LOVE, SEX, AND AI

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Abstract

The artificial lover has captivated people's imagination since ancient times. Today, technologies such as affective chatbots, AI-generated imagery, and human-like robots capture the minds, and indeed the bodies, of the amorous. Research interest in the topic has increased in recent years, yet the AI100 study panel remains silent to date on the genuinely promising applications, major ethical issues, and technological roadblocks of AI in love and sex. Now that real *Pygmalions* and *Coppélias* are being born into our world, we must look past sensationalised media coverages and sci-fi to ask in earnest about the social, legal, and ethical challenges our society must face if we really are to love artificial intelligence; and whether *it* should love us back.

LOVE AND SEX are fundamental to the human condition [1]. Yet, people seem forever captivated by futuristic visions of the artificial lover [e.g., 2–7]. It is now no longer a mere figment of public imagination to be able to touch sex robots [8], talk to enamoured avatars of AI chatbots [9], or watch dynamically generated adult content [10] towards which things people may develop very real emotions; and even the desire to marry them [11].

While more prominent public-facing demonstrations of AI – ChatGPT, AlphaFold, or Dall-E for instance – may cast the relationship of love, sex, and AI (*love AI*) as a nascent field, there is a large and ever-increasing body of academic literature, venues, and consumer products addressing this very topic [12–15]. This is not in the least because technologies underpinning love AI continue to improve. While roboticists have a long way to go until they scale the steep sides of the Uncanny Valley [16], convincing unembodied AI technologies, such as speech generation and recognition, and large language models are already here, and generate revenue [17]. Meanwhile, the capabilities of love robots need arguably not reach the fidelity of, for example, robots for elderly care, thus dissemination of current technologies for love AI is expected only to accelerate [18]. Despite all this, discussions about love, sex, and AI are absent in the AI100 study panel reports. Now, that both embodied and unembodied love AI have made their way to consumers [19–21] we should take stock of the possibilities and problems these technologies present and search for approaches to the many challenges raised by them.

The idea of the super lover, a loyal soulmate who makes you feel how you want to feel, is enticing, but there are further genuine and compelling reasons to support love AI [22]. It might serve as a therapeutic tool for those who do not want to or cannot partake in human relationships [23]. Moreover, the potential effects on sex work are not to be taken lightly either. Love AI might serve as a palatable alternative for those opposed to this sector, while possibly decreasing the trafficking of vulnerable young adults and the incidence of STDs. It might also enhance real human relationships as the ultimate sex toy. Love AI may also afford entirely new ways of care, and sex care robots already broach the subject of integrating care technologies with sexual features [24].

In contrast, criticisms run the gamut of societal issues. Feminist commentaries on love AI have called for an end to "porno robots" [25] – predominantly female sex robots targeted at white heterosexual men – as they fear an increased objectification and subordination of women [26]. These robots might also displace sex workers who are forced to work due to poverty [27]. Others suggest that love AI might serve as an outright replacement for human relationships or that it would disfigure sexual norms and exacerbate emotional pathologies [28]. Yet others fear that love AI would extend the possibilities for coercion and rape [29]. Finally, there are those who view love AI as mere elaborate masturbatory tools, which do not require any particular attention [30], though, one might wonder, whether the people falling in love with love AI would concur with such an opinion.

In addition to societal criticisms, love AI raises a broad range of ethical issues [31, 32]. Most pressingly, we should address the nonconsensual collection and generation of sexualised data. Consent has been a central issue around the use of deepfakes [33], and more recently diffusion models demonstrated an even more impressive capability to churn out adult content [34]. Unfortunately, the sources of training data for such purposes are morally highly suspect [35], and are collected without consent.

It is thus crucial to underline the importance of ethical data practices for love AI that pre-empt damage [36]. Going a step further, machine *un*learning must also gain a prominent role in love AI [37]. Generative models gorged on indiscriminately collected sexual data pose a major risk of damaging people's privacy and reputation. Effective machine unlearning should wholly erase people from these models but action must be taken now, as the damage is already being done [38].

Looking ahead, should we exploit inherent human cognitive biases in pursuit of creating the perfect artificial lover? People tend to anthropomorphise [39] and easily ascribe feelings where none exist [40], and tapping into these evolutionary dispositions is, for now, the simplest way to capitalise on love AI. The petite avatar of a chatbot or the coy voice of a sex robot are some of the *deceptions* which are crucial to building convincing machines [41], despite arguments against their ethical soundness [31, 42]. The future of love AI could instead lie in a design-focused exploration of form and function that could point beyond the human voice and figure [43], avoiding ingrained human sexual stereotypes and prejudices.

Either way, empirical research to understand people's expectations and biases is sorely needed [18].

We must also ask what degree of autonomy is permissible for love AI. It might passively obey our command, but it could also actively initiate interactions, from seducing its user to refusing to act at all [32]. For such an active artificial lover a moral code is paramount and efforts in the field of machine ethics should extend to love AI [44]. What is more, machines might continue to learn even after deployment, ideally to improve the end-user experience. We must tread carefully though; they might become unsettling [45], exacerbate preexisting psychological conditions [23], or just grow plain evil [46]. Advances in reinforcement learning with human feedback might provide actionable solutions to such issues around emergent behaviour [47, 48].

Ultimately, tangible legislation will have to address the ethical and societal questions around love AI [49, 50], though approaches across the globe will differ. Japan has long been the lenient epicentre of techno-sexual innovation [51], thus raising the disconcerting issue of child-like sex robots [52, 53]. Islamic law, in contrast, might follow a stringent, even capital path on love AI in protecting the status of marriage [54]. In the West, scholars are raising further pragmatic concerns around – among others – product liability [55], legal personhood [56], privacy [57], and criminal law [58].

The research community now has the chance to give guidance to the public lest we enact uninformed rules that hurt society. I urge also that we research the less visceral advantages of love AI, for example, emotional therapy and care. By doing so, we can hope to elevate machines as publicly accepted companions, further promote social good, and raise the prospects of wider public acceptance. Finally, in light of the plurality of possibilities and questions, we must invariably conclude that love AI is a novel force to be reckoned with, and the time is *now* to raise awareness about the promises and problems of love, sex, and AI.

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