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Sex robots through feminist lenses

ABSTRACT: *Since the 1970s, feminisms have stressed the intersection between gender and technology. Yet, while being mainly focused on the female access to technology, reproductive technologies and a cyborg future, no feminist narrative has ever addressed the ongoing robotic revolution and its relating challenges to the notion of gender, as in the case of sex robots. Shaped as humans and endowed with basic AI capabilities, sex robots are machines programmed to provide sexual performances; their stereotypical shape and behaviour, though, raise questions on their potential to perpetuate gender inequality. Therefore, this paper seeks to assess female sex robots through feminist lens and to repurpose them as a feminist technology.*

KEYWORDS: *Sex robots, gender, technology, feminism.*

1. Introduction

Technology and gender are challenging terms to understand. As common usage, the Cambridge Dictionary respectively defines them as "the methods for using scientific discoveries for practical purposes" and "the physical and/or social condition of being male or female". Yet, the existence of other definitions reflects a language dynamism, developed over time and linked to a mutual, shaping relationship amongst these concepts and society. Precisely, technology has been recently recognised to be so entwined with the production of identity, that it could no longer be meaningfully separated from the individual[1]; therefore, gender has become embedded in technology and, vice versa, technology may reinforce or subvert gender.

Since the 1970s, the feminist thinking has sought to outline this intersection between gender and technology. At first, technology was regarded as a male domain, meant to control women; later, in the 1980s, cyberfeminism identified emerging technologies as able to empower women. In the last years, in rejecting natural and social norms of everyone's identity, xenofeminism has tried to reengineer society and repurpose technologies, by entering into the debate of their design, implemen-

1 N. K. Hayles, *How we become posthuman. Virtual bodies in cybernetics, literature and informatics*, Chicago & London, The University of Chicago Press, 1999, p. xiii.

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tation and alternatives affordances[2]. All the feminist narratives above-mentioned, however, have been mostly focused on the female access to technology, reproductive technologies and a cyborg future, thereby failing to address the current robotic revolution and its relating challenges to the notion of gender.

At present, our daily life is increasingly surrounded by hi-tech devices programmed to help and/or interact with us; additionally, these machines are often built to resemble the human being. As robots are becoming more human-like, the line between individuals and machines is blurring and the status of robots as mere objects starts being called into question[3]. Furthermore, being gender an important human characteristic, some scholars have partially sought to answer whether humans attribute a gender to robots, and how human and robotic gender relate to each other[4]. Yet, they have disregarded whether and how the existing, gendered robots can impact our perception of gender, especially in the case of female sex robots (also known as gynoids).

Shaped as humans and endowed with basic AI capabilities, sex robots are machines expressly programmed to provide sexual performances[5]. After having been launched on the market a decade ago, they soon caught the attention of academia, polarising the debate on their potential effects on society. Whilst Levy believes in emotional closeness and sexual encounters between human beings and robots and, *inter alia*, supports a new robotic demand in prostitution, as well as a higher awareness of sexual techniques and psychosexual disorders; Richardson stresses how gynoids merely reflect a common stereotype of female appeal, availability and sexuality, by perpetuating the unbalanced power dichotomy between johns and prostitutes. Nevertheless, both approaches fail to identify sex robots as a technology to be associated with the chance to further progress on feminist social change. As a result, this article seeks to assess female sex robots (also known as gynoids) through feminist lenses, in order to understand whether they can alter the existing idea of gender dichotomy for better or worse and how they might be recognised as a feminist technology.

2 Given rise in 2015, xenofeminism is a new form of queer- and trans-inclusive feminism based on the principle of techno-materialism, anti-naturalist and gender abolitionism. Rather than providing new theories, xenofeminism engages "in collecting, discarding and revising existing perspectives", especially from the feminist second wave. A further explanation is developed in Section 2.3. – H. Hester, *Xenofeminism*, Cambridge & Medford, Polity Press, 2018, p. 1.

3 With regard to the case of sex robots, see, for instance, D. G. Johnson, M. Verdicchio*, Constructing the meaning of humanoid sex robots,* in "International Journal of Social Robotics", (2019), pp. 3-4, available at: https://link.springer.com/article/10.1007/s12369-019-00586-z#citeas (last access: 02.12.2019).

4 See, for instance, F. Bray, *Gender and Technology,* in *Women, Science and Technology. A Reader in Feminist Science Studies,* ed. by M. Wyer, M. Barbercheck, D. Cookmeyer, H. Ozturk and M. Wayne, London, Routledge, 2012, pp. 370-381; J. Robertson, *Gendering humanoid robots: Robo-sexism in Japan*, in "Body & Society", XVI (2010), n. 2, pp. 1-36.

5 Any robot, albeit its appearance, could be used for these purposes; yet, such object sexuality has less significance as regards human interactions and the way gender is constructed. Additionally, in this article, the terms 'female sex robot' and 'gynoid' are used interchangeably, given that the latter word corresponds to the gender antonym of 'android'.

As feminism is a multi-faceted critical approach and cannot be reconducted to a single theory and/or movement, this works intends to provide some food for thought, while reading the cutting-edge field of sex robotics under the light of the above-mentioned divergent literature on feminist and technology.

In light of the above, the article is divided as follows. Section 2 provides a brief overview of feminist discourses on technology. Section 3 explains in detail what sex robots are, including a pertaining state of the art. In Section 4, the feminist theories behind gender and technologies are applied to the case of gynoids, to understand whether they are in compliance with such narratives. Finally, the conclusions review the main findings.

2. Gender and technology in the feminist discourses

Following technological determinism, technology develops autonomously and is free from any social, economic or political influence; rather, it determines social changes. From a feminist perspective, such theory cannot be accepted because it disregards how technology is likewise socially shaped and able to reproduce gender inequalities. Thus, by recognising technology and society as mutually constitutive, the theory of social construction of technology better supports the overall feminist claim against patriarchy. As an instance of social relations, gender is entwined with technology and this mutual link allows to empower women, as well as to establish more equitable gender relations[6]. Precisely, the feminist critique has focused on the male means of technological production, as well as the women's control deriving from it. A more detailed account of any intersection between gender and technology through feminist lenses is given in the following subsections, while focusing on the main narratives of liberal, radical, cyber- and xenofeminism.

Before proceeding to such analysis, however, it is important to make a foreword to the notion of feminism. A precise definition of feminism has always been proved elusive, given that there is no single and coherent doctrine called as such. Yet, by defining it negatively in respect of what it challenges, feminism has always sought to eradicate patriarchy, to be understood as the social system where men rule over women, benefiting from doing so at latter's expenses[7]. On these grounds, feminism represents a multi-faceted theory and/or a real movement which revolves around a diverse array of issues and can simultaneously accommodate divergent viewpoints[8]. Accordingly, this article answers its research question by referring

6 D. G. Johnson, *Sorting out the question of feminist technology*, in *Feminist technology*, ed. by L. L. Layne, S. L. Vostral K. Boyer, Urbana, Chicago & Springfield, University of Illinois Press, 2010, p. 36.

7 L. Finalyson, *An Introduction to Feminism*, Cambridge, Cambridge University Press, 2016, p. 6.

8 For further readings: L. Disch and M. Hawkesworth, *The Oxford Handbook of Feminism*, Oxford, Oxford University Press, 2016; whilst the British publisher, Routledge, provides an online platform on the history of feminist at: https://www.routledgehistoricalresources.com/feminism/about/history-of-feminism (last access: 15.04.2020).

to four feminist narratives known for their analysis on the intersection between gender and technology. By doing so, the next subsections follow a chronological order, so as to provide a clearer explanation of divergent feminist discourses with the pace of technological developments.

2.1 Liberal and radical feminisms subvert technology

Back in the 1970s, the main concern about the intertwining between gender technology was found in its cultural association. As a result, technology was recognised as pertaining to the sole masculine domain because women were considered unskilled and not interested in it; rather, femininity was connected with the realm of nature[9].

In such context, liberal feminism firstly sought to recover the history of women's achievement in technology, as well as to question their socialisation and aims. As regards the female involvement in technological changes, authors outlined both historical mistakes and unfair attribution of inventions; similarly, they analysed the traditional understanding of technology, in order to redefine it[10]. For instance, Sayre rewrote the biography of Rosalind Franklin and her contribution to the model of DNA[11]; whereas Schwartz Cowan put forward the 'industrial revolution in the home', when washing machines and fridges transformed women's daily lives[12]. On the other hand, with regard to the female interest and participation in technology, an equal access to education and employment was claimed[13]. Given these structural barriers, women were thereby required to 'degender' themselves, so as to follow the masculine symbolism attached to technology[14].

Such understanding, though, disregarded whether and how technology could be redeployed to accommodate women, while reengineering the world. Consequently, some radical feminists, such as Rothschilds, emphasised gender dissimilarities, by calling for women-centred technologies based on female values, such as pacifism and subjectivity[15]. At any event, the main focus of radical feminism was on reproductive technologies, as affected by the patriarchal exploitation of women's bodies; thus, its narrative "seize(s) the technology without buying the ideology"[16],

9 D. G. Johnson*, op. cit.* p. 37.

10 P. D. Hopkins, *Inventing histories*, in *Sex/machine. Readings in culture, gender, and technology*, ed. by P. D. Hopkins, Indiana University Press, Bloomington and Indianapolis, 1998, p. 14.

11 A. Sayre, *Rosaline Franklin and DNA,* New York, W.W. Norton & Company, 1978.

12 R. Schwartz Cowan, *The 'industrial revolution in the home': household technology and social change in the twentieth centur*y, in *Sex/machine. Readings in culture, gender, and technology*, ed. by P. D. Hopkins, *op. cit.*, pp. 33-49.

13 J. Wajcman, *Technofeminism,* Cambridge & Malten, Polity Press, 2004, p. 14.

14 J. Wajcman, *From women and technology to gendered technoscience*, in "Information, Community and Society", X (2007), n. 2, p. 289.

15 H. Hester, *op. cit.*, pp. 70 e ss.

16 B. Ehrenreich, D. English, *Complaints and disorders: the sexual politics of sickness*, New York, Feminist Press, 2011, p. 156.

repurposing or developing technologies meant to self-help women and assert immediate agency over their own body. In this context, the speculum was redefined during collective sessions of self-help, by providing the chance to perform vaginal self-exams and gain bodily autonomy outside the patriarchal medical system; likewise, the feminist wave designed its own tools meant to avoid male control over the female period and unwanted pregnancy[17].

In any case, by the late 1980s, feminism ushered in a new era, including intersectionality in its theories and so recognising race, disability and other protected grounds as other axes of power. Simultaneously, the movement had to face the new technological revolution, entering into the digital age and revising its approaches.

2.2 Cyberfeminism to empower women

Back to the dawning of the digital era, the internet was understood as able to empower women and subvert gender relations, given its possibility to remove any embodied gender difference. According to Plant, the web blurred the lines between humans and machines and allowed everyone to assume another identity outside the existing hierarchical, gender dichotomy[18]; more generally, the new digital technologies enabled emancipation from patriarchal structures, establishing the foundation for a mutating society. Similarly, Stone analysed the development of multiple identities through information technologies, going beyond conventional social standards[19]. As virtual space, the web was the setting where the immaterial fluidity of identities could develop, so that cyberfeminism was understood as the migration of the female body from the material constrains of the reality to the virtual realm of the internet. Ultimately, when it comes to the intersection amongst information and biotechnologies, the rethinking of gender discourse went even beyond, conveying the idea that technology was fully part of the human being and so challenging the traditional notion of gender identity. On such premises, Haraway introduced the metaphor of the cyborg to subvert the binarism existing in contemporary culture and so to develop an inclusive and intersectional set of politics. Besides, in referring to a science fiction scenario throughout her work, the author provided "an account of the lived experience of the inequalities inherent in the ways in which science and technology structure social relations, as well as a means of imaginatively exploring the possibilities for fundamental change within those structure"[20].

17 J. Wajcman, *Feminist theories of technology*, in "Cambridge Journal of Economics", XXX-IV (2010), pp. 143-152, p. 147.

18 S. Plant, *Zeros + Ones. Digital women + The new technoculture*, London Fourth Estate, 1997, p. 46.

19 R. A. Stone, *The war of desire and technology at the close of mechanical age*, Cambridge MA, The MIT press, 1996.

20 *Cybersexualities. A reader on feminist theory, cyborgs and cyberspace*, ed. by J. Wolkmark, Edinburgh, Edinburgh University Press, 1999, p. 4.

Nevertheless, such positive approach about women's empowerment and gender fluidity was not free of critics. For instance, Balsamo argued that cyborg images already reproduced cultural gender stereotypes based on the bourgeois concepts of human, machine and femininity[21]; likewise, Gonzales was concerned with the cyborg's visual representation, highlighting how the traditional gender dichotomy had been reproduced there too[22]. Simultaneously, according to Hayles, "the new cannot be spoken except in relation to the old"[23] and, therefore, the gender constructions inherent to cyborg subjectivities were expected to transpose into the posthuman.

At any event, cyberfeminism looked at technology as a means towards emancipation and this leitmotiv is also found in the xenofeminist movement from the new millennium.

2.3 Xenofeminism and the repurposing of technologies

The Laboria Cuboniks collective gave rise to xenofeminism in 2015, so as to reframe the artificiality of identity, by rejecting the presumed material conditions (sex) and social norms (gender). As a result, in its Manifesto, xenofeminism is defined as gender abolitionist, anti-naturalist and technomaterialist and enshrines such features in the slogan: "If nature is unjust, change nature![24]". The narrative deriving from these principles, though, are mainly developed by Hester, due to their recentness and, maybe, complexity.

Starting from gender abolitionism, its aim actually includes all the basis of oppression, such as race and class, and is meant to eliminate the existing culture of inequality. Besides, far from creating a genderless world, this abolitionism is suggestive of a multiply gendered one, beyond the existing binary[25]. As regards anti-naturalism, xenofeminism accepts that science and technology can intervene in nature and thereby extend human freedom; in other words, nature is not immutably fixed, and technology should shape a horizon of possibilities in a proactive and emancipatory reworking of the gendered system[26]. Ultimately, xenofeminism is technomaterialist because it is critically interested in technologies that may seem mundane, as well as higher profile innovations capable of acting as vectors for new utopias; in addition, it recognises any technology as constrained and constituted by social relations[27]. Consequently, xenofeminism is emancipatory, as long as it balances the technological impact on society and the transformative potential of such technology.

21 A. Balsamo, *Reading cyborgs, writings feminism,* in *Cybersexualities. A reader on feminist theory, cyborgs and cyberspace*, cit., pp. 148 e 154.

22 J. Gonzáles, *Envisioning cyborg bodies: notes from current research*, in *Cybersexualities. A reader on feminist theory, cyborgs and cyberspace*, cit., pp. 264-279.

23 K. N. Hayles, *The life cycle of cyborgs*, in *Cybersexualities. A reader on feminist theory, cyborgs and cyberspace*, cit., p. 158.

24 *Xenofeminism. A politics for alienation. Manifesto*, ed. by Laboria Cuboniks, 0x1A available at: https://www.laboriacuboniks.net (last access: 02.12.2019).

25 H. Hester, *op. cit.,* pp. 29-30.

26 *Ibidem,* pp. 12-13 e 20-22.

27 *Ibidem*, pp. 8-9.

To give an example of how a xenofeminist technology would be and, as a member of the Laboria Cuboniks, Hester analyses the Del-Em. Created in 1971 by feminist activists, Rothman and Downer, such device aimed at suctioning menstruation at once and getting an early self-abortion. Accordingly, it allowed an immediate agency over the female body, while being part of a shareable process of self-emancipation from the medical establishment; furthermore, as a means of ensuring a fair dissemination of technologies, the Del-Em had a free and open source design. From this perspective, Hester interprets this device as xenofeminist. Firstly, Del-Em enshrined the repurposing of old tools for new ends, so as to circumnavigate gatekeepers (patriarchy). In fact, it was inspired by the handy equipment used by backstreet abortionists, given that Rothman's patent simply added a valve, some tubing and a collection jar to the previous design; likewise, the repurposing was reflected in the process of material construction, where users were expected to self-experiment through everyday objects[28]. Consequently, the non-marketability and free accessibility of Del-Em facilitated a process of selective appropriation against the male history of reproductive politics, while eradicating the trauma of illegal medical procedures too[29]. Secondly, in terms of scalability, Del-Em was regarded as both a primarily local intervention and a feminist protocol[30]; namely, in addition to an enhanced reproductive autonomy, the device was the result of a collective process characterised by relationality, adaptability and transmissibility amongst female users.

2.4 Final remarks on feminism and technology

So far, this section has shown the main feminist views on gender and technology. Briefly, in the 1970s, by locating the problem in female education and employment, liberal feminism claimed for equal opportunities and a degendering process from femininity. Later, in addition to the male monopoly of technology, gender was considered embedded in technology by radical feminism; therefore, gender dissimilarities had to be acknowledged and celebrated, in order to develop a new applied science. In any case, both narratives looked at technology as a male domain to be taken back. Starting from the late 1980s, instead, a shift of perspective occurred; rather than looking at women as mere victims of male domination, the web became a means to empower them and subvert existing gender relations, shaping the new figure of cyborgs. Finally, in the last years, xenofeminism has sought to repurpose technologies and reengineer society, by entering into the debate of their design, implementation and alternatives affordance from a gender abolitionist perspective. In conclusion, in the last three decades, technology has been considered a means able to eradicate any biological differences.

In light of the above, it is now necessary to explain the case of gynoids, before proceeding to understand whether such robotic companions could be labelled as a feminist technology.

28 *Ibidem*, pp. 98-99.
29 *Ibidem*, pp. 100 e 102.
30 *Ibidem*, pp. 104 e 108.

3. The case of sex robots

Briefly, sex robots are machines shaped as humans and specifically programmed to provide sexual performances. It may be argued that any robot could be used to this end; nonetheless, this possible misuse, driven by unusual desires, goes beyond the scope of this paper, given also the research interest in the link between gynoids (as quasi-humanoids) and gender. At any event, sex robots have the specific history and features explained below.

3.1 Understanding Sex Robots

In the late 1990s, life-like sex dolls were launched on the market, spreading all over the world (especially in the United States and in Asia) and resulting in an attractive, technological investment. At present, gynoid companies, such as Realbotix, Synthea Amatus and AI Tech, have started endowing their robots with basic human muscle movements, synthetic voices and other AI capabilities, while selling them as a luxury item both for private and commercial use.

Although the shape may be either male or female, the demand has been mainly for the latter; accordingly, the market share of male sex robots is low, being limited to a couple of models. Besides, a similar gender disparity can be found in many companies' organizational structure, where the main roles are mostly played by men; for example, out of the five 'dreamers' posted on the Realbotix website, four are men[31]. Another gender feature, which is distinctive of gynoids, is their stereotypical female shape to stimulate sexual arousal. Accentuated breast, prominent butts, slim waists are just a few of the most common characters a buyer can wish and get, without the need to respect human anatomy. By reproducing an aesthetic and sexual archetype, everyone is given the chance to freely put his companion together, even deciding the pubic hair colour.

When it comes to emotional bonds, Levy believes that "attachment to a material possession can develop into a stronger relationship as a result of the possession's repeated use and the owner's interaction with it […] As we use it, play with it, and so forth, we get to know it, and gradually it might become less and less a commodity, more and more a part of our life"[32] and, in support of this view, Ciambrone *et al.* study life-like dolls' owners, who refer to their dolls by name and talk about how they are good-looking[33]. Furthermore, since 1970, the uncanny valley theory has argued that there is a relationship between the degree of an object's likeness to an individual and the emotional response

31 For this reason, the male gender is used to refer to both the user and the manufacturer, whilst the female one to the gynoid.

32 D. Levy, *Love and sex with robots: the evolution of human-robot relationships*, New York, Harper, 2007, p. 28.

33 D. Ciambrone, V. C. Phua, E. Avery, *Gendered synthetic love: real dolls and the construction of intimacy*, in "International Review of Modern Sociology", XLIII (2017), N. 1, p. 68.

to this object[34]; whereas, recent research haven been shown that human beings behave the same way in interactions with robots, following the so-called media equation and suspension of disbelief theories[35]. Specifically, the former theory argues that machines can provide social cues meant to suggest their capability of engaging in social interactions, where individuals disregard their artificial nature as long as such exchanges automatically follows 'scripted' social responses; while, according to the suspension of disbelief theory, people neglect features which differ from reality to get fully involved in social interactions with machines[36]. Falling in love with an object, however, may risk establishing an unbalanced relationship, between the human owner over the inanimate object. In such circumstances, the control over the liaison is all-encompassing: from attributing meanings to defining the other's behaviours, no effective interaction or response is involved, given the chance to switch the device off, or even to simply set it up again when something goes wrong.

Besides, buyers can freely choose amongst countless personalities and sexual tendencies to satisfy their unilateral desires.

On such premises, there is still no agreement to sex robots' effects upon society amongst scholars and, before proceeding to examine such debate, it is still important to compare them with sex toys and pornography. On the one hand, sex toys could be defined as devices meant to improve the nature and quality of sexual experiences. In addition to erotic lingerie and BDSM equipment, many sex toys are shaped as genitalia and, to date, teledildonic technology even allows partners to control them remotely[37]. Although Ciambrone *et al.* emphasise that the development of sex toys supports the desire for solitary sexual interaction and the replacement of human partners[38], there are two main disparities between sex toys and robots in terms of shape and use. Sex toys are a mere reproduction of a body part or a geometrical resemblance of it, whilst gynoids look like a human body as a whole and are able to reproduce a realistic sexual experience. Likewise, despite the fact that the negative impact on self-image due to the partner's sex toy use is regarded as a possible negative outcome, research outline greater sexual pleasure, sexual satisfaction and safer sex as positive effects in using sex toys; instead,

34 M. Mori, *The Uncanny Valley* (1970), Eng. transl. by K. F. MacDorman, N. Kageki in "IEEE Robotics & Automation Magazine", XIX (2012), n. 2, pp. 98-100.

35 J. M. Szczuka, N. C. Krämer, *Not only the lonely. How men explicitly and implicitly evaluate the attractiveness of sex robots in comparison to the attractiveness of women, and personal characteristics influencing this evaluation*, in "Multimodal Technologies Interaction", I (2017), n. 3, p. 3.

36 J. M. Szczuka, T. Hartmann, N. C. Krämer, *Negative and positive influences on the sensations evoked by artificial sex partners: a review of relevant theories, recent findings, and introduction of the sexual interaction illusion model*, in *AI love you*, ed. by Y. Zhou, M. Fischer, Cham, Springer, 2019, pp. 5-7.

37 N. Döring, S. Pöschl, *Sex toys, sex dolls, sex robots: our under-researched bed-fellows*, in "Sexologies", XXVII (2018), n. 3, p. e52.

38 D. Ciambrone, V. C. Phua, E. Avery, *Gendered synthetic love: real dolls and the construction of intimacy*, cit., p. 60.

gynoids are not simply used for a mere sexual gratification, but also as artificial cohabitation partners at the owner's absolute disposal, leading to objectification and abuse[39]. Moreover, even though sexual performances with a robot deviate from ordinary sexual norms and could thus be considered negatively, leading to stigmatization and a following relinquishment of the practice, such norms are still shaped on social, economic and cultural attitudes which, through time, have been shown to change. Turning now to pornography, its mainstream erotization of gender inequality, as well as its consequences on potential female objectification, has been a controversial and much disputed subject within the field of psychology; as a result, findings are still debatable. Yet, unlike pornography, sexual encounters with gynoids involve both a psychological and a physical dimension, so that the user will be even more likely to internalise its permanent availability and appeal[40]. Accordingly, research on pornography should be applied or compare to the case of sex robots carefully.

3.2 The academic debate over sex robots

Following their launch over the market, questions have soon been raised about the potential use and effects of sex robots, sparkling off a lively debate that is mainly focused on benefits and harms to users and society.

When it comes to positive consequences deriving from the use of gynoids, since 2007, Levy has drawn his attention to potential forms of bond and intimacy individuals may have with them. To date, sex with robots is far from being fully accepted due to cultural barriers on how human sexuality is identified as normal; in his works, though, Levy looks for a social leap, in light of past shift of perspective on sexual morality (for example, homosexuality and oral sex). Besides, a change of attitude is likewise expected following the emotional attachment people already show to pets and virtual individuals. As a result, given their several talents, senses and skills provided by (perhaps still futuristic) AI, gynoids are likely to become long-life spouses or occasional partners, even influencing the demand for prostitution.

In the same vein, McArthur suggests that robotic sex should be accepted because it would fall within the private sphere, without causing any direct and tangible harm[41]; indeed, sex robots do not suffer, nor feel pain and thereby any sexual expansion or eccentricity should not be labelled immoral in any pluralistic and secularised society. On the other hand, as regards prostitution, Levy identifies four reasons influencing its demand: absence of sexual and emotional mutuality, lack of sexual success, desire for sexual variety, and freedom from constraint and complication; it goes without saying that all of these expectations could be satisfied by gy-

39 N. Döring, S. Pöschl, *Sex toys, sex dolls, sex robots: our under-researched bed-fellows*, cit., pp. e52-e55.

40 S. Gutiu, *Sex robots and roboticization of consent*, Draft for *We Robot Conference 2012*, p. 10.

41 N. McArthur, *The case for sexbot*s, in *Robot sex: social and ethical implications*, ed. by J. Danaher, N. McArthur, Cambridge (MA) – London, The MIT press, 2017, p. 82.

noids programmed to this end, with the only exception of the emulation of mutual feelings. In addition, both Levy and Danaher argue that, wherever prostitution is criminalised, the use of sex robots could avoid any risk of punishment[42]; whereas, according to Yeoman and Mars, prostituted gynoids could have the ethical advantage to substitute victims of trafficking, while also providing harm reduction, supposed that robots will not contract venereal diseases[43].

At any event, the overall positive perspective suggested by Levy has also been followed by other authors, who, however, focused on different (and sometimes more specific) features or uses of gynoids. For instance, McArthur and Balistreri stress how, by potentially providing greater level of sexual satisfaction, gynoids improve user's health conditions[44]. Precisely, both scholars report scientific evidences, according to which, "high levels of sexual activity correlate to weight loss, lower stress levels, better heart and blood-pressure outcomes, lower rates of prostate cancer for men, and better sleep"[45]; besides, sex with a partner has been proved to have psychological advantages that masturbation cannot reach and thereby gynoids are expected have effect similar to partnered sex[46]. Thus, from a legal perspective, this line of argumentation can be understood as a claim for an effective right to health, which, though, may be also read together with the equality principle, with special regard to disabled and elderly people.

Deriving from the right to health and the equality principle, the sexual rights of individuals with disabilities have been put forward by the academia and linked to the figure of sexual assistants. Meant to support the whole spectrum of disabled people's sexuality, sexual assistance is sometimes compared to sex work, whilst the European Platform for Sexual Assistance defines the involved professionals as a mediator between the person and her sexuality. Yet, despite of its specific understanding (as well as its relative nature in the human rights discourse), Balistreri and Di Nucci envisage the chance of resorting to sex robots in this context[47]. More generally, gynoids may be used for sexual therapy relating to other disfunctions, such as premature ejaculation; to this end, a recent research on the relating attitudes of therapists and physicians, albeit exploratory, shows that almost half of the respondents envisage the recommendation of gynoids for therapy[48]. Otherwise,

42 D. Levy, *The ethics of robot prostitutes*, in *Robot ethics: the ethical and social implications of robotics*, ed. by P. Lin, K. Abney, G. Bekey, Cambridge MA, The MIT press, 2012, p. 224; J. Danaher, *Sex work, technological unemployment and the basic income guarante*e, in "Journal of Evolution and Technology", IV (2014), n. 1, p. 117.

43 I. Yeoman, M. Mars, *Robots, men and sex tourism*, in "Futures", XLIV (2012), p. 369.

44 N. McArthur, *op. cit.,* pp. 86-87; M. Balistreri, *Sex robot. L'amore al tempo delle macchine,* Roma, Fandango Libri, 2018, p. 45.

45 N. McArthur, *op. cit.*, p. 87.

46 *Ibidem*, pp. 88-89.

47 M. Balistreri, *op. cit.*, pp. 122-134; E. Di Nucci, *Sex robots and the rights of the disabled*, in *Robot sex: social and ethical implications*, ed. by J. Danaher, N. McArthur, cit., pp. 187-229.

48 C. Eichenberg, M. Khamis, L. Hübner, *The attitudes of therapists and physicians on the use of sex robots in sexual therapy: online survey and interview study*, in "Journal of Medical Internet Research", I (2019), n. 8, e13853.

authors, such as Devlin, identify elderly as another target group that could benefit from the use of sex robots, especially in care homes[49]; conversely, gynoids could provide sexual education, even amongst people who lack any experience[50]. Ultimately, in Turin, Zara, together with the Faculty of Psychology, the prison 'Lorusso e Cotugno' and the Department of Mental Health of the Local Health Service, carries out a Sex Offenders Risk Assessment and Treatment in the context of the re-educative function of punishments[51].

All the said literature on potential, positive effects of gynoids has been challenged by Richardson and her campaign to ban their manufacture, sale and use. According to the author, gynoids are potentially harmful to society because they perpetuate gender inequalities[52]. More precisely, sex robots embody a further commodification of women, given that, as already mentioned, the robotic shape and programming is reproducing stereotypical and gendered norms of physical appearance and behaviour. In addition, the above-mentioned unbalanced relationship between the robot and the user is considered comparable to a john-prostitute exchange, where the sale of sex lacks any subjecthood and reflects female inequality. Finally, such reinforcement of unbalanced relations is expected to lead to further violence against women.

The lines of argumentation put forward by Richardson has been similarly supported by other scholars; for example, Gutiu and Sparrow warn against the normalisation of the rape culture which sex robots are expected to bring about[53]. As regards other negative effects, however, the literature barely exists. Some authors, such as Klein and Lin, suggest the potential job loss in the context of sex industry[54]; nonetheless, no other remarkable research is worthy of mention.

So far, this section has attempted to provide a brief overview of divergent meanings attributed of sex robots, as well as to their expected effects amongst society; it is thereby necessary to understand whether gynoids could be a feminist technology, in light of the main narratives outlined in Section 2.

4. Sex robots through feminist lenses

What follows is an analysis of gynoids through feminist lenses. To this end, each feminist narrative begins by providing a deconstructive criticism to the current state of play; later, the focus is moved to positive features, with an eye of repurposing gynoids.

49 K. Devlin, *Turned on. Science, sex and robots*, London, Bloomsbury, 2018, p. 230.

50 M. Balistreri, *op. cit*, p. 90.

51 G. Zara, *La psicologia dei sexbot nel trattamento dei sex offender*, in M. Balistreri, *op. cit.*, pp. 249 e ss.

52 K. Richardson, *The asymmetrical 'relationship': parallels between prostitution and the development of sex robots*, in "SIGCAS Computers & Society", XLV (2015), n. 3, pp. 290-293.

53 S. Gutiu, *The robotization of consent*, in *Robot Law*, ed. by R. Calo, A. M. Froomkin, I. Kerr, Cheltenham and Northampton, Edward Elgar publishing, 2016, pp. 202-209; R. Sparrow, *Robot, rape, and representation*, in *International Journal of Social Robotics*, IX (2017), n. 4, p. 471.

54 W. E. J. Klein, V. W. Lin, '*Sex robots' revised. A reply to the campaign against sex robots*, in *ACM Computers & Society*, Volume 47, n. 4, p. 119.

4.1. The liberal and radical perspective

The cultural association between gender and technology claimed by liberal feminism appears to be reflected in sex robots too. As mentioned in Section 3.1, the organizational structure of many companies, such as Realbotix, shows a sharp gender inequality, thereby perpetuating the male domain of technological production. Besides, the female low demand, as well as the following limited choice for male models are maybe symptomatic of a masculine production and marketing plan. By thinking in terms of gender stereotypes, it is not surprising that Realbotix used to manufacture silicon sex dolls, which historically reflect a dualistic order of sexual satisfaction and a heteronormative normalisation of sexual conduct[55]. Indeed, although the actual origin of the sex doll is unknown, back to the XVII century French and Spanish sailors already carried the so-called *dames de voyage* to help with sexual solitude[56]; instead, no history of male counterparts has ever been unfolded, being female sexual satisfaction limited to geometrical sex toys and took out of the shadows after the Sex and the City's "rabbit episode"[57].

In light of the above, sex robots cannot be recognised as a feminist technology from a liberal perspective. To achieve such purposes, equal opportunities in joining the design, manufacture and marketing of gynoids should be granted to women; besides, going beyond the existing normalisation of gender sexual conducts, women should have the chance to access sex robots designed to satisfy their sexual pleasure. Nevertheless, both aims are expected to be reached simultaneously, in order to avoid any degendering process; in other words, women need to develop their own way of conceiving gynoids, as well as to freely decide whether and how to use them. Ultimately, as far as this call for a female peculiarity is concerned, liberal feminism actually corresponds to the radical one, as explained in the next paragraph.

As it stands to date, following a radical perspective, gynoids cannot be accepted as a feminist technology either, since they fail to accommodate women and their specific values. When it comes to the direct intersection between gender and technology, the main interest outlined in Section 2.1 has been said to be on reproduction, due to the patriarchal exploitation of female bodies perceived at that time. In this vein, radical feminism also sought to detach female sexuality from its reproductive function, regardless of its intersection with technology. From this perspective, radical feminism recognised the clitoris as an organ of sexual pleasure like and equal to the penis and thereby able to open up the possibility of another form of sexuality and sexual pleasure, not exclusively related to penetration and reproduc-

55 T. Kubes, *New materialist perspectives on sex robots. A feminist dystopia/utopia?*, in "Social sciences", VIII (2019), n. 8, p. 233.

56 A. Ferguson, *The sex doll. A history*, Jefferson and London, Mc Farland & Company, Inc. publishers, 2010, p. 16.

57 L. Comella, *(Safe) sex and the city: on vibrators, masturbation, and the myth of 'real' sex*, in *Feminist media studies*, III (2003), n. 1, pp. 109-112.

tion[58]. Nonetheless, the current physicality of sex robots is mostly genital-centred, with the consequence of exclusively reproducing penetrative sexual intercourses aimed at the male coitus. As a result, sex robots fall short of the said understanding of female sexuality and, in order to fill this gap, their manufacture should start promoting new representations and experiences of sexual interactions and intimacy.

4.2 The cyber- and xenofeminist discourses

Both cyber- and xenofeminism consider the ability of technologies to subvert gender relations; nonetheless, such dream has not yet come true, when it comes to sex robots. In fact, as is evident from Section 3.1, gynoids' appearance and programmed behaviour still embody gender dissimilarities, while conveying stereotypical norms of sexual conduct. As Haraway's cyborg is far from having been created, the technology inherent to sex robots has not explored the xenofeminist potential to overthrow oppressive natural conditions attached to gender, along with their cultural reinforcements. Likewise, as already claimed and called for by the xenofeminist manifesto, women have never entered into the debate concerning the design, production and alternative affordance of gynoids. Thus, once again, existing sex robots are not a feminist technology.

Unlike liberal and radical feminism, though, cyber- and xenofeminist narratives seek neither to degender women, nor to deploy femininity-centered technologies; rather, their aim is to go beyond gender dichotomy and to eliminate any distinction as such. At any event, being the current look and pre-set conduct of sex robots the main obstacle to their recognition as feminist technology, it is now necessary to understand the relating concerns.

It has already been explained that, by being humanlike, gynoids are not mere devices for sexual arousal and satisfaction, such as sex toys and pornography; instead, they reproduce a sexual interaction with another individual, while being harmless and compliant to the user's wishes. Besides, given their female shape, they represent an archetype, meant to represent an enhanced version of women, in terms of appearance and behaviour. By being designed and sold to provide sexual performances, the user is inclined to switch gynoids on for no aim other than that, and so getting used to this idea of everlasting availability, sometimes out of consent norms. Consequently, through these repetitive and unbalanced sexual interactions, sex robots contribute to the performative construction of the female gender, being those interactions witnessed, reproduced and internalized and so given a socially recognised meaning.

Traditionally, the concept of performativity involves the use of the language as a form of social action having effects of changes[59]. Over time, such concept has had

58 For a brief overview: E. Della Torre, *The clitoris diaries: La donna clitoridea, feminine authenticity, and the phallic allegoryof Carla Lonzi's radical feminism*, in "European Journal of Women's Studies", XXI (2014), n. 3, pp. 219-232.

59 Such concept was firstly developed by Austin in: J. Austin, *How to do things with words*, Cambridge (MA), Harvard University Press, 1962.

several applications in various fields, such as in the case of gender studies. In this context, in the late 1980s, Butler started developing her theory on performative acts and gender constitution[60], where gender is understood as being constructed by means of a recurring set of performances, which are in compliance with dominant societal norms and out of the individual's control. More specifically, the American author believes that gender is something individuals perform; yet, rather than being an expression of self-determination, gender is a matter of reiterating the social norms through which the individual is constituted and is so expected to perform in turn[61]. Clearly, Butler's theory concerns the construction of gender in respect of the human being. Nevertheless, although the case of sex robots deals with a being other than the individual, gender performativity could still be reinterpreted in light of the ongoing robotic revolution and used to comprehend how human and robotic gender relate to each other. Gynoids are programmed by humans to interact with humans; therefore, they credibly reiterate the social norms constituting gender.

Against this background, how sex robots should be defined in comparison to human beings, and whether its humanlike nature could have an influence over gender relationships cannot be disregarded in the intersection amongst gynoids, gender performativity and feminist technologies. When it comes to the ontology of humanlike robots, in addition to the theories outlined in Section 3.1, Johnson and Verdicchio emphasise how the robotic appearance, state of change and responsiveness are blurring the human-machine distinction[62]. In fact, companies specializing in sex robots, such as the said Realbotix, seek to activate user's anthropomorphising habit by means of appearance, technical skills and emotional impact on people[63]. Consequently, because of these humanlike features, gynoids call upon users to treat them as they were equals, by forgetting that they are high-tech devices. Under the illusion that they are capable of intimacy, appeal and empathy, sex robots can be objects of feelings and also supposed to be subjects with similar feelings. This assimilation, however, generates a hybrid that challenges the traditional dichotomy between subject and object and situates itself in an ontological order of its own. Delving into this philosophical debate on the ontological identification of sex robots as quasi-subject or object would go beyond the aim of this paper; yet, regardless of the classification, the meaning attributed to them follow the above-mentioned theory of social construction of technology and is thereby meant to reflect cultural and moral convictions relating to gender. While existing social factors affect the current interpretation of sex robots, the

60 J. Butler, *Performative acts and gender constitution: an essay in phenomenology and feminist theory*, in "Theatre Journal", XL (1988), n. 4, pp. 519-531.

61 Butler's theory of gender performativity was further developed in: J. Butler, *Critically queer*', in "A Journal of Lesbian and Gay Studies", I (1993), n. 1, pp. 17-31; J. Butler, *Gender trouble*, London, Routledge, 1990.

62 D. G. Johnson, M. Verdicchio, *op. cit.*, pp. 3-4.

63 M. A. Mende, M. H. Fisher, K. Kühne, *The use of social robots and the uncanny valley phenomenon*, in *AI love you*, ed. by Y., Zhou, M. Fischer, cit., p. 48.

latter become another signifier of what 'women' mean. To sum up, by conveying a female archetype of artificial beauty, availability and submission, and while reproducing realistic and mutual, humanlike interactions, the manufacture and use of gynoids contribute to gender performativity.

Returning to the subject of gynoids as feminist technologies, they thereby should not embody a cultural interpretation of the female that is prescribed by unequal, patriarchal practices. Rather, sex robots should convey a new form of performativity, based on gender equality and maybe beyond its existing heteronormative normalisation. Following the xenofemist discourse, a new narrative needs to repurpose the technology under scrutiny, while entering into the debate concerning their design, implementation and affordance. Specifically, as provided by Danaher, gynoids must be ensured better content, processes and contexts[64]. In other words, it is required to improve the female representation that is embedded into sex robots, while going beyond the gender dichotomy too[65]. Secondly, as also suggested by liberal and radical feminism, women's voice cannot be disregarded in the design and manufacturing process, so that the existing pornographic mimicry, sexist hyperfemininization and penetrative sexuality could be abandoned more easily. Finally, the social environments and conversations surrounding the use of sex robots need to be changed, exceeding the existing heterosexist norm[66] and even leading to explore sexual and emotional issues regardless of traditional humanlike features[67].

The latter suggestion leads to the last feature gynoids may acquire to be labeled as feminist. By aiming at gender abolitionism, this technology should seek a new understanding of what it means to be human, thereby leading either to a genderless world or a multiply gendered one. To date, both options seem to be a science-fiction concerning how the world may be; yet, Kubes and Devlin already suggest a queer intervention on gynoids that might "contribute to nonhierarchical creative and interpretive construction processes that traverse, overlap, and cut across sexual potentials without fitting into a normative unit"[68]. This would be a fruitful area for further work, given that this paper is limited to the understanding of sex robots as potential feminist technologies.

So far, by being a means of either patriarchal or feminist gender performativity, gynoids have shown to embody contractions useful to explore other affordances and signifiers; the following conclusions review all those findings and provide final considerations.

64 J. Danaher, *Building better sex robots: lessons from feminist pornography*, in *AI love you*, ed. by Y., Zhou, M. Fischer, cit., pp. 143 e ss.

65 K. Devlin, *In defence of sex machines: why trying to ban sex robots is wrong*, in "The Conversation", 17.09.2015, available at: https://theconversation.com/in-defence-of-sex-machines-why-trying-to-ban-sexrobots-is-wrong-47641 (last access: 02.12.2019).

66 T. Kubes, *op. cit.*, p. 224.

67 K. Devlin, *Turned on. Science, sex and robots*, cit., p. 266.

68 *Ibidem*, p. 230.

Conclusions

Sex robots are no longer a fantasy of science fiction; in the last decades, AI and robotics have reset the boundaries of human desire, developing new possibilities of sexual satisfaction through humanlike companions. Technology, though, is not neutral and, so far, sex robots have embodied a stereotypical archetype of how women should appear and behave. A lively debate has therefore been sparked off on their potential effects and uses amongst society.

In such polarised discussion on potential benefits and apocalyptic drawbacks, Levy and other scholars drew their attention to potential forms of bond and intimacy individuals may have with them. Their positive attitude goes with the possible manufacture of gynoids in order to empower personal liberties, such as sexual freedom, and to address social inequalities pertaining to disabled and elderly people. Similarly, other affordances have dealt with sexual education and health, clinical trials for sexual offenders and a new means in the sex market. By contrast, Richardson put forward another narrative, by launching a campaign to ban the production of sex robots. According to this author, sex robots are potentially harmful to society because they perpetuate gender inequalities. Precisely, gynoids embody a further commodification of women, considering that the robotic shape and programming is reproducing stereotypical and gendered norms of physical appearance and behaviour.

Nevertheless, all these lines of argumentation disregard whether and how sex robots may be recognised as a feminist technology, in light of the main narratives unfolded in the last five decades. Firstly, in the 1970s, liberal feminist reflections on gender and technology identified the latter as a male domain and located the problem in female education and employment; accordingly, for equal opportunities and a masculine version of women's gender identity were claimed. Instead, radical feminism later recognised gender as embedded in technology, so that gender dissimilarities had to be acknowledged and celebrated, in order to develop a new applied science. In the late 1980s, however, a shift of perspective occurred; rather than looking at women as mere victims of male domination, the web became a means to empower them and subvert existing gender relations, shaping the new figure of cyborgs. Finally, in the last years, xenofeminism has sought to repurpose technologies and reengineer society, by entering into the debate of their design, implementation and alternatives affordance from a gender abolitionist perspective.

Against this background, sex robots are currently recognised as a-feminist. In short, contrary to liberal and xenofeminism, their process of design and manufacturing disregards any female voice in terms of organisational structure and masculine marketing plan. Likewise, radical feminism requires the inclusion of female values in this production to produce women-centred technologies. Instead, according to cyber- and xenofeminist narratives, gynoids are too rooted in a sexist hyperfemininisation that cannot go beyond the traditional gender dichotomy and, rather, strengthen a stereotypical performativity. To sum up, the lowest common denominator that refrain sex robots from being a feminist technology can be found in their current representation of female beauty, availability and submission,

namely in its conveying signifier. By being humanlike and been treated accordingly, gynoids contribute to the performative construction of the female gender, being those interactions witnessed, reproduced and internalized and so given a socially recognised meaning. Nevertheless, such mutual shaping relationship between gender (as an instance of social relations) and technology allows to repurpose sex robots, while reengineering the existing world.

In conclusion, by considering the early stage of development in this field and the influence that society can have over the manufacture and use, this paper has been meant to be food for thought on the potential affordance of feminist gynoids, so as to conceive a technology meant to subvert existing gender systems. To this end, sex robots should be more realistic in their representation; include female voices; be surrounded by counternarratives about their affordances; and, maybe, look forward a multiply gendered world.