

AIDA 2018

ABSTRACT DEGLI STUDI DI PARTE I

IL TEMA: INTELLIGENZA ARTIFICIALE E PROPRIETÀ INTELLETTUALE

GIUSEPPE SANSEVERINO, *Ex machina. La novità e l'originalità dell'invenzione "prodotta" dall'IA*
3/2018

In the present technological framework, the AI that is able to participate in the creative processes is characterized by being that which can be defined as artificial narrow intelligence, that is specifically dedicated to certain tasks. The technological innovations produced by the AI is based (a) on a preliminary phase chaired by the man with a (more or less broad) address and stimulation of the machine; (b) a subsequent stage directed to process the results and/or directed to carry out the required tasks, performed entirely by the machine and its artificial intelligence algorithm, totally unrelated to any intervention by the operator and completely opaque to the possibility to disclose the methods through which the result was obtained (so-called black box); and (c) a later and final moment in which the human operator using the AI (in a more or less structured way) examines and selects the innovative results provided by the machine. The point of equilibrium between the patent system in its general lines and the innovations produced by the AI is precisely directed to identify whether this technical possibility of improving the creative phases still leaves room for stages chaired by the man that are not directly ordinary. Consistent with this technological framework the analysis on the presence of the patent requirements can (and must) be focused only on these phases subject to human intervention. These moments, in fact, are always characterized by being i) endowed with ample space of choice by the human operator in sorting the information to be given to the machine; ii) modeled on the basis of research projects that require economic investments and technical-scientific competences not easily obtained.

ANA RAMALHO, *Originality redux: an analysis of the originality requirement in AI-generated works*
23/2018

his article analyses the creation of works by artificial intelligence systems (AIs) from the point of view of the EU originality requirement, for purposes of copyright protection. It examines the originality requirement taking into account legislative and judicial developments, to conclude that said requirement is comprised of two elements: creativity and the existence of an author to whom the work can be traced to. Following a detailed analysis of these two elements, the article discusses whether creativity and the existence of an author are present in the case of AIs-generated works, to then conclude what the status of such creations is under EU copyright law.

SILVIA GUIZZARDI, *Protezione d'autore dell'opera dell'ingegno creata dall'Intelligenza Artificiale*
42/2018

Artificial Intelligence is one of the most important examples of technological evolution since the post-war period. I.A. systems are now able to act autonomously, closely mimicking the way human intelligence works, and to create figurative, audiovisual, musical and literary works

even without human input. The current status of development of I.A. systems raises the issue of copyright protection of the works generated by them. The clearest consequence caused by excluding computer generated works from copyright protection would be their attribution to public domain. In turn, this would mean that there would be hardly any companies interested in making significant investments in any sector related to them. In this article, the author addresses the possibility to include works produced by artificial intelligence among the intellectual works protected pursuant to article 1 of copyright law, together with the ones produced by human intelligence, at least in cases where the former are generated by autonomous choices made by artificial agents and they represent a result that could not be foreseen nor conditioned by human intervention. The author also supports the opinion that intellectual works generated by I.A. systems could satisfy the requirement of creativity, at least in cases where (i) the .A. system makes free creative choices within a sufficiently large number of variables and (ii) the work is not the result of automatic selection mechanisms. The article then looks at the attribution of the economic and moral rights related to copyright, looking at the different potential owners. Stretching the interpretation of copyright law, authorship of computer generated works seems to be assign able to the user. In fact, recognizing the user as the owner of the economic and moral rights on computer generated works would be very consistent with the fundamental purpose underlying the European intellectual property laws, as this choice would be capable of generating a much higher potential in terms of increase in innovation than the one that could be achieved should these rights be allocated to another party.

FRANCESCO BANTERLE, *Ownership of inventions created by Artificial Intelligence*
69/2018

The recent development of Artificial Intelligence (AI) brings with it the promise of future technological innovations developed independently by intelligent computational systems. In the patent field, the advent of AI in the inventive process questions the subjective/human state of the inventor. In particular, it is discussed whether, and to whom, the objects created by the AI can belong. And even if, due to their non-human origin, they are worthy of protection. This paper aims to carry out a first investigation on how the ownership regime of patentable inventions, under the Italian legislation and the European Patent Convention, can apply to AI's inventions. The analysis concludes that the existing patent system, at least in principle, is compatible with computational inventions, although it does not allow their patentability, at a procedural level. It is therefore necessary to consider an interpretative evolution in terms of ownership, in particular by consolidating the transition from an inventor-centric system to an investment protection system. Finally, the article proposes some interpretative solutions to reconcile the patent system with the development of computational inventions.

GUIDO NOTO LA DIEGA, *Artificial Intelligence and databases in the age of big machine data*
93/2018

This paper deals with those databases where Artificial Intelligence technologies are used to obtain, verify, or present the database's contents ('AI databases'). The overarching research question is whether AI databases can be protected under the copyright and sui generis regimes provided by the Database Directive. The alleged inadequacy of the sui generis right for the data economy and, in particular, for machine-generated data led the European Parliament to call on the Commission to abolish said right and the Commission to propose the introduction of a data producer's right as a new property that would have done what the sui generis right had been unable to. It is this paper's contention that, contrary to popular belief, the sui generis

right is fit for AI databases and that a different solution would lead to an overprotection of said subject matter by contractual means. The sui generis right may be the best, if not the only, way to protect AI 'authorial' works. Indeed, even if AI works currently fall outside the scope of copyright law for lack of originality, they could nonetheless be protected if part of a database. Thus, thanks to AI, the sui generis right may become more important than it ever was.

DAVIDE ARCIDIACONO, *Gli atti di sfruttamento dei marchi da parte delle intelligenze artificiali. Prime riflessioni*
150/2018

The article deals with the main interpretative issues in the field of trademark law raised by the presence of artificial intelligences on the online shopping channels. In this regard, thanks to a critical analysis of the Court of justice case law, the conditions that permit to affirm a trademark "use" "in relation to" "products or services" by targeted suggestions (or automatic purchases) systems are highlighted and the interpretative obstacles that stand in the way of this normative solution are taken into account. Moreover the article aims at identifying the principles that should form the basis for the construction of a normative model of agent, which suits the characteristics of such systems, in order to specify both the "risk of confusion" and the conditions to affirm the contributory infringement of the managing entity of the targeted suggestions (or automatic purchases) systems, also taking into account the interpretation followed by the Court of justice on the "safe harbor" provisions set forth by the Directive on electronic commerce.

FRANCESCA FERRARI, *L'Intelligenza Artificiale e l'enforcement dei diritti di proprietà intellettuale*
171/2018

Artificial Intelligence (IA) has a recent history and there is no unanimity about its definition or a precise identification of the boundaries of the so called weak artificial intelligence. The interaction between artificial intelligence and the enforcement of intellectual property rights occurs: out of court, in the phase of research and registration of the titles as well as for the purposes of their assessment in relation to the role played by the cited systems in marketing; in the judicial phase both in the ascertainment of facts, although this is – for the time being – a typical US experience linked to the discovery phase, and – at least according to some – in the decision-making phase; finally, at a time after the judgment when the latter contains an order requiring the adoption of artificial intelligence systems with the purpose to make the judgment effective. An adequate and wise use of artificial intelligence can lead to a more efficient civil justice administration only if the jurist – expert in intellectual property law as well as in other branches of substantive and procedural law - will be able to change perspective and seize opportunities, overcoming the formalisms and achieving at the compatibility between the machine and the dialogic nature of the procedural law.

MARIATERESA MAGGIOLINO, *EU Trade Secrets Law and Algorithmic Transparency*
199/2018

To date, more and more decisions are supported or even directly assumed by algorithms. As a result, we need to understand how to prevent and govern those algorithmic choices that may prove to be wrong, unfair, or discriminatory. Algorithmic transparency, that is, the possibility to investigate the sequence of commands of which algorithms are made, could represent a solution, although partial, to this problem. However, algorithms can be protected as trade

secrets within the meaning the new European Directive 2016/943. Therefore, the paper discusses if and how much the rules foreseen in such Directive offer room to hypotheses of algorithmic transparency.

CRISTOFORO OSTI, *Crimination in the Light of EU Competition Law: a Guide for the Perplexed*

218/2018

*The article reviews the theory of discrimination under European competition law. This theory has been for long put aside by agencies and courts alike, due to both legal (mainly interpretive) and economic (due to the view that discrimination actually maximizes welfare rather than harming it) issues. We start reviewing the Commission's Google Shopping case, which, **THOUGH BEING** in fact about discrimination **DOES NOT EVEN MENTION IT**, not coincidentally, **WE SURMISE**. We proceed then to Meo, a very recent case all about discrimination, and we end by reviewing discrimination in the big data context, **REVIEWING CLAIMS THAT IT** could be used not only to extract wealth from consumers on the basis of their preferences, but even to **INFLUENCE** such preferences (so-called 'behavioral' discrimination) by recourse to techniques, **MOST OF THEM FOR** long fine-tuned in the advertising industry.*

MIKKO ANTIKAINEN, *Copyright Protection and AI-Generated Works-A Fight We Have Already Lost?*

243/2018

The use of AI in the creative arts has become so sophisticated that computer-generated work is difficult to distinguish from purely human-created work. Such development raises questions over whether AI-generated works are copyright protected or not, and who should own the copyright: the AI itself, the maker of the AI system, the user of the AI system, or no one. The paper explores the two main normative arguments against according copyright protection to AI-generated works: firstly, that a work must be created by a natural person and that thus AI-generated works cannot be protected; and secondly, that many AI-generated works lack originality. Whether a work is generated solely by an AI or created with assistance from an AI, there is a good chance that it will lack originality, meaning that many AI-generated works should not be protected by copyright. However, the paper outlines the position that AI-generated works will get copyright protection to some extent, despite the normative arguments against this. The paper identifies three main reasons why AI-generated works will get protection: the difficulty of telling AI-generated and human authored works apart; the economic, political, and practical arguments in favour of the protection of AI works; and finally, the legal uncertainty surrounding AI-generated works, which supports their protection. These points challenge both of the normative arguments against giving protection to AI-generated works. There is also a possibility that if AI-generated works are not protected by copyright, rights holders will turn to alternative protection measures, such as private ordering and changing business methods, which will extend the protection offered to such works beyond copyright's normal scope.

GIUSEPPE ROSSI, *Intelligenza artificiale e la definizione di "opera dell'ingegno"*

268/2018

The essay tackles the issue of the impact of creative works produced by AI systems on the legal category of "oeuvres de l'esprit". An overview of current applications of AI in the

artistic/literary fields shows that (human) authors carry out their creative activity mostly in drafting algorithms, or in setting up the technical and / or expressive devices that will subsequently allow other individuals to show off their own creativity. This calls for further reflections on access of algorithms to copyright protection, as well as on the legal recognition of a specific category of “AI works”, including those forms of art/literature in which the work is the outcome of an ongoing interaction between the AI system and its users. In those cases, the “oeuvre de l’esprit” does not assume a final and complete form, but it is subject to constant, and often non predictable (and, therefore, not predefined) changes.

THOMAS MARGONI, *Artificial Intelligence, Machine learning and EU copyright law: who owns AI?*
281/2018

Within the broad field of Artificial Intelligence (AI), Machine Learning (ML) looks at improving the performances of computers in executing tasks for which they were not specifically pre-programmed. Applied to the field of Natural Language Processing (NLP), machine learning helps computers to autonomously learn tasks such as recognition, understanding and generation of natural language (i.e. the language spoken by humans). In other words, ML applied to NLP refers to the ability of humans to interact with computers in the same way in which humans interact among themselves. Examples of these applications are very common in the current information society. Digital devices, such as phones, tablets, TV and the like are nowadays equipped with personal assistants (called “AI”) which can communicate through voice or learn to improve their tasks by studying the user’s behaviour. Similarly, it has been estimated that as much as 40% of companies’ consumer support offered via social media (e.g. Twitter) comes from AI bots which have learned to speak or write in a human language (being it English, Italian or any one else). But how do computers learn a language? Normally, computers learning natural languages need to “train models” using specific ML algorithms. The trained models represent the “memory” of a machine which has learned a language. The machine will use this memory to learn more or better linguistic skills and will use it to formulate its own statements. Usually, models are trained on corpora, that is to say by analysing (and thus by making temporary copies of) literary works, often “available on the Internet”. In the eyes of the copyright expert the research question of this short contribution will already appear evident: Is the act of training a model for ML/NLP purposes a copyright infringement, in particular of the right of reproduction? In addition to this question, the contribution also intends to explore whether there are other rights that may be infringed such as the right of adaptation. The methodology is that of comparative EU legal studies, where within the general framework of the EU copyright acquis, examples of domestic law will be employed where relevant. The answer to these questions is particularly important because it is not limited to copyright law or theory but it directly impacts also on innovation policy, as determining whether permission has to be secured in order to train ML models equals to state: who owns AI?.

FRANCESCA VESSIA-NICOLÒ MUCIACCIA, *ICT implants and Brain-Computer Interfaces: Legal Issues in the EU Framework*
305/2018

The paper examines the problem of the patentability of medical and non medical human enhancement technologies (hereinafter HETs) from an internal, communitarian and international law perspective. After having carried out a brief reconnaissance of the taxonomy of the different types of ICT and BCI implants, the study goes on with the identification of the

cardinal points that will guide the research in its subsequent developments, pointing out which reference ethical substratum is human rights, rather than religion or politics. It will then develop the examination of the patentability of HETs devices, drawing a distinction between medical and non medical ones, in light of the TRIPs Agreement (Art. 27), of the Communitarian discipline and of the Italian IPC, formulating working hypotheses about the principle of lawfulness that integrate the innovative perspective human rights based with the principles of public order and morality, as well as with the principle of human dignity more recently added by the Italian legislator in the regulation of biotechnological inventions.

JEAN-MARC DELTORN, “In the style of...” – deep learning, style transfer and the limits of copyright protection. A European perspective

337/2018

The advent of new algorithmic processes is allowing to automate the creation of artworks that emulate the style of existing artists. Without requiring significant human input, purposely designed deep neural networks have become capable of capturing the stylistic properties of a reference corpus and can appose it to new sources (be they musical or graphic), in a process appropriately labelled “style transfer”. How do such creations impact the copyrights of the authors of the source works from which these secondary, automated creations, are produced? Since it is precisely the form, the expression, of an artwork that falls under the umbrella of copyright, style transfer appears to hit at the core of the protection. A first inquiry concerns the algorithmic copy of style itself: is there, and, if so, under which conditions, copyright infringement when a style is copied? A second line of investigation concerns the right of reproduction. Since these deep learning generative processes do not rely on a direct reproduction of the artworks but, rather, transform and modify the source works through an inference model, are existing copyright metrics adapted to justify a cause of infringement in the final emergent artefact? If copyright fails to protect the right of the authors of original works against the unprecedented transformative properties of style transfer platforms, can unfair competition practice may be called upon to protect the rights of authors when no direct copy of their works is produced? Without protecting a style per se, could a form of “artistic parasitism” be invoked to protect against the unfair “free riding”, characterised by a systematic and methodical appropriation of another person’s work through neural network style transfer processes?

GABRIELE SPINA ALÌ, *The Times They Are AI-Changin’*: Copyright and Computer Generated Works

367/2018

The ability of computers to create human-like art is one of the most unsettling features of AI machines. Under a legal perspective, the EU copyright directives do not regulate creative computers and the works generating therefrom. As a result, some degree of legal uncertainty surrounds computer-generated works. By leveraging on the observations that the requirements of authorship and originality in the EU law presuppose the existence of a human creator, the main goal of this paper is to elucidate why current copyright rules cannot cover AI artworks. Moreover, on a perspective of legislative reform, we question the stance that the EU copyright framework could be readily applied to computer creations. After reviewing the characteristics of intelligent computers, as well as the policy goals behind the protection of computer creations, we submit that future legislation on the subject will have to distance itself from traditional copyright paradigms.

ALTRI STUDI

LUIGI CARLO UBERTAZZI, *Falsi d'autore e proprietà intellettuale*
400/2018

This article addresses a number of intellectual property law aspects related to falsely attributed works of art. In the first place, this paper argues that the author's right to disclaim and deny authorship does not fall within his moral rights under art. 6bis of the Berne Convention (BC) or Italian copyright law. This is confirmed by several arguments. (i) The literal wording of the BC and the relevant provisions of Italian copyright law do not include the right to disclaim authorship. (ii) The preparatory works and legislative history of the BC and Italian copyright law do not mention the right to disclaim authorship either. (iii) A systematic interpretation of the law suggests that there is no reason to apply moral rights to disclaim authorship, since these rights only pertain to the author's own works (and not to false ones). (iv) Balancing the interests at stake, authors may still have the right to disclaim authorship relying on the personality rights on one's name, honour and reputation, if so provided in the national law (as is the case for Italy). (v) Italian scholars unanimously exclude the enforcement of moral rights against falsely attributed works of art. (vi) Part of the Italian case law agrees with this interpretation. Although numerous lower court decisions actually argue that false attributions would violate the author's moral rights, the article notes that the Italian courts did not address the applicable law properly, resorted to problematic and self-contradictory reasonings, and there is no Supreme Court decision to date on the matter. In the second place, this paper examines evidence standards in (false) authorship matters, touching upon the burden of proof rules and the central role of independent experts and artists' archives in the appraisal of authenticity. Copyright-specific presumptions of authorship are also addressed. In this respect, the article highlights how according to the BC, as well as EU and Italian law, in the absence of proof to the contrary, the indication of the author's name on the work in the usual manner is sufficient to establish authorship and delves into the rules (and possible role) of the Italian public register for works of art for establishing authorship.

RAFFAELE SERVANZI, *88 casi italiani sul diritto dell'autore all'integrità dell'opera*
432/2018

The article identifies facts, decision and motivation of many Italian judgements about the moral right of the author to the integrity of the work. The article considers all the decisions given since the entry into force of the l. 633/1941 until 2018 and published in Italian law reviews.

LORENZO MICACCHI, *Il diritto sul ritratto*
475/2018

The economical value of the personal image appears to be ill compatible with the moral character of the relative right that transpires from the normative fabric. At a first analysis, when confronted with commercial practices, it seems that the legal world offers a precarious foundation, if not a real deficiency of protection. In truth, the law in force allows a very broad protection of the person's portrait, both in his patrimonial attitude and in the moral one. The dualistic reconstruction of the right of portrait as a right of intellectual property allows a more satisfactory exercise of the rights in an economic dimension and at the same time a better protection of the moral faculties and non-pecuniary interests of the person.

FABIO NIEDDU ARRICA, *Il conferimento di attività di ricerca e sviluppo nella società a responsabilità limitata*
499/2018

The assumption of the essay is the unsuccessful application of the services equity contribution in the limited liability company under Italian law (also known as “s.r.l.”) to investigate the attractive spaces of the capitalization of innovative services, collectively referred to as “research and development”. The first part of the paper focuses on the services equity contribution from the perspective of legal capital rules. The second part focuses on the connection between the intellectual property and services equity contribution, with which the “s.r.l.” can: a) develop a patentable invention, a software protected by copyright or industrial design rights; b) apply know how, trade secrets or confidential information to their production processes. The purpose of the paper is to compare the incentives and benefits of innovative services equity contribution with respect to an alternative contractual solution, such as a business unit of research development equity contribution, a license agreement or a research contract.