the research of statistical analogy between a current case and one or more previous one, but also has a strikingly persuasive character.

37 Villamarín López, Neurociencia y detección de la verdad y del engaño en el proceso penal, *op. cit.*, 111; Pérez Estrada, La inteligencia artificial como prueba, *op. cit.*, 1395. Contra, Quattrocolo, Equità del processo penale e automated evidence, *op. cit.*, 122, who doubts that the use of an expert opinion could actually help the judge to better understand the functioning of the machine.

38 A similar position seems to be shared by a part of Spanish jurisprudence and doctrine with reference to traditional neuroscientific lie-detecting techniques. In jurisprudence, see, for example, ST, Sala de lo Penal, Sec. 1.ª, 1st February 2016, n.º 1008, according to which «se pretendería de ese modo sustituir la función de valoración de la prueba, incluida la credibilidad del acusado, competencia exclusiva y excluyente de jueces y tribunales»; ST, Sala de lo Penal, Sec. 1.ª, 29th September 2010, n.º 833. For the legal doctrine, see Hoyos Sancho, El libro blanco sobre inteligencia artificial, *op. cit.*, 23.

the expert evidence would have as its direct object the evaluation of the probative value of the declaration, so that first the artificial intelligence and then the expert would substantially replace the judge in the expression of skills and abilities that he should have and be able to use, without the need to delegate systematically such a function to third parties[39].

With respect to this, it cannot even be objected that sometimes is the same procedural law to expressly provide for the possibility of acquiring the necessary evidences to evaluate the probative value of another evidence (what is normally called evidence over evidence[40]), as it happens both in Italian and Spanish criminal procedural law. I refer, for example, to art. 729.3 Lecrim — which allows the acquisition of evidence of any class in order to accredit circumstances that may affect the probative value of a witness's declaration — as well to art. 196 of *Codice di procedura penale*, which makes it possible to carry out checks on the witness in order to assess his ability to testify. On the contrary, it is precisely in these norms that what has just been said seems to find a formidable confirmation. Both rules, in fact, are formulated in such a way as to have a «limited» scope.

According to the rule provided for Spanish criminal procedural law, the possibility to acquire the evidence over the evidence in order to verify the credibility of a witness must be justified by specific «circumstances» concerning the case, which must be specifically indicated by the parties in order to obtain the admission of the evidence. On the other hand, the system does not contemplate a systematic and *a priori* recourse to probative acquisitions useful to assess the value of other evidence, being this possibility given only in presence of specific elements to doubt the credibility of a given witness. And the same conclusion should obviously concern as well an expert evidence aimed at assessing the credibility of a witness.

Even more interesting is the above-mentioned Italian procedural rule, which expressly provides for the case in which a scientific-technical assessment is necessary to verify the capability of a declarant to testify. From the formulation of the norm, it possible to infer that such an assessment can be carried out in the presence of circumstances that depend on pathological causes which, as such, could not be usefully ascertained by the judge, who does not have the necessary skills. Not only, therefore, does the Italian law not allow indiscriminate recourse to scientific proof to ascertain the value of a given declarative proof, but moreover it explicitly limits the use of the expert for the evaluation of the reliability of the witness to the case in which the judge does not have the necessary competence to carry out such an assessment.

39 For all, see Di Bitonto, Neuroscienze e processo penale, *op. cit.*, 754.

40 See generally, Gascon Inchausti, El control de la fiabilidad probatoria: «prueba sobre la prueba» en el proceso penal, in *Ediciones Revista General de Derecho*, 1999, 142 ss. and 157.

5. Conclusions

After the proposal for a European Regulation of April 2021, the initial enthusiasm for the possible implementation of artificial intelligence techniques in law enforcement was followed by a general disenchantment due to the diffusion of many studies that questioned the reliability of AI techniques[41]. As regards specifically the techniques of lie-detecting based on biometrical detection of emotions, some studies commissioned among the European Union institutions have openly expressed their doubts regarding the respect of fundamental rights and, above all, the reliability of the results of these technologies[42].

From this point of view, the proposal of a part of legal scholars to implement the use of AI systems in law enforcement under the condition that a «significant human intervention» is ensured does not seem decisive[43]. This would essentially mean subjecting the obtained evidence to corroboration through additional evidence to increase the reliability of the results and safeguard the autonomous assessment of the judge. Nonetheless, a similar solution does not seem so solid if only one thinks that the use of corroboration mechanisms makes sense insofar the result to corroborate is *per se* concretely verifiable[44].

The same can be said about the solution mentioned from some legal scholars[45], according to which the problems relating to the reliability of the machine's results could be solved with the creation of independent authorities in charge of certifying *a priori* the tools used by the algorithms. In fact, it would have the consequence of further releasing the responsibility of the judge with respect to the maintenance of his autonomy of judgement.

As already mentioned, however, the reliability of the results acquired through the use of biometric technique to detect emotions is a secondary problem. In light of the above considerations, it is possible to conclude

41 See European Parliament resolution of 6 October 2021 on artificial intelligence in criminal law and its use by the police and judicial authorities in criminal matters, available at https://www.europarl.europa.eu/doceo/document/TA-9-2021-0405_EN.html, that explicitly «calls for a ban on the use of AI and related technologies for proposing judicial decisions».

42 See AI Now Report 2021, 51, available at https://ainowinstitute.org/AI_Now_2019_Report.pdf; Policy Department for Citizens' Rights and Constitutional Affairs, Biometric Recognition and Behavioural Detection, cit., 82; EPRS, Person identification, human rights and ethical principles. Rethinking biometrics in the era of artificial intelligence, cit., 20 ss.

43 Ubertis, Intelligenza artificiale, giustizia penale, controllo umano significativo, *op. cit.*, 13; similarly, Canzio, Inelligenza artificiale, algoritmi e giustizia penale, in Sist. pen., 8th January 2021, 4; Gialuz, Quando la giustizia penale incontra l'intelligenza artificiale: luci e ombre dei risk assessment tools tra Stati Uniti ed Europa, in Dir. pen. cont., 29th May 2019.

44 On this subject, see par. 3.

45 Gialuz, Quando la giustizia penale incontra l'intelligenza artificiale, *op. cit.*, 13.

that even before the issue of scientific robustness of these tools, we must consider that the use of similar techniques is likely to impact on the «normal» conformation of some important procedural principles.

This commits interpreters to initiate a profound critical reflection on aspects that have so far remained in the shade of the academic debate on the use of artificial intelligence at trial, which are directly linked to the core characteristics of the criminal proceeding that we are used to know and study.

Ultimately, the question is what kind of justice we want and whether we are willing to downsize the role of the human judge in the perspective of making justice more efficient, but with the risk of altering the structural characteristics of criminal trial, starting from the idea that the only acceptable truth is the one built up through the dialectical confrontation of the parties, in front of an impartial and independent judge and with respect for fundamental rights.

6. Bibliography

Article 19, *Emotional Entanglement: China's emotion recognition market and its implications for human rights*, 2021

Bachmaier Winter, «Dos modelos de prueba pericial penal en el derecho comparado: Estados Unidos de Norteamérica y Alemania», en *Jueces para la Democracia*, n.º 66

Bachmaier Winter, «Principio de inmediación y confrontation: paralelismos, diferencias y tendencias», en *Fundamentos de Derecho Probatorio*, eds. Ambos/Malarino, Tirant lo Blanch, 2019

Bellavista, *Lezioni di diritto processuale penale*, Giuffrè, 1965

Beriain & Pérez Estrada, «La inteligencia artificial en el proceso penal español: un analisis de su admisibilidad sobre la base de los derechos fundamentales implicados», en *Rev. Der. Uned*, 552. Also see Nieva Fenoll, *Inteligencia artificial y proceso judicial*, Marcial Pons, 2018

Biometric Recognition and Behavioural Detection Assessing the ethical aspects of biometric recognition and behavioural detection techniques with a focus on their current and future use in public spaces, study, commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the JURI and PETI Committees, August 2021, available at https://www.europarl.europa.eu/thinktank/en/document/IPOL_STU(2021)696968

Bonsignore Fouquet, *Sobre Inteligencia Artificial, decisiones judiciales y vacíos de argumentación,* en *Teoría & Derecho. Rev. pens. Jur.*, 2021, n.º 29

Buolamwini, Vicente Ordóñez, Morgenstern, & Learned-Miller, *Facial recognition technologies: a primer*, May 29, 2020, https://global-uploads.webflow.com/5e027ca188c99e3515b404b7/5ed1002058516c11edc66a14_FRTsPrimerMay2020.pdf

Caianiello, «Criminal Process faced with the Challenges of Scientific and Technological Development», en *Eur. journ. crim., Criminal Law and Criminal Justice*, 2019

Camon, «Le Prove», in VV.AA., *Fondamenti di procedura penale*, Cedam, 2021

Canzio, «Intelligenza artificiale, algoritmi e giustizia penale», in *Sist. pen.*, 8th January 2021

Chiara, «Atipicità e sistemi probatori: linee per una fenomenologia generale», in VV.AA., *Sicurezza e nuove frontiere tecnologiche*, edited by Militello & Spena, Giappichelli, 2018

Contissa & Lasagni, «When it is (also) Algorithms and AI that decide on Criminal Matters: In Search of an Effective Remedy», in *European Journal Of Crime, Criminal Law And Criminal Justice*, 2020, vol. 28

Cordero, *Procedura penale*, 9.° ed., Giuffrè, 2012

Cotino Hueso, *Big data e inteligencia artificial. Una aproximación a su tratamiento jurídico desde los derechos fundamentales*, Dilemata, 2017

Di Bitonto, *Neuroscienze e processo penale*, in *Prova scientifica e processo penale*, edited by Canzio & Luparia, Cedam, 2017

Dominioni, *La prova penale scientifica. Gli strumenti scientifico-tecnici nuovi o controversi e di elevata specializzazione*, Giuffrè, 2005

EDPS-TechDispatch # 1_2021, Facial Emotion Recognition, European Data Protection Supervisor

Ekman & Friesen, *Unmasking the Face. A Guide to Recognizing Emotions from Facial Clues*, Malor Books Los Altos, CA, 2003

EPRS, *Person identification, human rights and ethical principles. Rethinking biometrics in the era of artificial intelligence*, available at https://www.europarl.europa.eu/stoa/en/document/EPRS_STU(2021)697191

Feldman Barrett, Adolphs, Marsella, Martinez, Pollak, *Emotional Expressions Reconsidered: Challenges to Inferring Emotion From Human Facial Movements*, Psychol Sci Public Interest, 2019

Ferrajoli, *Diritto e ragione. Teoría del garantismo penale*, 3.° ed., Laterza, 1996

Ferrajoli, «Las fuentes de legitimidad de la jurisdicción», «Reforma Judicial», en *Rev. mex. Just.*, n.º 15-16, 2010

Ferrer Beltrán, *Prueba y verdad en el derecho*, Marcial Pons, 2005

Ferrua, «Contraddittorio e verità nel processo penale», en *Studi sul processo penale. II. Anamorfosi del processo penale*, Giappichelli, 1992

Ferrua, *La prova nel processo penale*, Giappichelli, 2017

Gascon Inchausti, «El control de la fiabilidad probatoria: "prueba sobre la prueba" en el proceso penal», en *Ediciones Revista General de Derecho*, 1999

Gialuz, «Quando la giustizia penale incontra l'intelligenza artificiale: luci e ombre dei risk assessment tools tra Stati Uniti ed Europa», en *Dir. pen. cont.*, 29th May 2019

Grevi, «Insegnamenti, moniti e silenzi della Corte costituzionale in tema di intercettazioni telefoniche», en *Giur. cost.,* 1973

Gutiérrez-Alviz & Víctor Moreno, «Actuaciones judiciales, articulo 120», en *Comentarios a la Constitución española de 1978*, dir. por Óscar Alzaga Villaamil, *Cortes Generales*, 1996-1999

Hoyos Sancho, «El libro blanco sobre inteligencia artificial de la Comisión Europea: reflexiones desde las garantías esenciales del proceso penal como "sector de riesgo"», en *Revista Española de Derecho Europeo*, 2021

Ko, *A Brief Review of Facial Emotion Recognition Based on Visual Information*, Sensors (Basel, Switzerland), vol. 18,2 401. 30 January 2018

Montañés Pardo, «Art. 120», en VV.AA., *Comentarios a la Constitución española, Tomo II,* en *Boletín Oficial del Estado, BOE*, 2018

Neroni Rezende, «Facial recognition in police hands: Assessing the 'Clearview case' from a European perspective», en *New Journal of European Criminal Law* 11(3)

Nieva Fenoll & Taruffo, *La valoración de la prueba*. Marcial Pons Ediciones Jurídicas y Sociales, 2010

Nieva Fenoll, «*Neurociencia y juicio jurisdiccional: pasado y presente. ¿Futuro?*», en *Civ. Proc. rev.*, vol. 7, n.º 3, 2016

Nuvolone, «Le prove vietate nei paesi di diritto latino», en *Riv. dir. proc.*, 1966

Parliament resolution of 6 October 2021 on artificial intelligence in criminal law and its use by the police and judicial authorities in criminal matters, available at https://www.europarl.europa.eu/doceo/document/TA-9-2021-0405_EN.html

Pérez Estrada, «La inteligencia artificial como prueba científica en el proceso penal español», en *Rev. bras. dir. proc. pen.*, 2021, vol. 7, n.º 2

Popper, *The logic of scientific discovery*, Basic Books, 1959

Quattrocolo, *Artificial Intelligence, Computational Modelling and Criminal*, Springer, 2020

Quattrocolo, «Equità del processo penale e automated evidence alla luce della convenzione europea dei diritti dell'uomo», en *Rev. italo-española der. proc*., 2019, n.º 1

Quattrocolo, «Equo processo penale e sfide della società algoritmica», en *BioLaw Journal – Rivista di BioDiritto*, n.º 1, 2019

Rebollo Vargas, «Delitos contra la integridad moral», en *Anuario de derecho penal y ciencias penales*, vol. 60, f. 1, 2007

Sabatini, «Poligrafo e libertà morale», en *Giust. pen.*, 1962, I, c. 9

Schumann Barragan, «La inteligencia artificial aplicada al proceso penal desde la perspectiva de la UE», VV. AA., *Investigación y proceso penal en el siglo XXI: nuevas tecnologías y protección de datos*, Aranzadi, Cizur Menor, 2021

Schwartz, «Don't look now: why you should be worried about machines reading your emotions», The Guardian, 2019, available at https://www.theguardian.com/technology/2019/mar/06/facial-recognition-software-emotional-science

See AI Now Report 2021, available at https://ainowinstitute.org/AI_Now_2019_Report.pdf

Taruffo, «Verità e prova nel processo», en *Riv. trim. dir. e proc. civ*., 2018, n.º 4

Ubertis, «Intelligenza artificiale, giustizia penale, controllo umano significativo», en *Sist. pen.*, 11th November 2020

Vadillo Ruiz, «El poder judicial: artículo 117», en *Comentarios a la Constitución española de 1978*, dir. por Óscar Alzaga Villaamil, Cortes Generales, 1996-1999

Vassalli, «I metodi di ricerca della verità e la loro incidenza sulla integrità della persona», en *Riv. pen.*, 1972

Vigoriti, «Prove illecite e Costituzione», en *Riv. dir. proc.*, 1968

Villamarín López, *Neurociencia y detección de la verdad y del engaño en el proceso penal: el Uso del escáner cerebral (fMRI) y del brainfingerprinting* (P300), Marcial Pons, Ediciones Jurídicas y Sociales, 2015