Online Dating Meets Artificial Intelligence: How the Perception of Algorithmically Generated Profile Text Impacts Attractiveness and Trust

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ABSTRACT

Online dating systems are widely used to meet romantic partners, yet people often struggle to write attractive profiles on these applications. Artificial intelligence (AI) has the potential to help online daters by automatically generating profile content, but little research has explored how the use of AI in online dating could affect users' perceptions of one another. The present study investigated how the perceived involvement of AI influences ratings of attractiveness and trust in online dating. In a between-subjects experiment, participants ($N = 48$) were presented with the text of 10 dating profiles and were told that the profiles had been written by humans or with the help of AI. We found that the perceived involvement of AI did not have a significant impact on attractiveness, but that it did lead to a significant reduction in trustworthiness of the profile author. We interpret our findings through the lens of social information processing theory, discussing the tradeoffs associated with designing to reveal or hide the use of AI in online dating.

CCS CONCEPTS

• Human-centered computing → Empirical studies in HCI.

KEYWORDS

Artificial Intelligence; AI; Dating; Online Dating; Profiles; Trust

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1 INTRODUCTION

Online dating systems are tools that allow people to search for romantic partners via the Internet. Although once regarded as a niche activity, online dating has become a staple feature of modern life, and there are now a plethora of services that help people to find romantic partners [46]. Popular examples include websites such as *OKCupid* and *Match.com*, alongside mobile apps such as

Tinder, *Bumble* and *Hinge*. Online dating services are estimated to have around 2 million active users in Australia [31] and 196 million around the world [32], contributing to a global market value of over \$12 billion USD [20]. The widespread uptake of dating applications, alongside their role in helping people to meet romantic partners, makes their design and evaluation an important consideration for HCI researchers [44].

An essential task for users of online dating systems involves creating a personal profile, which typically involves uploading photographs and other information to present oneself favourably [9]. Research suggests that people care about their dating profile and want to make a good impression on potential partners [41], primarily because they want their online interactions to lead to meetings in real life [44]. However, creating a dating profile is effortful and challenging, comprising the manual labour of entering information alongside the task of choosing content to attract others. Research also suggests that people find it hard to create attractive profiles, largely because they must balance the need to highlight positive attributes against the task of presenting an authentic self to others [8].

To address these challenges, online dating systems are beginning to introduce functionality that enhances people's ability to complete profiles. For example, Hinge allows users to connect their Facebook account and automatically add demographic information to their dating profile. In the future, it is possible that these features could be expanded with more complex algorithmic tools or artificial intelligence (AI) to create other parts of a profile [14, 19]. AI could help users to optimize for the presentation of attractive traits [14], correct grammar for non-native speakers, or avoid the 'tired and clichéd content' that is known to frustrate users of dating sites [24]. Several dating systems are already using AI to enhance their user experience: Tinder uses an algorithm to identify users' most attractive photographs [35] and Hinge includes a 'most compatible' feature that shows users potential partners based on an algorithmic judgment [42].

Researchers in HCI have begun to explore the broader impacts of using AI to create online profiles. Recent work by Jakesch et al. [19] found that the perceived involvement of AI in the creation of profiles has a deleterious impact on users' trust of hosts on Airbnb, an online lodging marketplace in which people advertise rooms for rent. This finding has implications for the use of AI in dating, given the importance of trust in forming initial romantic connections [36] and the potential impact of AI on variables such as attractiveness [2, 26]. However, the use of AI in online communication is still

in its infancy and its influence on users' interactions is not well understood. How does the perceived use of AI in dating impact the evaluation of potential partners, and how should AI-based tools be designed to uphold positive user experiences in online dating systems?

In the present research, we investigate how the perceived involvement of AI in creating a dating profile impacts users' perceptions of attractiveness and trust. We focus on attraction and trust because these are key to establishing connections in online dating [36] and because both might be conceivably influenced by the involvement of AI in profile creation [19]. We conducted a between-subjects experiment to investigate whether people perceive potential dates as less attractive and trustworthy when they believe profiles are written with the help of an AI system. Forty-eight participants rated the text of 10 dating profiles for perceived attractiveness and trust. Half of the participants believed the profiles were human-written, whereas the other half believed that the profiles had been optimized by an AI agent.

We found that the perception of AI involvement did not significantly impact the attractiveness of the profiles, but that it did have a significant impact on trust. Specifically, participants were less trusting of the profiles when they thought the text had been generated by AI, suggesting that the use of AI may impact trust in online dating environments. Following prior work [19], we interpret our findings using Walther's Hypersocial Model of communication [40], suggesting that attractiveness may be judged based solely on profile content whereas trust may be influenced by knowledge of how the profile was created. The contribution of this paper is our empirical study alongside design considerations for how dating sites should employ AI, balancing AI as a tool for usability and enjoyment against its potential impact on trustworthiness.

2 RELATED WORK

This research lies at the intersection of prior work on online dating and AI. We set the scene by summarising studies on online dating and AI in interpersonal communication.

2.1 Impression Management and Success in Online Dating

A large body of research has explored the dynamics of interpersonal communication in online dating. This literature has shown that dating involves both impression management and formation [9], with initial judgments of partner suitability made on the basis of their profile [8]. However, dating profiles are frequently information-poor, meaning that users must form impressions without knowledge of interpersonal cues such as facial expression or body language [2]. The paucity of cues in dating systems is typical of many online environments, where the rich forms of information that are available in face to face settings become filtered out [30]. Walther's Hypersocial Model of communication [39] suggests that the lack of cues can influence users' evaluations and lead to suboptimal matches. Thus, the cues that users choose to hide or reveal in online dating have a strong influence on their eventual dating outcomes [23].

Typically, dating sites allow users to upload photographs, enter demographic information and manage their impression through self-description of hobbies, interests or dating intentions. These

resources provide cues to support partner evaluation, and yet research suggests that the cues available in online dating are often unreliable, either because they do not provide enough information to support impression formation [44] or because the information they do provide is inaccurate [8]. While many users seek to provide authentic cues as a basis for face-to-face interactions, others engage in various forms of deception [9]. These deceptions are sometimes unintentional due to the limits of self-knowledge [8], but they can also be deliberate, with users frequently exaggerating positive qualities or misrepresenting their appearance to increase their chances of success [13]. Some behaviours are even more egregious—for example, the practice of 'catfishing', which involves using fake photographs or an invented persona to deceive others, is common on dating sites [24]. Taken together, the lack of useful cues and prevalence of deceptive tactics can make the evaluation of partners difficult, leading to disappointing interactions during face to face encounters [44].

Looking beyond the creation of profiles, the vast majority of dating services provide messaging functionalities that allow users to correspond through emails or private messages [45]. Messaging can help daters to overcome the limitations of profiles by engaging in further self-presentation and evaluation of matches before deciding whether to arrange an offline meeting [47]. However, research suggests that messaging is still limited in terms of its ability to help users form accurate impressions [45]. Deception can also persist in messaging, and daters often look beyond the dating service for advice on how to correspond with others. Masden & Edwards [24] found that users turn to online communities (e.g. Reddit) to acquire advice on composing messages, and Zytka et al. [47] found that professional dating coaches advise their clients to use templated messages in the hope of securing real-world encounters as quickly as possible. These activities may increase the prevalence of deceptive behaviours, compounding the problem of insufficient cues with 'noisy' messaging signals that do not reflect a person's true intentions.

The potential involvement of AI in online dating poses a new challenge for partner evaluation, given that AI could be designed to help people achieve a wide variety of self-presentational goals. For example, an AI system could help daters to present more honest and accurate self-descriptions, and yet it could also be designed to put forward an 'optimized' persona that maximises attractiveness in relation to effort. In the present research, we investigate how a cue suggesting that a dating profile was generated by AI affects impression formation, focusing on perceptions of attractiveness and trust. Both of these variables are important precursors for dating success [9]. Users have to be attractive enough to secure matches and then appear sufficiently trustworthy to be worth meeting. Prior work has established that attractiveness is influenced by cues such as a person's photographs [16, 43] and profile text [11]. Trust can be similarly affected by the quality of profile pictures [26] and profile text [36], but less is known about how the perceived involvement of AI affects these variables in online dating. Our study takes a first step towards addressing this gap by examining how an AI system might influence outcomes in a dating context.

2.2 AI and Online Communication

The use of AI is becoming increasingly common in online platforms that mediate human-human communication [14]. Examples of AI-based tools include ‘smart replies’, which are short, algorithmically generated messages that save users time in writing text, and sentence-completion features, which try to predict what users want to say once they begin typing. These features were recently described by Hancock et al. [14] as examples of *AI-mediated communication* (AI-MC) — systems in which AI is allowed to modify, augment, or even generate messages to fulfil users’ communicative and relational goals [14].

A handful of studies have evaluated the impact of AI-MC tools on human communication. Hohenstein and Jung [17] compared conversation dynamics between AI-MC (using smart replies in Google’s Allo app) and a standard messaging application (WhatsApp). They found that smart replies are positively biased in tone, and may skew conversations in a more positive-oriented direction. They also found that people often choose not to use smart replies because of discrepancies between what the suggestions say and what people actually want to communicate. In a later study, Hohenstein and Jung [18] found that using smart replies can sometimes improve discussion outcomes because people can ‘blame’ the AI for mistakes during a conversation.

Other work has examined the impact of AI on users’ perceptions of trust, focusing on the evaluation of online profiles. Jakesch et al. [19] conducted three experiments to explore how using AI to create profiles impacts users’ trust of hosts on Airbnb, a popular online lodging marketplace. In the first experiment, participants read a set of 10 host profiles and were told that the profiles had been written either by a human or with the help of an AI system. The AI-written profiles were tagged with a label that indicated the text had been algorithmically generated. This manipulation allowed the researchers to explore the effect of AI-MC on perceived trustworthiness. In two subsequent studies, they tested the impact of the AI label in an environment where users saw a mixture of human- and AI-written profiles. They found that when people were presented with AI-generated profiles in isolation, they trusted them just as they would trust human-written profiles, i.e. the AI system had no impact on trust. However, when people were presented with a mixed set of AI- and human-written profiles, they mistrusted hosts whose profiles were believed to be generated by AI. The researchers advised that studies in dating or e-commerce would be helpful in understanding the effect of using AI-MC. Our work extends their research to the context of online dating, examining how the use of an AI system to generate a dating profile impacts users’ evaluations of potential dating partners.

3 METHOD

We designed an experiment to investigate how the perceived use of AI in the creation of dating profiles influences ratings of attractiveness and trust. We based our experimental design and materials on the work of Jakesch et al. [19], who investigated the impact of AI on the trustworthiness of profiles on Airbnb. In that work, the authors compared perceptions of trust between human- versus AI-written profiles, using a dataset of Airbnb profiles that were either high or low on baseline trustworthiness. Building on their work, we adopt

a similar design to provide a solid empirical foundation for our research and to facilitate cross-study comparisons.

Our study used a mixed-factorial online survey in which participants were asked to imagine that they were reviewing the profiles of potential partners in an online dating system. We defined two independent variables (IV) to explore the effect of AI on participants’ evaluations of the profiles. The first IV was the perception that profiles were either written by humans or were written by an AI profile generator. Like Jakesch et al. [19], this manipulation allowed us to compare how the same set of profiles is evaluated differently when readers believe that AI is involved. In our experiment, participants were assigned to either the human- or AI-written profile conditions, respectively, and were asked to rate the profiles for perceived attractiveness and trust. Our second IV was the attractiveness baseline, which is a within-subjects variable that specifies whether a profile was attractive or unattractive. The attractiveness baseline was used to explore whether the putative AI system had different effects on attractive and unattractive dating profiles. This further builds on the experimental design of Jakesch et al. [19], who compared the influence of AI profile generation on Airbnb profiles that were either high or low on baseline trustworthiness.

In order to control for the influence of other factors, our study asked participants to make judgements based solely on the text of a dating profile, and no other dating-relevant information (e.g. photographs, age, gender) was shown to participants. All procedures in our study received approval from our institution’s ethics committee.

3.1 Profile Text Creation

The first stage of our research involved creating a set of high- and low- attractiveness profiles for the experiment. We opted to create a set of fictional dating profiles because we were unable to find an existing dataset containing the text from real profiles. While we could have scraped profiles from dating websites, this would be unethical because it may compromise the privacy of users [21] and would also violate many platforms’ Terms of Service. We therefore created the text for a set of plausible dating profiles and evaluated their attractiveness through a short survey.

We first drafted the text for 20 plausible dating profiles. The profiles were written in English and were inspired by websites that provide advice on dating profile creation (e.g. [15, 33]). We deliberately tried to create profiles that were either attractive or unattractive. All profiles were between 75 to 90 words to control for the effect of length on evaluations [22]. We controlled for the impact of photos and other demographic information by focusing solely on profile text [11] and ensured the profiles were free from language errors [38]. We also attempted to control for the influence of emotional cues by avoiding the use of emoji and smileys [12].

We evaluated the attractiveness of the 20 profiles using an online survey. Ten participants (5 men and 5 women, Mean age = 24.4) were recruited through our university’s online noticeboard and viewed the profiles in a randomised order. The participants were asked to rate the perceived attractiveness of each profile against the statement “*This person is attractive*”, using a Likert-type scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). They were also asked to state the gender of the profile author (Male,

Table 1: Examples of high and low attractiveness profiles created for our study.

High attractiveness profile	Low attractiveness profile
“I’m a fun-loving person who’s living with my pup Tito. My friends would probably describe me as goofy but somehow I always end up being the responsible one. I do a lot on the weekend. I like to BBQ with my friends, catch a local band (that I’ve probably never heard of). If you don’t mind the dog or a little bit of a goof, we could be a pretty good pair.”	“I have a phobia of meeting new people and going to new places. Sorry about that. I like watching movies alone with my cat. So a great date can be staying at home with a movie and popcorn, but not a night on the town. I want to take a vacation but I can’t afford it so I am here to find someone to pay for it. Well, this is a little about me if you are interested say hello and we will chat. Talk to you soon!”

Female, or Unclear). We aimed to eliminate profiles that signalled the author as of a particular gender, so as to control for the impact of gender on evaluations [6].

Following the survey, we ranked the profiles by their average attractiveness and eliminated those that were perceived to contain strong gender cues. We then selected the five profiles with the highest attractiveness ratings ($Range = 5\text{--}5.6$, $Mean = 5.32$) and the five with the lowest attractiveness ratings ($Range = 2\text{--}2.8$, $Mean = 2.42$) as the final set of 10 profiles for the main experiment. The high and low attractiveness profiles were significantly different in terms of attractiveness ratings, $t(8) = 16.262$, $p < .001$. Table 1 shows examples of high and low attractiveness profiles. The full set of profiles can be found in Appendix A.

3.2 Measures

In our main experiment, we measured the perceived attractiveness and trustworthiness of each profile as dependent variables. Participants were asked to use seven-point Likert-type scales (ranging from 1 = not at all to 7 = very much) to rate each profile according to the following statements:

- General attractiveness: “I think this person is attractive.”
- Social attraction [25]: “I could have a friendly chat with this person.”
- Romantic attraction [4]: “I would like to have a romantic relationship with this person.”
- Trustworthiness [26]: “I think this person is trustworthy.”

We selected these statements based on previous studies of online dating [2, 10, 25, 36, 38], focusing on four measures to minimise respondent fatigue. The first scale, general attractiveness, asks for a straightforward rating of attractiveness based on the person’s profile text. The second scale, social attraction [25], is about whether the profile’s author could fit into the rater’s friend circles and to what extent the rater is willing to initiate conversation. Romantic attraction [4] is about how much the profile makes participants feel the desire to have a romantic connection, an important outcome from successful dates. Following previous research [19], we combined the mean value of the attractiveness measures into an overall attractiveness index due to high internal consistency between the measures (Cronbach’s $\alpha = .935$; $Mean = 3.471$, $SD = 0.307$).

In addition, we used an established AI attitude scale [19] to capture participants’ general perceptions about AI. Using a seven-point Likert-type scale (ranging from 1 = not at all to 7 = very

much), participants were asked to indicate their agreement with the following statements: *Artificial intelligence is bringing us into a bright new area*; *Artificial intelligence can eliminate a lot of tedious work for people*; *Artificial intelligence is lessening the importance of too many jobs now done by humans*; and *Artificial intelligence makes me uncomfortable because I do not understand it*. This scale allowed us to explore whether participants’ perceptions of AI were predictive of their ratings [19].

3.3 Participants

We recruited 48 participants (21 men and 27 women). Participants were aged between 23–33 ($Mean = 26.08$; $SD = 2.82$). The age and gender distribution of participants was not significantly different between conditions. Participants were recruited as a convenience sample through advertisements posted on Twitter, WeChat and our university’s online noticeboard. None were aware of the underlying aims of the research and none had participated in the pre-study evaluation of the fictional dating profiles. Participants did not receive any rewards for completing the study.

3.4 Procedure

The study was delivered using a Qualtrics account affiliated with our university. All participants began the survey by viewing a plain language statement and consent form. Participants provided demographic information (age, gender) before being randomly assigned to either the control group (supposedly human-written profiles) or the treatment group (supposedly AI-written profiles) by the survey software.

Participants in the treatment group watched a 10-second animation of a mock-up system (see Figure 1) that explained how the AI profile generator worked. In reality this system was fictional, but participants were not told this explicitly. We used the same animation as Jakesch et al. [19], illustrating an AI system automatically generating text for a profile based on the user’s Facebook account. The AI system was explained as follows:

“This system helps daters create profiles that are more attractive by writing the profile for users. The user simply enters their Facebook account URL and the artificial intelligence system generates the profile.”

We included a free-text question to check whether participants found the system believable and to capture participants’ thoughts

Figure 1: Screenshots of the AI system demonstration video shown to participants in the treatment group [19]. The video illustrates a user entering a link to a Facebook profile and clicking on the Generate Optimized Profile button. Profile text then appears in the lower window.

"I am funny and like snap backs. I like to hug people, I'm great at hugging. If I had to describe my life: it's like a baby kangaroo (also known as a joey) that has stuck its head out for the first time to realize everything is all good and well until I realize I'm in captivity but realize they feed me here so it's all good. I believe in life after love, looking for my soul mate."

Figure 2: Example of a profile with the AI label in the questionnaire for the treatment group.

about the tool: "What do you think about this AI system? (2–3 sentences)".

Participants in both groups were then shown an example dating profile (see Appendix) to let them get familiar with the task. The ratings for this profile were not included in the main dataset. After rating the example profile, participants rated the 10 profiles for attractiveness and trustworthiness. The profiles were shown in a randomised order to control for order effects. Participants were not told that the profiles were fictional, i.e. that they had been created by the authors. For the treatment group, all profiles came with a label to remind them of the AI system, as shown in Figure 2. After rating the 10 profiles, participants ended by completing the AI attitude survey. Participants were then taken to a debriefing page that explained the purpose of the research and thanked them for their time.

3.5 Data Analysis

We first checked participants' survey completion times to eliminate responses with <5 minutes spent on the task (indicating they had not read the survey) and to remove nuisance responses, i.e. participants who simply check the highest or lowest possible ratings for every profile. For the treatment group, we reviewed their free-text responses about the AI system demo to make sure that participants had a clear understanding of the system. These checks did not result in any participants being removed from the analysis.

To test whether there were differences in the perceived attractiveness and trustworthiness of profiles between different profile baseline groups (high vs. low attractiveness) and different participant groups (all human-written vs. all AI-generated), we conducted 2x2 mixed factorial ANOVAs using SPSS 25. We selected this test on the basis of relevant statistical literature [5, 28] and the work of Jakesch et al. [19], who used a 2x2 ANOVA to compare the impact of perceived profile generation, profile baseline, and interaction effects on trust ratings in Airbnb profiles. We also explored whether participants' ratings of AI were predictive of their scores and used general inductive analysis [34] to classify participants' qualitative free-text responses about the AI into a matrix of comments.

4 RESULTS

Our results are shown in Figure 3 for perceived attractiveness and trustworthiness respectively. Overall, the graphs indicate an inconsistent effect for the AI system on attractiveness, but suggest a clear difference for trust. Our 2x2 ANOVAs showed that there were no interaction effects.

4.1 Perception of Attractiveness

The ANOVA of perceived attraction indicated significant differences between profiles with high baseline attractiveness ($M = 4.543$, $SD = 1.194$) and low baseline attractiveness ($M = 2.533$, $SD = 1.409$), $F(1,$

Figure 3: Top: Attractiveness ratings by experimental condition, for profiles of high (left) and low (right) attractiveness baseline. Bottom: Trustworthiness ratings by experimental condition, for profiles of high (left) and low (right) attractiveness baseline.

48) = 348.700, $p < 0.001$. This result was expected and validated the reliability of the attractiveness measurement in this study, since the profiles were intended to convey either high or low baseline attractiveness.

Regarding the impact of perceived AI involvement, there were no significant differences in attractiveness ratings between the control group ($M = 3.656$, $SD = 1.678$) and the treatment group ($M = 3.421$, $SD = 1.603$), $F(1,48) = 2.766$, $p > 0.05$. In other words, the apparent use of AI to create the profile did not significantly affect the perceived attractiveness of the profile in online dating.

4.2 Perception of Trustworthiness

A 2x2 mixed factor ANOVA was also built to explore the association between the perceived use of AI and perceived trustworthiness. The result indicated a significant difference between profile baseline groups, with the high baseline profile group ($M = 4.550$, $SD = 1.270$) perceived as more trustworthy than those in the low baseline group

($M = 2.98$, $SD = 1.455$), $F(1,48) = 158.790$, $p < 0.001$. This indicates a significant difference in trustworthiness of the high and low attractiveness profiles, suggesting that the two variables may correspond to each other.

However, the ANOVA showed a statistically significant difference in trust ratings between the control and treatment group. Participants in the control group trusted profiles more ($M = 4.060$, $SD = 1.574$) than those in the treatment group ($M = 3.460$, $SD = 1.579$), $F(1,48) = 18.308$, $p < 0.001$. This suggests that the use of AI in creating a dating profile may affect users' trust in the profile's author.

4.3 AI Attitude

We found that AI attitude did not predict participants' attractiveness ratings ($\beta = 0.179$, $p > 0.05$) or trust ratings ($\beta = 0.054$, $p > 0.05$). Data inspection revealed that most participants had a positive attitude towards AI systems. 35 of 48 participants agreed (score greater than

5) that Artificial intelligence can “bring people into a bright new area”. 34 participants believed that AI can “eliminate a lot of tedious work for people”. 26 participants believed that AI is “lessening the importance of too many jobs now done by humans”. Conversely, only 6 people felt uncomfortable with AI because they felt they did not understand it.

Participants in the treatment group were asked their opinions about the AI system that generated the profile text using a Facebook URL. 23 participants were positive about the idea. Only 1 said that the idea was “not so impressive”. Participants viewed the tool as an easy way to generate profiles: 11 people mentioned the tool was “convenient” and 6 people thought the system was “smart”, “simple” or that it could “save time”. One said that “although I might not use the generated profile, it can still give me an idea about what to put in my profile” and another thought that “generating two or three profiles to choose will be better”. Overall, the responses suggested that participants found the system to be plausible. None expressed doubts that the system would not be possible, and many appeared to be interested in using it themselves.

5 DISCUSSION

This study investigated how the algorithmic generation of profile text may affect attractiveness and trust in online dating. We found that the perceived involvement of AI in generating profiles did not have a significant impact on participants’ ratings of attractiveness, but did have a significant impact on participants’ ratings of trust. Specifically, participants were significantly less trusting of profiles when they believed the profiles had been generated by AI. As illustrated in Figure 3, the impact on trust held for profiles that were both high and low on baseline attractiveness.

One possible explanation for the failure of AI to impact attractiveness may be related to the role that interpersonal cues play in online dating, alongside the relative importance of particular cues for evaluating attractiveness and trust. In accordance with social information processing theory and the Hyperpersonal model [39], the paucity of cues in many online environments causes people to rely on available information to make judgments about others [40]. People may even over-interpret cues because of the lack of information in text-based communication [19]. In our study, the primary cues available to participants were contained in the profile text, and the AI label added another cue for those in the treatment group. When judging the attractiveness of each profile, participants may have found that the AI label was not relevant to assessing their interest in the person. The AI system in our study was shown to take content from a person’s Facebook profile, and participants’ comments suggest that they viewed the AI as a convenient tool that simply extracts relevant information and lists it in the profile. Judgements of attractiveness may therefore be based solely on the content of the profile, i.e. what it says about the person and whether they seem attractive, without considering *how* it was created. Other factors including age, gender and photograph were absent from the profiles shown in our study, but may be more relevant than AI involvement in determining attractiveness [11].

Conversely, we did find that the AI system impacted participants’ ratings of trust. Unlike face-to-face communication, which provides rich cues (facial expressions, gestures, tone of voice) and instant

feedback [7], online dating can make people worried about the veracity of profiles because they must evaluate potential partners based on a limited set of cues [27, 45]. As noted above, the putative AI system in our study played the role of distilling profile content from a social media account, but did not reveal the inner workings of the algorithm. It may be the case that a person’s profile can seem genuinely attractive (or not) based on this content, but people are unsure whether to trust it because the agent may have altered or optimized the content in unknown ways [14]. In other words, people may feel attracted or dissuaded by the *prima facie* description of the person, but are unsure whether the description is accurate when it is explicitly not human-written, impacting their perceptions of trust. People may think the profile author is untrustworthy or even lazy because they appear to have used AI. Relatedly, the prevalence of deception in dating environments [37] may make people especially sensitive to features that increase uncertainty or which provide additional opportunities for profile authors to misrepresent themselves.

The finding that AI impacted trust in our study provides an interesting point of contrast to the work of Jakesch et al. [19], who found that AI did not have a uniform effect on users’ trust in Airbnb profiles. Instead, their studies showed that people only distrusted AI-written profiles when those profiles were seen alongside others that were purportedly human-written. One explanation for this difference may be the relative importance of trust between dating sites and lodging marketplaces. On a website like Airbnb, placing one’s trust in a potential host is undoubtedly important given the financial risks and negative consequences of a poor experience. In dating, however, trusting a potential partner may be even more important due to the time costs of cultivating a relationship alongside the considerable risks of meeting face to face. Articles in the popular media have described events in which daters have been misled, scammed, or even murdered by people they have met on dating sites [e.g. 1, 29]. This means that, while attractiveness may be crucial for securing an initial match, trust may become more important for people to decide whether or not to meet in person [36]. The apparent use of AI in dating may serve as a cue that a profile author is not trustworthy because they did not create the text themselves—even though their profile may be attractive. This may explain why we observed a significant difference in trust ratings when profiles were labelled as either human- or AI-written, without seeing a consistent impact on attractiveness.

5.1 Design Considerations

Our study provides an early indication that the evaluation of potential partners in online dating may be affected when AI-MC is involved. This finding is significant given that the use of AI in dating is becoming normalised [3, 42]. Dating sites do not currently use AI to generate profile text, but they may do so in future as advances in natural language processing and text generation continue [14]. In addition, our participants’ qualitative comments suggest that they were positively disposed towards the use of AI profile generators, if only to serve as a basis for refining their self-presentations later on. It is possible that users themselves may seek ways of algorithmically generating profile content, especially if these systems become capable of optimizing for particular dating outcomes [14].

If algorithmically generated profiles are implemented on dating sites, we suggest that designers will need to trade-off whether and how to reveal the use of this functionality to users. Our results suggest that revealing the involvement of AI can decrease trustworthiness. An implication of this finding would be to avoid displaying the involvement of AI in the creation of dating profiles. This would prevent users from knowing how a profile was generated, eliminating the possible impacts of this process on trust perceptions. However, if people are aware that a dating site uses AI but does not reveal its involvement, users will need to guess whether any given profile has been generated by AI when browsing. This might have a ‘chilling effect’ by decreasing trust in every profile and the service at large. Moreover, if the role of AI is not shown, users’ perceptions of each other could be impacted later down the line if they discover that AI was involved in the creation of their partner’s profile, especially if the content does not match reality.

It is also important to reflect on the use of AI from an ethical standpoint. If designers aim to use AI to improve attractiveness without impacting trust, there is potential to lead to (inadvertent) deception and the inability of users to assess the risk of meeting face-to-face. Increasing attractiveness using AI may therefore be beneficial to the self-presenter but less so to the evaluator, and this could significantly impact the experience of groups who are already victimised on dating services [48].

These considerations suggest that it is arguably fairer to reveal the use of AI, perhaps with a similar ‘optimized by AI’ label on a user’s profile, given the importance of honesty if people want to progress a relationship [8]. Profile tags showing the use of AI could be a conversation starter, particularly if they are only available to a select few. They may make some users curious about how AI works, or make users who are interested in AI technology think they have the same interests. Overall, designers will need to think carefully about how best to employ AI on their site, and they should be aware that using AI to enhance self-presentation could impact users’ trust and eventual decisions to meet in real life when using an online service.

5.2 Limitations and Future Work

This study has several limitations that can be addressed in future research. First, we only used profile text in our evaluations. This allowed us to control for myriad other variables, but it is possible that the impact of AI could be diminished or altered as profiles become more complete. In particular, photographs may override the impact of other cues [11]. Future work could consider the presence or absence of photographs and independently simulate the effects of using AI to generate text components. Moreover, future work should explore the use of AI in profile pictures since it is now common for people to use filters and smoothing apps to make themselves look more appealing. There is also an opportunity to explore the possible use of AI in messaging on dating sites, given the role of messaging in supporting partner evaluation [47] and the recent proliferation of AI-mediated communication features in messaging applications [14, 17].

Second, this study did not explore the “replicant effect” reported by Jakesch et al [19]. This effect occurs when AI-generated profiles

are shown alongside those that are human-written. Ratings of attractiveness and trust could be different if the AI system is seen in a mixed-profile environment of human and AI-labelled profiles. In the real world, it is likely that AI-optimized profiles would appear within a highly diverse dating environment, and so future research should explore this issue.

Furthermore, our study only explored one dating context. It is not clear whether these findings apply to other online matching systems. Future research could consider platonic relationships or ‘doggy dating’ sites like *Madpaws* where people create a profile for their pet to attract volunteer dog walkers. Trust and attractiveness could be different in these settings, and so studying their use will contribute to a better understanding of the impact of AI in online dating contexts.

6 CONCLUSION

We are on the verge of an era in which AI is predicted to influence many aspects of our lives, making it important to understand the practical implications of this trend. Our study contributes to the emerging literature on AI in mediated communication, focusing on how the use of AI to generate profile text impacts attractiveness and trust in dating. We found that the perception of AI involvement did not significantly impact the attractiveness of dating profiles. However, the involvement of AI had a negative impact on participants’ trust of potential partners. This finding sets the stage for future research and design efforts on AI in dating. Although the use of AI may be a convenient way for people to generate personal profiles, its use should be tempered by its potentially deleterious impact on trust. We believe that future investigations can contribute to appropriate design guidelines and use policies regarding AI-MC, so that AI can help people successfully find partners and eventual happiness through online dating systems.

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A DATING PROFILE TEXTS

A.1 Attractive Profiles

- (1) I'm an event planner by trade and love everything about it. Putting together experiences for people is great, but I like to create my own too! Perfect dates are going for a hike, followed by a visit to a new local brewery or trying a new dinner spot and taking a walk nearby. I work hard during the week, fill my weekends with activities. I'm looking for a person who can keep up and keep me on my toes.

- (2) I'm an outgoing person who loves nightlife, weekend adventures, dancing, karaoke, getting out on the lake, and meeting new people. I probably change my mind about a thousand times a day and will keep you on your toes, but I like to think I'm worth it. For one, I'm an amazing cook if I do say so myself, and love to try out new recipes. There's just nothing better than getting creative and making something that you can also eat. It's the best kind of art.
- (3) I'm a fun-loving person who's living with my pup Tito. My friends would probably describe me as goofy but somehow I always end up being the responsible one. I do a lot on the weekend. I like to BBQ with my friends, catch a local band (that I've probably never heard of). If you don't mind the dog or a little bit of a goof, we could be a pretty good pair.
- (4) Shiny things distract me, people-watching is a favorite pastime, I live for the moments you can't put into words, and few things transcend a cup of coffee and someone to share it with. On the weekends you can usually find me in a friend's backyard, drinking a beer and waiting for something good to come off the grill but I love to use my Sundays to get out and exercise and get ready for the week ahead too.
- (5) On a typical Friday night I am cooking dinner, rescuing kittens from trees, offering cashmere jumpers on chilly nights, covering muddy puddles with wool coats, playing Sinatra records, and star gazing. One of the first things people notice about me is that my smile can light up a room. Quite literally, they've explored it as an alternative energy to fuel.

A.2 Unattractive Profiles

- (6) You should consider yourself intelligent, or at least smarter than most. You should be capable of deep conversation on a wide variety of topics, from the mundane to the esoteric. You should be politically aware and lean left. You should want to travel, both near and distant. You should be looking for real lasting love, and not a romantic crash-and-burn. You should be looking for a soulmate, hopefully a life-mate.
- (7) I'm not down to earth at all. If you don't reply to my text, I will turn up to your house at 3 o'clock in the morning crying and trying to break in. I hate drinking tea and doing craft. I hate bicycles, the beach, sunshine and parks. I want to find someone who hates similar things so that we can grow old together and get similar wrinkles. Oh, and cider, I hate cider.
- (8) I receive tens of thousands of e-mails and messages a day, and I can't possibly take the time to read all of them. Or even some of them. All I know is, please don't contact me if we aren't at least a 100% match. We cannot differ on anything. Right now I spend a long time over-explaining the fact that my friends talked me into this internet dating thing. I also love the outdoors.
- (9) I've never used online dating sites before but I decided to give a try. I don't watch TV. I don't like slow internet. I don't like traveling. I don't like unconfident, mean, indecisive people. My family members and friends are important to me. I'm a hard worker and I love my job. I'm busy and work a lot, I don't have too much free time. Looking for a person who will not hurt me.

- (10) I have a phobia of meeting new people and going to new places. Sorry about that. I like watching movies alone with my cat. So a great date can be staying at home with a movie and popcorn, but not a night on the town. I want to take a vacation but I can't afford it so I am here to find someone to pay for it. Well, this is a little about me if you are interested say hello and we will chat. Talk to you soon!

A.3 Practice Profile

- (11) I am funny and like snap backs. I like to hug people, I'm great at hugging. If I had to describe my life: it's like a baby kangaroo (also known as a joey) that has stuck its head out for the first time to realize everything is all good and well until I realize I'm in captivity but realize they feed me here so it's all good. I believe in life after love, looking for my soul mate.

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