Artificial Intelligence: ethical and legal reflections.

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Artificial Intelligence (hereinafter referred to as Artificial Intelligence -AI-) is the discipline that studies the theoretical foundations, methodologies and techniques that allow designing hardware and software systems capable of providing the computer with performances that, to a common observer, would seem to be of exclusive relevance to human intelligence[1].

The last decades have been the scene of considerable progress in the field of AI, robotics and related technologies, which have made these tools more and more pervasive in our daily lives, giving rise to new concerns related to security, fairness, responsibility and ethics of these tools, with particular reference to the nerve center of justice, medicine and economics.

The fact that the algorithms are based on mathematical systems and, therefore, in principle measurable and verifiable, leads to the error of considering these systematic calculation procedures as "reliable and neutral". Intelligent software, indeed, collects and analyzes an enormous truth of personal data that directly or indirectly describe people's activities. The availability of such information opens up unprecedented opportunities, allowing the construction of machines capable of replacing man in an ever-increasing variety of tasks, but at the same time raises many doubts related to the direct impact that these can have in terms of the rights and freedoms of individuals, as rooted in the Italian legal system and the international scene.

The algorithmic reasoning aims to solve a problem through a finite number of elementary steps, previously established, in a reasonable time. More precisely, each algorithm has its structure that can be defined by a programmer or generated directly from data. In the first case, the programmer manually encodes the algorithm, making precise choices that inevitably affect the result of the computational operation[2]. In the second case, we are in Machine Learning or automated learning. The latter can be defined as that subset of AI that consists of techniques that allow an intelligent machine to perfect its capabilities and performance over time, without it being explicitly programmed for this purpose, learning from data and errors made, improving exponentially in terms of efficiency and independence[3]. For the analysis, in addition to the preparation of an algorithm, it is also essential to choose a statistically significant data set. The result provided by predictive algorithms is necessarily influenced by the quality of the data that are placed as input.

The logical consequence of the above is that each algorithm has its structure that is not neutral because the design is based on value judgments that could potentially hide prejudices and lead to the development or intensification of discrimination between people or groups of people. In this sense, AI tools can be "opaque", meaning that the steps through which meaning is given to data are not always explainable (transparent), being able to return discriminatory results.

The principle of non-discrimination is a manifestation of the more general and broad principle of equality, i.e. the assumption that similar situations should be treated equally while different situations should be treated differently. Otherwise, and in the absence of reasonable justification, the treatment must be considered discriminatory.

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[1] M. Somalvico, *L'Intelligenza Artificiale*. Rusconi Editore, Milano 1987.
[2] K. Freeman, *Algorithmic injustice: how the Wisconsin Supreme Court Failed to protect due process rights in State v. Loomis*, in North Carolina Journal of Law & Technology, XVIII, 2016, pp. 75 ss.
[3] M. I. Jordan, T. M. Mitchell, *Machine Learning: Trends, prospectives and prospects*, in *Science* vol. luglio 2015, p. 255.

The massive use of intelligent systems, therefore, highlights the primary need to avoid the risk that an algorithm may generate unfair outcomes based on sensitive personal data, including race and social extraction while ensuring the development and implementation of AI tools and services compatible with fundamental rights[4].

The considerations made imply a reflection on data ethics and raise an important question: is it possible to realize intelligent software based on ethical algorithms?

To provide an answer to this question, the path is undertaken at European level is to build a new legal framework outlining the ethical principles and legal obligations to be followed in the development, implementation and use of artificial intelligence, robotics and related technologies in the EU, including software, algorithms and data. Finally, on 20 October, the European Parliament Resolution with recommendations to the Commission concerning the framework for the ethical aspects of artificial intelligence, robotics and related technologies was published.

The document provides a kind of ethical guide for developers, operators and users to act fairly and ensure effective protection of individuals.

The resolution, among other things, emphasizes the importance of: - an effective and harmonized regulatory framework based on Union law, the Charter and international human rights law; - adopting a risk-based approach in identifying high-risk sectors and technologies; - implementing AI technologies designed to promote the cultural and linguistic diversity of the Union and help meet essential needs, avoiding any use that could lead to inadmissible direct or indirect coercion, threaten to compromise psychological autonomy and mental health or lead to unjustified surveillance, deception or inadmissible manipulation; - to impart social responsibility to these technologies; - to achieve a high level of global digital literacy and to train highly qualified professionals in this field; - to respect the principles of EU Regulation 2016/679 on the protection of personal data in the categorization and microtargeting of individuals, the identification of their vulnerabilities or the use of accurate predictive knowledge techniques.

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[4] The European Commission for the Efficiency of Justice (CEPEJ) of the Council of Europe adopts first European Ethical Charter on the use of artificial intelligence in judicial systems (Strasburg, 3-4 december 2018)