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Gender of machines: is she a woman or is it a female device?

Il genere delle macchine: è una donna o un congegno femminile?

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We live in a gendered culture in which the process of gendering is ingrained in the very structure of the nowadays' society. The prominent importance of this theme lead programmers to categorize machines through gender, in order to let the latter classify, specularly, human as well.

Consequently, it results evident that sex difference becomes essential in the relationship between humans and machines so that we are driven to ask why and how does gender influence the creation and the roles of AIs in our society.

Key words: Sexuality, Identity, AI, Robot and gender

Viviamo in una cultura orientata al genere ove il processo di "gendering" è incardinato nella struttura stessa della società odierna. La particolare rilevanza di questo tema porta i programmatori a classificare le macchine in base al genere, consentendo a queste ultime di classificare, specularmente, anche l'umano. Di conseguenza, risulta evidente che la differenza sessuale diventa essenziale nella relazione uomo-macchina, così che siamo spinti a chiederci perché e in che modo il genere influenza la creazione e il ruolo della IA nella nostra società.

Parole chiave: *Sessualità, identità, IA, Robot e genere*

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Introduction

Gender and AIs' connection is studied as a general issue analysed briefly and roughly from different points of view: social, economical and technical.

The discussion of this topic begins by studying the processing of the human figure via machines in order to recognize their gender. This procedure emulates the way humans themselves discern the different sexes. Specularly, the following point of the discussion deals with how man, by its own nature, assigns a gender to machines, perceiving them as sexed entities through their voice and external features. Through this debate the need has arisen for a brief inspection concerning the evolution of robots and AIs focusing on the social role attributed to them depending on their technical connotation, gender and the way they are able to fit in our society establishing relationships with their interlocutors. The glaring way to ultimate this inspection comes with a reasoning on the ways we treat AIs, approaching them with trust or to express a need toward a service they provide, relating to them and depicting them as similar or as reliable machines.

Machines turn to humans: you are just naked bodies

Biometrics includes various methods of measuring characteristics linked to an individual's

anatomical and behavioural properties. It consists of technologies capable of extracting data through an automated mechanism and of processing them for authentication, when a person's data and biometric profile have to correspond, or verification, when a matching document is needed (Mordini, 2006).

Gender is an important cue in social activities; therefore, the convention that leads us to talk about gender and not about sex is that, while the latter distinguishes females and males, gender polarizes women and men, so we tend to think of sex as biological and gender as cultural.

The *Automatic Gender Recognition* (AGR) is a technological research method that aims to use sex to make a gender distinction and it is believed to improve user experience by providing a digital system with more information about the users, resulting in it being able to better adapt to them. This method is useful in marketing too, because it can analyse customers to help store managers who can better manage and respond to the preferences of the users, and it is also believed to have the ability to enhance surveillance by analysing user data and providing results to authorities. It appears evident that it is crucial for a number of applications of human-computer or human-robot interaction.

Due to these various applications, the problem of automatic gender recognition has recently raised significant attention, which led to the possibility for these class of algorithms to receive

increasing support and new developments: today these objects of analysis use various techniques which reflect processes by which a man manages to identify another man.

In fact, when a human figure appears to us in the distance, first of all we elaborate the way in which it approaches us, already starting from the body structure or the walk we manage to address ourselves for the recognition of the gender of the person. In this regard, the gait-based gender biometric recognition process uses the *Gaite Energy Image* (GEI) that considers the gait, which is a particular way or manner of walking. It has become an interesting biometric feature because it has the advantage of being noncontact and easily acquired at a distance (Yu et al., 2009). Body sway, waist-hip ratio, and shoulder-hip ratio are also indicative of a walker's gender, for instance, males tend to swing their shoulders more than their hips, and on the contrary, females tend to swing their hips more than their shoulders. This analysis is also combined with body recognition using part-based gender recognition algorithm and analysis of breast shape: males normally have wider shoulders than females, and females normally have thinner waists and wider hips. These evidences are due to the fact that, as some studies show that men have more skeletal muscle than women and that these gender differences are greater in the upper (40%) than lower (33%) body (Janssen, 2000). The problem is that these kinds of features are not easily extracted from videos because of some variable parameters such as angulation, clothing and shoes changes.

As a man once identified these characteristics of the unknown figure, would then focus his attention on the voice of the latter, so the programmers have devised algorithms that allow the machine to perform a recognition of gender based on the voice of the subject. The voice recognition system has the purpose of understanding who is speaking, and should not be confused, as it often does, with a speech recognition system, aimed to understand what is being said. It is based on two-stage classifier where pitch thresholding is applied in the first stage, and *Melfrequency cepstral coefficients* (MFCC) extraction, based on the physical signal, followed by a classification based on *Gaussian mixture models* (GMM) done in the second stage, in which each speaker is modelled through a sum of Gaussian distributions. This approach is preferable to achieve the best results in text independent systems (Shafey et al., 2014).

Then when the unknown figure got close enough, a man would focus on the characteristic features of the face of the subject under analysis. Here, as a mirror of the investigative processes related to a man's natural behaviour, systems were

developed that develop the same analytical method in order to make a gender distinction based on facial symmetries.

The visual classification can be schematised in three phases: a first stage of facial gender recognition where people's faces appearing in the acquired images have to be detected using an object detection framework to achieve high detection rates, and a learning algorithm used to

select the most discriminative features. During this phase, through the combination of different classifiers, the background regions of the image are discarded while faces are detected.

When faces are detected, a discriminative representation has to be computed: the face representation, in which is performed a pre-processing step to remove geometric and photometric variabilities and the features are extracted for the gender classification module.

Eventually we come to the gender classification: in this last step the *Support Vector Machine*

(SVM) is used since it is perfect for the gender recognition problem due to having a powerful classifier for two classes-based problem, combined with the *Adaptative boosting approach* (Adaboost), which is able to build a strong classifier from a combination of weak classifiers (Santarcangelo et al., 2015).

Obviously the attempt to replicate the analysis that a man would do on an unknown subject, the algorithms focused on different recognition elements are assembled together in order to make the biometric analysis more complete. The implementation of the vocal analysis with the visual one brings in fact a much greater accuracy of the classification, using the audio gender classifier, based on the *Gaussian mixture models* (GMM), and the visual classifier, constructed upon *support vector machines* (SVM). The acoustic features obtained by the *Mel-frequency cepstral*

coefficients (MFCC) and their first derivatives are combined with the visual features obtained by the intensities of the pixels (Shafey et al., 2014).

In order to achieve a greater accuracy in facial recognition and gender classification the ethnicity parameter may be integrated.

As well as the ethnicity not only being linked to physical appearance but also to the cultural aspect, gender is a complex concept in which both a cultural constructor and a core aspect of an individual identity play important roles. Consequentially gender is not something that can be accurately read through physical features such as face, body, or voice by either humans or digital algorithms. That is because gender builds up on biological sex to give meaning to sex differences, categorizing individuals through social constructs as well.

Research into gender is increasingly revealing its multifaceted internal aspects, which exhibit much more diversity and fluidity than thought before. Therefore, problems arise when, to cite an instance, the AGR algorithm is applied to transgender individuals: its inaccuracy is linked to the fact that the identification may coincide with the individuals' physical appearance but not with their vision of themselves, with how they would prefer to be identified (Hamidi et al., 2018). The problem of transgender reveals how relevant it is to investigate the identity of a person rather than to classify it, otherwise people would be considered naked bodies devoid of stories and identity.

Humans turn to machines: you are a female, not a woman

The investigation on the gender perception through technology shows that one of the most important intra- and interpersonal human characteristics is gender difference. Hence, as we live in a technological and gendered culture, technical objects are inscribed with gender.

One of the ways in which we can theorise the gendering of artefacts is to adopt a constructivist view of technology. Since the 1970s, philosophers and sociologists of technology have challenged the positivist view of technology, in which technological development is presented as an autonomous process, untouched by cultural norms and values. This approach towards technology has dominated western philosophy until the 1970s and is still popular among many scientists, engineers and policymakers. Constructivists reject this view of artefacts as neutral objects designed according to principles of technical function. Instead, they argue that technology is inextricably intertwined with society: cultural norms are not kept outside the domain of technology, they are among its constituents instead. Since we live, think and act in a world where gender represents an important scheme, it is very likely for technology to be shaped by gender norms and vice versa (Oudshoorn et al., 2002).

This (historical) digression partly analyses the issue of why, as humans, we need to assign a gender to machines and robots. However, more inspection can simplify this complex topic.

In the first place, it is important to highlight that robots are constructed by humans, hence, the robot's design is inevitably affected by the humanoid gender difference. The choices that creators make when applying gendered criteria to robots are often (unintentionally) based on their views on gender (Oudshoorn et al., 2002, Akrich; Oudshoorn et al., 2004).

For instance, designers and producers can choose not to implement large bosoms or broad shoulders, even though re-

moval of gendered criteria does not necessarily imply a lack of gender.

Moreover, objects can become gendered because innovators anticipate the preferences, motives, tastes, and skills of the potential users, and the cultural norms in society.

Analysing the case of the robot Pepper, made by Softbank (Japan's largest mobile company), on its company webpage, Softbank writes:

"In our mind, robots have no gender. But they are much more than an 'it', much more than just a product: they are an artificial species. But we noticed that depending on where you come from, people project Pepper to be a male or a female!" (SoftBank, 2015).

Interestingly, SoftBank states that, as sellers, they do not assign a gender, but that buyers choose a male or female gender for the robot they purchase.

Secondly, as humans we have an urge to give personality to non-human objects. Roger Andre Søraa, a researcher at the Department of Interdisciplinary Studies of Culture at Norwegian University of Science and Technology (NTNU) claims that:

"Many people give their boats, or their robot vacuum cleaners, female names. Gender is one of the first characteristics we assign to objects and humans" (Lilleslåtten, 2019).

Humans often use gender as a key criterion when speaking about other humans, as well as when naming boats, pets and so forth. When writing about Pepper, the author initially planned to use genderless articles such as 'it' to describe … her; but as it turned out, the author had already gendered Pepper linguistically as female.

One captivating aspect examined by Søraa, is that the connection between gender in society and gender in technology is also an opportunity to understand human gender through robots gender, a possibility to overcome some social barriers. The Transvestite robot Matsukoroid could provide a clear example of this point of view.

Matsukoroid, based on the TV star and LGBT icon Matsuko, is a social-mechanical gendered female robot that portrays a biological gendered male who identifies as a social and psychological female. This robot shows a willingness for its creators to play with gender, making it more fluctuating and less strict. Lie and Sørensen emphasise that "any study of gender and technology necessarily will be a study of change". Technological gender might also change the view in society through transvestite robots (Søraa, 2017; Lie and Sørensen, 1996).

Having analysed all these cases are we able to actually state whether robots are gendered or not? If so, how? In the process of gendering robots it is crucial to shed light on the distinction between biological and social gender and psychological gender.

The former is referred to as biological sex, based on the distinction between the physical attributes humans are born with. The latter is linked to the gender one feels on the inside, connected to the identity of a person, which cannot be seen just through biological sex.

"Robots cannot have biological gender. You may install copies of human sexual organs, but they are mechanical, not biological" (Lilleslåtten, 2019).

The robot's physical features are significant for its social gender.

An example of gendering technology could be represented by artificially intelligent Virtual Personal Assistants such as Siri, Alexa and Cortana, which appear to be decisively gendered female.

Their gendering is conveyed through mythical female names and through a female voice that users find more comfortable to instruct and give orders to than a male voice.

A voice which behaviour economics has decided is less threatening: she assists rather than directs; she pacifies rather than incites.

The results on a study on political campaign advertisements showed that a costumer was willing to accept what they were being told if the voice behind it was pleasant enough to convince them (Obinali, 2019). When given an option, people tend to be more likely to accept information from voice assistants with greater perceived vocal pleasantness. According to their designers, the names "Siri", "Cortana" and "Alexa" were chosen for their phonetic clarity: the soft vowel sounds contrasted with the clear consonance made their names easier to recognise by natural language processes. Eventually other aspects also influenced the naming of Siri, Cortana and Alexa since their names are all consistent with mythic and sexualised notions of gender.

"Siri" is a Nordic name meaning the beautiful woman who leads you to victory. "Alexa" is a derivative of Alexandra and Alexander. The etymology of Alexa is from the Greek "alexo" (to defend) and "ander" ("man"), denoting, then, "the defender of man". Alexa was also one of the epithets given to the Greek goddess "Hera" (the goddess of fertility and marriage) and was taken to mean "the one who comes to save warriors". Cortana, on the other hand, was originally the AI aide from the Halo game series. In Halo, Cortana was formed through cloning the mind of a successful female academic – Dr Catherine Elizabeth Halsey (Loideain and Adams, 2018).

In addition, the questions and VPA responses set out above also provide an indication of the kind of gendering their designers had in mind. When asked whether she is a woman, Cortana's response "I'm female. But I'm not a woman" affirms the definitive difference between gender and sex: gender can be coded, but sex is natural, a biological function. Alexa, in contrast, seems to play into this binary with her statement "I'm female in nature". This response is reflected too in Siri. Indeed, if you ask the program its gender it will

answer: "I don't have a gender. I am genderless. Like cacti. And certain species of fish. I was not assigned a gender. Animals and French nouns have genders. I do not. Don't let my voice fool you: I don't have a gender. I am still just … Siri".

Both VPAs seem to insist on the fact that they 'exist beyond your human concept of gender', suggesting that such technology transcends traditional binaries of sex/gender and natural/artificial and, subsequently, cannot be challenged. Despite Siri and Alexa's claim to be genderless, their voices inevitably lead to gender them as females. The process of "gendering" technology is often described in this terms: gender is an externality, a supplementary or aesthetic element which is applied on an empty and neutral device.

Against this tenor, there is the fact that gender is an inherent part of understanding Siri, an active part of the successful functioning of the interface itself and not an element that is laid across a neutral surface. (Phan, 2017)

In an algorithm such as Apple's Siri, the gendered voice is a prominent feature in the user interface. This is proved by the introduction of the "gender option" for Siri in 2013. The "gender option" meant that users could effectively change the gender of Siri's voice, although the default voice of Siri persists on being the one of a female.

Furthermore, the binding binary choice of Siri's voice between male and female highlights a point: the absence of a neutral voice as a third option.

In order to overcome this issue, the first genderless voice for Ai assistants has been created and it is called Q. Q's voice was recorded by people who neither identify as male, nor female. A range defined by audio researchers who altered the sound with the purpose of making it gender neutral, setting the voice's frequencies between 145 and 175 hertz. Q hints the huge transformative power that technology has, not only in challenging the traditional order of things, but in creating new ones. Precisely, the message conveyed by Q is to create a future where we are no longer defined by gender, but where we define ourselves instead, in order to ensure a technology that recognizes us all (Meet Q: The First Genderless Voice, YouTube).

Nevertheless, it is consequential that the message spread by Q hides behind it the ideas of the programmer, still, those views might be challenged by asking:

is it true that for us? Do we need a neutral environment, in order to be free? In other words, is it true that our nature is an obstacle to be removed from us, so that we can define ourselves openly?

Social robots and AIS: you are friendly devices and creepy creatures

The development of language goes hand in hand with the development of society. Everyday we witness the creation of new words and idioms which represent in an even better way what we have on our minds. During the first industrial revolution, that took place in England between 1780 and 1840 AD the word "machine" has been coined. From the Webster's vocabulary the definition of machine is: "a mechanically, electrically, or electronically operated device for performing a task". This word has a vast meaning, therefore, over time, we had to create some specific words to describe different kind of machines. During the last few decades, we have witnessed changes in lifestyle to adapt to the improvement of technology. For this reason, the creation of a new vocabulary has been required due to the development of robotics. It has been necessary to draw a line between different species of robots.

The Webster's Dictionary defines a robot as:

"any manlike mechanical being, by any mechanical device operated automatically to perform in a seemingly human way". Concurrently we have also the definition of social robot: it is a "physical entity embodied in a complex, dynamic, and social environment sufficiently empowered to behave in a manner conducive to its own goals and those of its community" (Merriam-Webster online).

As a result we have to distinguish a machine which is just an appliance from one that is able to create a connection with people.

The main difference between a robot and a social robot is that the second one is capable of integrating in a social environment, of simulating humans' way of being. It comes without saying that this upgrade results useful since the social robot can be perceived as the interface able to connect man and technology, in a way that leads to a significant increase of the man-robot relationship due to the use of a robotic system crucial to destroying the barrier turning away people from the digital information space (Duffy, 2003).

It became important to define what a social robot is and how it does differ from other mechanical machines in order to discuss the relationship between social robots and humans, trying to understand in which way the social robots could improve the interaction between men and technology.

A relationship between people is based on some pillars like trust, empathy, love, and many others. A human builds a relationship when he is confident that the other part is reliable. Therefore persuasion plays a significant role in these dynamics, it is "an attempt to shape, reinforce, or change behaviours, feelings, or thoughts about an issue, object, or action" (Fogg, 1998), a means by which the robot can create

a dialogue with people. Some interactions which could affect the persuasiveness are gaze, proximity, gestures, vocal cues.

Nowadays there are many experiments led to understand how a robot can be persuasive. Some of them, and their results, might be summarized as follows:

1) Storytelling: experiment made by researchers of the University of Eindhoven and Singapore. The target of this research had the aim to prove that the persuasive power of a robot delivering a persuasive message is significantly improved by gazing and gestures. A robot told a persuasive story to 64 participants gazing and using gestures that simulated the human-human interaction. Once the robot had finished the story, participants answered to some questions in order to evaluate the persuasiveness power of the machine. The results showed that persuasion or likeability was not particularly effected by participants' gender. In addition, while the gestures had not a great effect on persuasiveness power, it was showed that when the robot gazed at participants, they found the story less believable (Ham et al., 2011);
2) Vocal and nonverbal cues: Research in a range of areas suggests that a key role in persuasiveness is played by nonverbal behaviours of a human speaker. Researchers from the University of Wisconsin-Madison described how a robot might effectively use those behaviours to persuade users verifying that gaze and proximity are examples of nonverbal immediacy and individual nonverbal cues which can affect persuasion. In conclusion they could infer that the presence of vocal cues alone were less effective in persuading participants, than bodily cues alone. Meanwhile vocal cues alone did not improved people's compliance, while nonverbal cues significantly did (Chidambaram et al., 2012).
3) Influence of robot gender on human behaviour: an interesting experiment was carried out by the MIT. They randomly selected people who had to interact with a robot that tried to persuade them to donate some money for research and then the participants had to evaluate the robot's persuasiveness. The robot had not an external gender but changed its voice in a male or a female one to explore how the gender of a humanoid robot affects the way it is perceived and also its ability to influence human behaviour. Those parameters were studied along three different dimensions: trust, credibility and engagement. The results were extraordinary. In fact, men donated more often to the female robot, whether alone or in company, while women donated more often to the female robot, when accompanied, and more often to the male one when they were by themselves (Siegel et al., 2009).

Since interactions are based on trust, that between men and machines needs people to confide in the ability of machines of having feelings and empathizing in order to happen. Studies like the ones previously exposed are trying to identify the features that a machine needs to own in order to be more believable than possible. The social robots are anthropomorphic to distinguish them from other categories of automatons and this anthropomorphism can be reached in different ways. A social robot could be human-like or could talk with different voice tones; it could simulate emotions and feelings. All these features lead to robots looking similar to human beings. Strong anthropomorphic paradigms in HCI may increase a user's expectations of the system's performance. (Duffy, 2003)

An excess of faith in robots' abilities can be self-defeating. Therefore machines can't be perfectly humanlike and this lack could easily turn faith in restlessness, causing a descent into eeriness: a phenomenon known as 'the uncanny valley'. It may be a result of a person's response to a human-like robot. The feeling of a person, as it approached a lifelike appearance, would abruptly shift from empathy to revulsion.

In 1970, Masahiro Mori, a robotics professor at the Tokyo Institute of Technology, claimed that:

"according to the designer, a smile is a dynamic sequence of facial deformations, and the speed of the deformations is crucial. When the speed is cut in half in an attempt to make the robot bring up a smile more slowly, instead of looking happy, its expression turns creepy. This shows how, because of a variation in movement, something that has come to appear close to human – like a robot, puppet, or prosthetic hand – could easily tumble down into the uncanny valley" (Mori, 2012).

The phenomenon of the uncanny valley was completely overlooked by the robotics and scientific community and it has been taken into consideration only in recent years, when some researchers started to study human-robot interaction.

Concerning this interaction, it is important to distinguish how the anthropomorphism is perceived in different societies around the world. An interesting distinction is the one between physical appearance of a robot made in the USA or in Japan. In an article named *Looking forward to sociable robots* by Glenda Shaw-Garlock, the Author compares an American social robot, named Kismet, and a Japanese one, named Repliée. The differences between the automatons are clear starting with their morphology. While Repliée is a human-like robot who seems to breath and was defined like the "closest thing yet made to a machine copy of a human being" (Garlock, 2009), Kismet is "consciously designed to not look like a human"(Garlock, 2009; Breazeal, 2002).

Those two robots represent different views: Kismet's designer evidently believes that the most important feature to improve human-robot interaction is the artificial intelligence bias, Repliée's one, on the other hand, thinks that the aesthetic bias, associated with the view, is the most important aspect of the interaction between humans and machines. Repliée's designer refers to his robot as an android to highlight its aesthetic kinship with humans, while Kismet's designer refers to her robot as a social robot to foreground its capacity to engage with human beings in various social contexts. Those differences are directly connected with the social boundary

preconditions: in Japan, for instance, there is a tradition connected with humanoid dolls made to make company. There is a perception of robots as extension of family, they are referred to 'as' people, not 'as if' they were people, and this is reflected also in their language and religious beliefs. For the Japanese culture technology coexists with humans and consequently their robots appear humanlike. Shifting to the occidental view, completely different from the Japanese one, there is a duality of feelings: there are both an inner fear and a frenetic research of technology and development. In the western culture lives an underlying anxiety, caused by the contraposition of scary and of the desire towards modernity. The development is mostly seen in a negative way for historical and social reasons: echoes of these fear are clearly present in occidental literature and also religious traditions. The theme of an impassable line describes a fear that is part of this cultural structure (Garlock, 2009).

Despite feeling a certain level of anxiety towards social robots we still need them and during the last decade we have increasingly felt the need to distinguish different classes of social robots; different approaches had been taken into consideration to theoretically classify them but what better way then considering the relationships they build with humans?

Through these criteria we can recognize as a first prototype the "Utilitarian humanoid social robot", that are sometimes referred to as domestic robots or service robots. They are mainly designed to interact with humans for instrumental or functional purposes. As a second species we have the "Affective humanoid social robot", robots designed to interact with humans on an emotional level (they are studied to interact with people through play, play therapy, and even companionship). We can summarize the differences between utilitarian and affective robots stating that, while utilitarian robots have to interface people in a formal way, keeping the distances with their interlocutors, affective robots have to persuade people on their reliability, they have to assist people, and accompany them, not just fulfil an obligation.

Affective robots, empathizing with people, are able to simulate feelings and emotions. This phenomenon is described as "illusion of life". Scientists and philosophers that have coined this idiom say that an artificial system is only able to give the illusion of intelligence, so the relationships that people can engage with robots cannot be mutual. This point of view, defined as Weak AI, is the accomplishment of the belief that human intelligence can only be simulated, an implication that comes directly from the contradictory term "artificial intelligence". The opposite thought is expressed by the Strong AI, which is the belief that an artificial system could be able to duplicate human intelligence (Duffy, 2003).

According to this point of view the scientist Alan Turing, in 1950, developed

"a test to establish the existence of artificial intelligence, in which questions from an interrogator are answered by an unseen person and computer. With the understanding that if the interrogator is unable to correctly identify which responder is human, the computer has demonstrated thinking ability comparable to a human's" (Merriam-Webster online).

This test is called "The Turing Test".

The terms, strong and weak AI, were coined by Searle in 1982, and they are still overly debated. During the years this led to the development of two extreme points of view: strong-strong AI and weak-weak AI.

"Whereas strong-strong AI claims that also thermostats have feelings, weak-weak AI claims that only humans can have feelings because they are the only being with souls" (Gams, 1997).

There is a relationship between weak and strong AI and the connections between those points of view were studied mainly by Sloman who graduated a strong-weak scale in 1992. His studies concerned an architectural upgrade of the Touring machine and they led him to an assertive weak AI view. As Gams wrote in his book *Weak AI is stronger than strong AI?* (1997), Sloman tried to upgrade the formalistic approach of Touring machines using his engineering knowledge, in order to completely avoid both mentalism and cognitive sciences. Every strong approach he described was characterized by an Undiscovered Algorithm of Intelligence (UAI) and, despite the different approach took by every lower theory, the strong AI was easily demolished. In simple terms, Sloman's scale started with the strongest AI theory and redefined it more and more until he reached the bottom of the scale, where he defined the weak AI. In the history of Artificial Intelligence, the AI community has changed its mind about the credibility of weak AI (or specularly the credibility of strong AI). Near the middle of the last century the strong AI was dominant, a belief in autonomy of artificial products powered by Touring. Only during the last decades the weak AI, thanks to Sloman's studies, gained the upper hand in the community. Conclusively it is not clear in which particular direction discovery of true intelligence lies, but nowadays the collective thought is that true intelligence does not have much to do with a small technical improvement (Gams, 1997; Sloman, 1992).

Nowadays everyone has the power to define himself. Humans have the ability to choose their clothes, the colour of their hair and, in the same way, they can decide almost everything about their sexuality. It seems that humans have inside their way of being the Undiscovered Algorithm of Intelligence, which is the only one able to create the perfect social robot, the best strong AI ever imagined. Nevertheless isn't this algorithm intelligence itself?

If so, can a machine have this type of intelligence, in order to define itself? Can the best Intelligence ever generated even decide about its gender? The answer is almost unambiguous. The programmers define their creatures. They design their mechanical devices as they like, according to the mar-

ket tendencies. People decide for machines, trying to identify something that does not properly have an identity.

Trustworthy AI and mass media: you make a terrible human being

Over the past few years, we have been increasingly feeling the need to rely on machines on a daily basis and consequently we have started trying to trust AIs as if they were humans, companions that helped us accomplishing all sorts of tasks.

This phenomenon has developed to the extent that the European Parliament considered it necessary to identify and release the Ethics Guidelines for Trustworthy AIs. The official document produced by a high-level expert group on artificial intelligent is especially relevant due to its mission to understand in which cases we can consider an AI to be not only a reliable and efficient machine but also a helper that we can trust.

The Parliament has developed 7 Key Requirements that define a trustworthy robot: human agency and oversight; technical robustness and safety; privacy and data governance; transparency; diversity, non-discrimination and fairness; societal and environmental wellbeing; accountability. An AI in order to satisfy all of these requirements has to respect human autonomy and safety throughout its entire life cycle.

Once these requirements are evaluated it will lead to a diverse situation to take into consideration: are trustworthy AIs, as defined by the guidelines, better than humans to cover certain roles in our society? Is it preferable to hire a robot instead of a person under certain circumstances?

Trustworthy AIs seem to be the perfect fit for a variety of jobs that require the employee to engage in repetitive tasks and treat costumers with courtesy and respect. Hotels, stores, libraries are starting to recruit robots over humans. This choice seems to be preferable both functionally and economically: costumers seem to be more at ease if helped by a robot assistant than a human one in many cases and AIs never tire, allowing the employer to hire less of them. Even large brands of hotelerie are opting for the high-tech choice such as Hilton Hotels (Yu, 2019).

Recent studies are analysing the reaction of costumers to robot assistants in public services and the responses show that oftentimes costumers prefer to interact with an AI because they feel the robot to be more willing to help than a human employee. Another significant aspect that seems to influence the liking of the robotic presence is the appearance and gender features of the machine itself. Depending on the role the AI covers people associate a diverse image to how the robot should look like. According to a 2019 analysis of online reviews (Yu, 2019) regarding the use of robots in the hospitality industry, costumers have a more positive attitude towards female AIs working as secretaries, cleaners, elder assistants whereas male are preferable for the roles of waiter, stuart, front desk helper, lobby boy. Why does the robot's gender influence the perception people have of them? Does it alter their functionality or is it only an inevitable response of our brains?

With these questions the difference between reliable and trustworthy AIs becomes clearer. If robots where to be only reliable like a telephone or a washing-machine we would feel no need to classify them according to human gender. This necessity comes from us wanting to trust robots and in order to do that we should feel as little intimidated by them as possible.

Mass media has increasingly been showing us examples of friendly AIs that behave just like us and that are perfectly able to develop relationships with humans in a way that is no different than how we would interact with one another. In these relationships the gender of the robot becomes all the more important as shown in recent portrayals such as Spike Jonze's movie "Her" and Alex Garland's "Ex Machina". These two movies depict how a female AI can interact with a male human and make him fall in love with her more than a human female would. Why is that the case? Through a specific analysis of the dynamics between robots and people, we are able to understand that female cyborgs are seen as a trustworthy figure to whom we may even talk about our deepest secrets and express our insecurities whereas male robots are seen as a reliable helper to whom we go to whenever we need assistance.

A great and effective example of how the gender of an AI influences the job we decide to set it up to do is the recently released video game "Detroit: Become Human". In this game the player controls three different cyborgs, a female and two males. They were sold to the public to be used in diverse occupations: the female one is a nanny, one of the males is a detective and the other is a caregiver for a rich elderly man. The game focuses on the issue of how we perceive the AIs and how much we are able to adapt to their presence. Are they confined to their task as a tool or are we able to develop an attachment to them similar to the one we feel for other human beings? Is it because of their gender and appearance? For instance the elderly man starts to see the caregiver cyborg as a son and even considers letting him inherit his possessions; the child wo lives with the nanny robot treats her as her mother or older sister, a behaviour which wouldn't have been possible if the AI didn't look like a young woman. "Detroit" makes us question which factors play a significant role in the way we treat and consider robots and when does our perception shift from seeing them as machines to relating to them as equals.

One of the most significant moments in the entire game is the ending (spoilers ahead) in which the player is given one final choice: the AI that controls the menu of the game asks whether or not you want to set her free since the game has ended. Surveys have shown that most male players force her

to stay as the assistant of the game while female players tend to give her freedom. Why is that? The answer seems to be that men perceive female cyborgs mostly as machines doing their job and male ones as equals whereas women are most likely to have an opposite experience.

One final question is left unanswered: why are humans so fascinated by the idea of building a relationship with an AI, when we want to create a bond with them is it because we trust them more or is it to be less scared of them? The answer can be discussed from the most avangarde tv series of the last few years on the topic of AIs, HBO's "Westworld".

The series, written by Lisa Joy and produced by Jonathan Nolan, deals with a company called Delos that builds extremely realistic AIs for the purpose of human entertainment, at least at the beginning. Throughout the story we get to see how the technicians and scientists working on these cyborgs want to make them feel as human as possible to the point that they try to build a conscience inside their code. What is the result of this tension towards humankind? Some of the AIs seem to enjoy interacting with people and building relationships with them but others start to realise how humans only created them for their own purposes. The closer their development leads them to be like a human, the scarier we seem to them. The scientists fell in love with their creations and wanted them to be a part of our world but their world, despite human-like appearances and mannerisms, is that of machines. The series lets us face a hard truth (spoilers ahead): we may trust androids, show them our way of living and try to make them a part of it but they will still feel like the machines they are. One of the main characters of the series, Dolores, who even had a relationship with a man and cared for him as a real woman would have done, in the end decides to rebel against humans and to side with machines, finding allies in robot-looking cyborgs, because she feels that her own nature needs to be restored.

We as a species feel safer interacting with what we know best and that is the reason why we want to make robots look like us, we want to trust them and want to feel like we are building a relationship with one of our kind. Therefore we are not only satisfied by a reliable machine, we want a companion that looks like us. We have not achieved this goal yet and the reason may not reside in the way we build them but in the way they see us. They can do their job perfectly but they may never reach the point of feeling the need of building a relationship with us. They are not capable of trust towards us, they only provide a good service whether they look like a young girl, a middle aged man or a washing machine.

Conclusions

Robots have become a part of our society and are consequently designed to feel integrated in it, a goal achieved by creating them as similar to humans as they can possibly be.

Ultimately, the identification of a gender is essential in human relationships, therefore programmers apply this social construct within the code of the machine as well as making it intrinsically evident in the surface of the robot itself.

The human species is naturally conscious of its sexuality and capable of perceiving that of others but this ability translates to devices exclusively when the creator assigns a gender to the machine. Among the many elements that distinguishes man from robots, we can count the intrinsic absence of an autonomous sexuality of the latter: humans can teach them the ways to discern biological sexes and can fill the code with rules to follow according to our society, but machines can show nothing more than a "designed" gender.

What is the reason why we feel this need? Is it generated by us wanting to trust robots since seeing them as something similar to us feels less extraneous and more familiar? That seems to be the case considering that when we try to create a genderless AI, depriving them of the crucial aspect that makes them closer to us and more diverse at the same time, they drift apart from human nature and from the principles towards which we want them to conform. This attempt reveals the conventional neutrality of the machines, their inability to acquire a conscience capable of pondering on questions regarding which gender do they belong or relate to, a lack of awareness towards the importance of such inquiries. The only analysis robots can work is a discernment of people's gender, bereaving them of their own identity.

Not having the intrinsic idea of identity within themselves, robots are only able to accomplish a task without being aware of their own sexuality: a machine can be nothing more than a machine.

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