Sex with Robots for Love Free Encounters

ABSTRACT

This paper considers sex with robots for love free encounters within the context of pornographic experiences. Leisure sex and pornography are briefly outlined, along with the potential of the market. A lack of research on the user experience of pornography is identified with the proposal of categorising robots used in pornography as fantasy sex robots. Technological advances for pornography and their relevance for such fantasy sex robots are explored examining the potential offered through the integration of Virtual Reality, teledildonics, soft and wearable robots. The required integrations and advances in robotics to support love free sexual pleasure could have a valuable impact on user experience and interactivity across a range of domains.

Author Keywords

Sex robots; pornography; teledildonics; soft robots; user experience.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Socially we are often encouraged to entwine sex and love, yet there are multiple views, perspectives and experiences of sex, a limited number of which incorporate or relate to love and vice versa. In this paper, we discuss the potential of robots for sexual activity that whilst it can be used to enhance a loving relationship most frequently is not. Instead, pornography is representative of a sexual activity that is quintessentially not related to love.

There are supporters for the perspective that one day we will create robots that we can love and even marry. Yet, it must be queried how sensible, natural or wise it is to love a created object, even one that has the 'look and feel' of a living being. Whilst a robot may simulate life, fundamentally it is not living. It cares not one jot about

anything but adequately completing the code stored in its technology. Yes, it may be possible to create robots that are simulcrams of reality, however, this is all they are and thus the idea of evoking emotions such as love through human-robot interaction seems oddly inappropriate.

Of course there is the argument that some people need to feel loved and that a robot could provide an ideal solution for someone who isn't being loved. I'm not convinced, for whilst another living being may require love, a created object, even one that appears to love in return does not really require or reciprocate this love. Requiring a suspension of disbelief to enable durable love seems unrealistic and ultimately you know your lover was created by a bunch of computer scientists and engineers.

Although much social robotics has focused on affect and emotions, these are often with long term relationships in mind. But how do you have a long term relationship with something that is not real? Effectively, your robot has no more emotional resonance with you than your teddy bear, however much its clever programming might make you think it does. So, rather than taking the love route, perhaps the future for sex with robotics might lie within leisure sex, but not as is commonly depicted in futuristic settings as prostitutes or sex slaves but rather with the goal of supporting the user experience of pornography.

LEISURE SEX AND PORNOGRAPHY

A 'vanilla' view of sex still continues to dominate popular culture, particularly in the media, with healthy, appropriate sex often seen as an activity between consenting, loving, often heterosexual adults typically in a long-term relationship. Complementary to this, Attwood and Smith's discussion of leisure sex highlights a myriad of sexual practices and perspectives within "*a modern, mediatized sexual culture whose symbolic resources valorize revelation and hedonism rather than discretion and self-discipline*" [1].

Leisure sex is on the increase and gaining acceptance, for example, we are no longer shocked by the casual hook-ups of celebrities, merely titillated and amused. Casual hook-ups, affairs and sex as fun are becoming more socially acceptable activity a trend has clearly been facilitated by technology, with significant growth in hook-up and 'cheating' sites; social networks to share and gain experiences; increasing availability of adult content, such as on-line strip shows, sex web-cams, along with a significant amount industry and user generated pornographic content;

and growing use of adult interactive virtual reality platforms across a range of consoles and devices.

Whilst much on-line leisure sex has focused on sexual activity between people, there is a growth in providing sexual experiences that do not require another person. There are obvious benefits to this if the sex provides the required arousal and experience whilst avoiding potential dangers of intimate engagement, such as disease or unpleasant encounters, and of course some of the social consequences of getting 'caught.' On-line sexual experiences that do not involve another person are often pornographic, with content ranging from non-interactive video, audio and photos of real people to interactions with digital sex partners with no human in the loop.

There are many who argue that sex and pornography are, and should be, different things [2]. Yet as pornography is extended through robotics into a sexual act performed on an individual by another entity, surely this distinction blurs. However, this would naively assume that the distinction between pornography and sex relates to the mechanics of how one physically engages in sexual activity. Instead the distinction is actually made to facilitate a vision of pornography as something morally deviant, harmful and unnatural as compared to a married couple having loving sex [3].

ANY GUIDELINES FOR THE PORNOGRAPHIC ROBOT?
One of the most widely cited set of porn statistics [4] identified that every second 28,258 internet users are viewing porn; 25% of all search engine requests are pornography related; and 35% of all internet downloads are pornographic. These statistics are not without problems or critique [5], [6], but they have achieved status from their frequent repetition and resonate with the common sense belief that porn is an ever-increasing and regular on-line activity for many people.

This would make us think that on-line porn use would be a well-studied domain, with plentiful design, development, interaction and evaluation advice for the user experience that could be used to ground Porn Robots. Unfortunately this is not the case, with [7] noting that "*the intense proliferation of and access to pornography occasioned by the Internet is one of its most important and least studied effects.*" There is a recognised need to consider sexuality and human computer (sexual) interaction [8], and [9] argues that "*HCI has a unique contribution to make to the broader study of pornography.*" This hasn't happened, and as noted in [8]'s comprehensive review of HCI and sexuality: "*Works on sexual technology such as pornography, sex toys and health equipment are very few in number.*"

Whilst the research community remains nervously on the sidelines and fails to engage with the design, development and evaluation of technology for pornography, the Porn Industry has no such qualms. As with earlier technologies including photography, cinema, user-generated content [10], software affiliation and Tube sites [11], the Porn Industry is clearly willing to invest and use any technology they can to progress their sector. And robots are within their sights.

SWEETENING THE CONCEPT
By integrating sex with robots and pornography, creating robot porn, we need to consider the terminology and its potential impact. With the negative connotations and strong anti-porn lobby are we doing robots a disservice by tagging them with porn?

Instead, could we suggest we are actually creating robots to support masturbation and personal sexual gratification? Although masturbation has received its share of bad press, there is general acceptance that it is not intrinsically harmful, whilst porn is still often viewed as deviant. However, it is still something that is distasteful for many, with limited social discussion.

Or instead, could we say that as an important element of pornography is fantasy [12], that we are providing fantasy sex robots. This is so much more pleasant as a term than porn robots and clearly distinguishes these robots, which are intended for love free encounters, from robots developed for other types of sex. This sanitization to sexual experience enhanced through technology rather than some strange kink such as robo-porn may even enable us more easily to talk about our experiences… "I did that new fantasy XXX the other night."

Undoubtedly robot porn will gain its own terminology, with the press already highlighting the likely dangers of this approach. The Porn Industry don't give a damn, their eyes are on the money and this is clearly a massively lucrative area.

And more, this investment will impact significantly on almost any other interactive experience. The technologies developed to improve the porn experience will have valuable applications in sectors such as games and interactive movies.

TECHNOLOGICAL RESPONSES TO PORNOGRAPHIC CHALLENGES
Whilst pornography is often considered and advertised as 'leaving nothing to the imagination' and 'providing an immersive experience,' currently these claims are only partially met. With pornography restricted to visual and auditory stimuli, there is clearly a need for the imagination to fill the gaps left by the other senses to increase the sense of immersion. And until recently, on-line porn was screen based in a non-immersive media format that is clearly physically separate from the user. Times are changing, with VR technologies, particularly the emergence of VR headsets such as Oculus Rift and Google Cardboard offering pornography a way to provide full audio and visual immersion.

The inconvenience of wearing a VR headset is massively outweighed by the benefits of the increased appeal of VR Porn, with sales in VR headsets revealing clear consumer interest. Notably, Oculus has placed almost no restrictions on content to be developed for the Oculus Rift. This effectively opens the way for pornographers, such as SugarDVD 'the Netflix of Porn,' who are developing VR content [13] along with a dedicated VR Porn channel. Predictions of trends by companies such as Market Watch are that the Adult Content area of VR will have similar sales potential as the game sector.

With VR, it is technologically possible to convince ourselves that we are in an audio-visual reality, thus hearing and sight, the two key foci of porn videos can already become a realistic experience. This move to VR for pornography highlights an important alternative when considering sex with robots, with the opportunity to provide the robot's audio and visual aesthetic through a headset rather than within the physical embodiment of the robot itself.

In considering the sexual embodiment of the robot, Teledildonics do offer some potential. Although they have been aimed at long distance lovers, with a human representing their embodiment through the teledildonic such devices are equally relevant for interactive virtual sex with a character. There has been some use of them in sex games, such as those by SOM with linked teledildonics using sensors to provide relevant feedback to the application. TENGA have gone further providing linked VR via headset and teledildonics offering an interactive, immersive experience. And with a much stronger pornographic feel is Pornhub's Twerking Butt, which includes a VR headset and sex toy with a range of options and narratives.

If a sex robot needs to have a humanlike embodiment, then there are already potential options under development. One of the leading sex doll manufacturers RealDoll produce realistic lifelike products, except that the dolls are static, inanimate objects, devoid of life. RealDoll dolls are posable - but still and quiet. Incorporating robotics into such dolls is possible. However, with the mechanical challenges significant, the goal of achieving a sensual, quasi-realistic sexual experience with lifelike humans resolving hardware issues from noise to texture to heat seems unlikely in the near future. RealDoll have been investing heavily in AI and are in the process of forming a separate company dedicated to doll robotics [14]. Like many contemplating love and sex with robots their focus is not just on the physical, but also on improving the dolls ability to socially interact including verbally and to exhibit and respond to affect.

Affect is seen as critical by many robot researchers yet would an affective sex robot significantly improve the pornographic experience for the user? Even the most casual single liaison involves some social interaction, so yes, social robotics would probably improve the pornographic experience. However, whilst affect has a role, more importantly the aim for the sex robot should be to exhibit and respond to / for sexual pleasure.

RECONSIDERING THE APPEARANCE OF THE SEX ROBOT

A key element of sexual pleasure for many users of pornography relates to the visual experience. We currently naturally see sexual activity in terms of one another and our physical makeup and design. However, just as the perfect robotic paint sprayer looks little like us in its most effective implementation, why would we expect the robotic sexual partner to look like us? Do we really need aesthetically pleasing robots that look like attractive sex partners? And even if we don't, would we want to have sex with something that looked operational and factory spec? Very few teledildonics are attractive, they typically look like crude, sex toys with a clear functional goal. However, this is no longer an issue, no need to keep our eyes tight closed and work hard on the imagination and fantasy… instead we just gaze into the Oculus Rift.

If we look at robots used in domestic situations, we can see that our views of robot appearance tailored by sci-fi TV, books and films are delightfully absurd. The robot that actually hoovers the house has little visual resemblance to a maid, yet they do the job well. And so, if a well-designed robot could do the sexual job well, why are we waiting for Jude Law as the AI Gigolo? And if it is him we are waiting for, can't that just be via a VR feed? By removing the need for the robot to look lifelike by providing it via alternative technology such as via a VR headset we completely free up the embodiment of the pornographic robot. As most porn users will want to interact with a variety of characters through this single robot, the issue is can the robot morph physically representing multiple lovers rather than does the robot look like an individual.

Whilst there is much interest in interactive virtual sex, such experiences typically require the participants to be real rather than robots. Where characters replace avatars the approach tends to be relatively simplistic, with user input often limited to storyworld selection, partner (character) appearance with a limited number of alternate endings. To achieve good robot pornography requires increased sensory input for the user and autonomous sexual reciprocity from the robot rather than simplistic teledildonics tied to a script providing more or less the same experience to all users.

Fundamentally a robot is a physically embodied entity with some degree of autonomy in behaviour and interaction. Further, and of particular importance for sexual activity, that this embodiment must be physical and this physicality must include more than visual and auditory stimuli. Whilst for sex robots this can result in quasi-human designs, for example in the form of sensor filled dolls that could synch with and act out virtual character's moves whilst providing haptic feedback, there are alternatives. Recent

developments in soft robotics [15] could mean that rather than our traditional AI gigolo what we actually need is a wearable robot moulded intimately to ourselves.

For engaging in sexual activity wearable robots offer an interesting avenue, with soft robotics having potential to enhance haptics and teledildonics. Thus, why not design a sex robot as a wearable, soft robot, able to morph and change as required, in line with the user's needs and requirements and the pornographic narrative. Coupled with an immersive VR experience solving the visual and auditory challenges, particularly removing the issue of the aesthetic of the robot this integration offers considerable potential for providing a novel porn experience, one that could include significant interactivity.

Whilst soft and wearable robots are still at a relatively early stage and developed primarily within the health and defence sectors, they do offer real potential as a device for pornographic interactivity. Wearing a soft robot, packed full of biosensors and technology could enable the robot to provide intimate pleasure tailored both to the narrative in the watched pornography and to the responses of the user. This symbiosis of soft robot and human would allowing the robot to focus its autonomous intentions and behaviours to meeting the user's non-visual and non-audio sexual pleasure requirements and expectations, offering touch and feel sensations.

This is challenging for a robot as it will need to support a wide range of pornographic experiences rather than just one. This may be possible with wearable soft robots, however, intuitively it can be suggested additional haptic interfaces will be needed to enable users to experience shape and texture.

DISCUSSION
SugarDVD claim that they are "*pioneering the future of what sex looks like.*" So, what should we do? Should we engage or should we hold back and let the porn sector decide what users will want. The merger of pornography and human-robot interaction should provide a tailored experience through multiple possible narrative contexts meeting the user's sexual expectations in terms of pace, skills and experiences. This combination of robotics, pornography, soft robots, teledildonics, sensors and other technologies would provide a new form of sexual experience. Engaging with pornographic media would be extended from an audio-visual watching experience to an immersive engagement with completely realistic audio visual quality, tactile and sensory stimulation, responsive interactivity and a very enjoyable new form of leisure sex.

This new outlet for leisure sex has no relevance to love and human relationships but instead provides the user with a novel sexual experience. There will always be those who raise issues such as technology addiction, but would this fantasy sex robot be addictive? If the robot was social and emotional then yes this could be really addictive, but if it

just offered you good sex? Perhaps to some, but these will be few, although there has always been plentiful moral outrage about the impacts of porn [16]. Would this wearable soft robot give you unrealistic expectations of what to expect in sexual encounters. Possibly, but for most of us, no.

With pornography having primarily negative connotations, unsurprisingly robotics has largely remained shy of this area with a lack of research focus on creating robots that could enhance the pornographic experience. Although pornography is often viewed through a negative lens in robotics we should avoid such a response and instead perceive of pornography neutrally and as a way of obtaining investment to develop technology that will significantly change the user experience both for pornography and interactions in many other domains.

CONCLUSION
The use of robots for pornography is inevitable and underway, thus it would be eminently sensible for robotics to engage with an established, durable and growing sector with finance available for creating porn robots. Whilst there will still be a market for high end life like sex robots, this paper proposes an alternative, moving away from the robot's appearance to the sexual experience. By integrating soft and wearable robots, VR headsets, haptics and teledildonics in a pornographic narrative, a new experience can be provided targeting sexual pleasure requirements across a range of senses other than audio and visual. Such developments will have significant value and application beyond the porn sector with clear relevance to domains such as video games, virtual worlds and interactive movies.

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