AI Biases and Marginalized Stakeholders: Inquiry into AI Implementation Practices in Dating Apps

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Abstract

Title: AI Biases and Marginalized Stakeholders: Inquiry into AI Implementation Practices in Dating Apps

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This study explores how the use of artificial intelligence (AI) in dating apps can reinforce or mitigate biases against marginalized stakeholders groups, including racial minorities, women, and LGBTQ+ users. While AI improves user engagement and safety, it also risks reinforcing systemic biases, such as racial and gender-based discrimination. Through a qualitative thematic analysis of publicly available data, this research examines AI implementation in popular dating apps like Tinder, Bumble, and Grindr. Findings show that AI-driven algorithms often prioritize engagement over fairness, disproportionately excluding marginalized groups. The study highlights AI's dual role: it can mitigate harm through features like harassment detection but also perpetuates inequalities when unethically designed. Theoretical contributions include applying stakeholder theory and ethical AI frameworks to digital matchmaking, emphasizing companies' ethical responsibilities to marginalized users. Practical recommendations focus on algorithmic transparency, fairness-aware machine learning, and inclusive AI governance. This research highlights the need for ethical AI practices in dating apps to ensure inclusivity and fairness, contributing to broader discussions on AI ethics and digital discrimination.

Keywords: AI bias, marginalized stakeholders, dating apps, algorithmic discrimination, ethical AI, stakeholder theory.

Resumo

Título: Vieses da IA e Partes Interessadas Marginalizadas: Investigação sobre as Práticas de Implementação de IA em Aplicativos de Namoro

Autora: Elena Lesnikova

Este estudo explora como o uso da inteligência artificial (IA) em aplicativos de namoro nos Estados Unidos pode reforçar ou mitigar vieses contra grupos marginalizados, incluindo minorias raciais, mulheres e pessoas LGBTQ+. Embora a IA possa melhorar o engajamento dos usuários e a segurança, ela também apresenta o risco de perpetuar vieses sistêmicos, como discriminação racial e de gênero. Por meio de uma análise temática qualitativa de dados secundários, esta pesquisa examina a implementação da IA em aplicativos de namoro populares, como Tinder, Bumble e Grindr. Os resultados indicam que os algoritmos de IA frequentemente priorizam o engajamento em detrimento da equidade, resultando na exclusão desproporcional de grupos marginalizados. O estudo destaca o papel duplo da IA: por um lado, pode mitigar danos com ferramentas de detecção de assédio; por outro, pode reforçar desigualdades se projetada sem considerar princípios éticos. As contribuições teóricas incluem a aplicação da teoria dos stakeholders e frameworks de IA ética ao namoro digital, enfatizando a responsabilidade das empresas com usuários vulneráveis. As recomendações focam na transparência algorítmica, modelos de IA justos e governança inclusiva. Este estudo reforça a necessidade de práticas éticas de IA para garantir inclusão e equidade, contribuindo para debates mais amplos sobre ética da IA e discriminação digital.

Palavras-chave: Vieses da IA, partes interessadas marginalizadas, aplicativos de namoro, discriminação algorítmica, IA ética, teoria das partes interessadas.

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List of abbreviations

AI – Artificial Intelligence

LGBTQ+ – Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, and others

EU – European Union

US – United States (of America)

GAI – Generative Artificial Intelligence

GDPR – General Data Protection Regulation

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AI Declaration

The author of this thesis made use of AI tools such as DeepL, ChatGPT-4, and ChatGPT-01 throughout the writing process. These tools were applied to refine the text by improving its grammar, spelling, and overall clarity, while ensuring the content remained the author's original work. Additionally, the abstract was translated from English to Portuguese with the assistance of AI, as the author is not fluent in Portuguese.

1. Introduction

Released in March 2016, Microsoft's AI-powered chatbot was designed to engage in open conversation but was removed within hours. Users quickly found ways to manipulate the system, leading it to generate offensive and politically charged statements. A similar issue surfaced in 2018 when Amazon discontinued an AI-driven hiring tool. Trained on historical recruitment data, the system reflected past hiring trends, which disproportionately favored male candidates, unintentionally disadvantaging women (Dastin, 2018). These cases underscore a fundamental issue in AI development: machine learning models often reinforce existing biases rather than mitigating them, raising ethical concerns about fairness, transparency, and accountability (Raghavan et al., 2020).

One of the most critical ethical challenges in AI is algorithmic discrimination, which arises when AI bias reinforces existing social inequalities (Etzioni & Etzioni, 2017). Such bias occurs when algorithms amplify disparities linked to socioeconomic status, race, ethnicity, gender, disability, sexual orientation, or religion, rather than mitigating them (Kundi et al., 2022). Scholars in business ethics and AI governance identify two key contributors to biased decision-making in AI: algorithmic opacity and the use of biased training data (Binns, 2018; DiBenigno, 2020). Since AI systems are human-designed and shaped by subjective choices, their ethical deployment requires proactive oversight and regulatory mechanisms (Etzioni & Etzioni, 2017).

Although AI bias has been widely examined in recruitment, healthcare, and criminal justice (Silva & Kenney, 2018), relatively little attention has been given to its impact on digital matchmaking. AI-driven dating platforms rely on recommendation algorithms to curate potential matches, structure user interactions, and control content visibility. Research suggests that these systems often prioritize engagement-driven optimization over fairness, reinforcing existing biases embedded in user behavior and societal preferences (Chen & Xie, 2020). As AI becomes more central to digital interactions, it is critical to evaluate how dating platforms affect marginalized users, particularly racial minorities, women, and LGBTQ+ individuals (Hunkenschroer & Luetge, 2022).

AI-powered matchmaking systems play a significant role in shaping user experiences by determining which profiles appear in search results and match recommendations. Studies show

that dating platforms often replicate societal beauty standards and racial preferences, unintentionally excluding marginalized users from visibility (DiBenigno, 2020). These biases emerge from both explicit user preferences and algorithmic sorting mechanisms that reinforce historical patterns of exclusion rather than challenging them (Binns, 2018; Noble, 2018). Additionally, LGBTQ+ users often report content suppression due to algorithmic moderation systems misclassifying their profiles as inappropriate at disproportionately high rates (Smith & Anderson, 2018).

Despite growing concerns about AI bias, dating platforms provide little transparency regarding the training and moderation of their algorithms. The absence of clear governance structures raises ethical concerns, particularly as these apps increasingly shape the dynamics of modern relationships. Without deliberate intervention, algorithmic sorting mechanisms risk perpetuating exclusionary practices while prioritizing user engagement over equitable participation (Binns, 2018; Noble, 2018).

To analyze the ethical concerns of AI-driven matchmaking, this dissertation applies stakeholder theory as a framework for evaluating AI ethics in dating platforms. Stakeholder theory posits that businesses should consider the interests of all affected groups rather than focusing solely on shareholder profit (Freeman et al., 2020). While traditionally linked to corporate governance, stakeholder theory has also been widely adopted in areas such as sustainability, healthcare, and AI governance. It argues that businesses should consider the interests of all affected stakeholders, rather than prioritizing shareholder interests alone (Harrison & Wicks, 2013).

By analyzing how dating app companies address algorithmic bias, this study explores their ethical obligations towards marginalized users. While AI bias has been widely discussed in hiring and financial services, its impact on digital matchmaking remains underexplored (Zuzul & Edmondson, 2020). This research examines corporate governance of AI-driven algorithms within dating apps, focusing on the ethical risks posed by AI and exploring potential improvements for fairer matchmaking. AI implementation serves as the key factor shaping algorithmic decision-making, mediating the relationship between platform design and user experiences. Depending on how AI is trained and deployed, it can either reinforce discrimination or introduce bias mitigation strategies (Silva & Kenney, 2018; Bogen et al., 2022).

This study evaluates the ethical risks posed by AI-driven matchmaking systems while exploring frameworks to mitigate algorithmic discrimination. Additionally, it provides managerial recommendations for AI governance in dating app companies. Given the evolving nature of AI-driven matchmaking, a descriptive and exploratory approach is adopted to examine the mechanisms behind algorithmic decision-making and their societal implications (Binns, 2018; Mittelstadt, 2019). However, this research does not aim to analyze the dating app market in the United States, but rather focuses on broader ethical and governance considerations across platforms operating in different regulatory environments. By analyzing secondary data, the study aims to describe current AI practices in dating apps while exploring opportunities for creating a more ethical and inclusive experience. A thematic analysis is conducted to assess AI bias and its implications for marginalized stakeholders.

Despite the growing implementation of AI-driven safeguards, matchmaking platforms continue to reflect societal biases rather than actively challenging them. If an algorithm prioritizes user engagement, does it inadvertently reinforce exclusionary patterns? Evidence suggests that marginalized users often remain less visible, not due to explicit discrimination, but as a byproduct of algorithmic sorting. What happens when preference-based filtering normalizes social inequalities instead of disrupting them? Similarly, moderation systems flag LGBTQ+ profiles at disproportionate rates, leading to unintended digital erasure rather than inclusive participation. These challenges point to a fundamental issue: AI governance in dating apps lacks proactive fairness mechanisms. Platforms have largely focused on refining engagement metrics, but not on questioning whether these models create equitable spaces. The question is no longer whether AI can mitigate bias–it is whether platforms recognize their responsibility in shaping more inclusive digital interactions.

This dissertation contributes to stakeholder theory and business ethics (Freeman et al., 2020; Harrison & Wicks, 2013; Wood et al., 2021) by identifying the impact of AI bias on marginalized users (Binns, 2018; Noble, 2018; DiBenigno, 2020) and assessing how AI can either reinforce or reduce discrimination (Silva & Kenney, 2018; Kundi et al., 2022). Additionally, the study explores how ethical principles such as transparency and inclusivity (Latorre & Sedeño, 2023; Mittelstadt, 2019; Rossi, 2018) can serve as foundational guidelines for mitigating AI bias in dating applications. Finally, it presents recommendations for making dating apps more ethical and inclusive, including bias mitigation strategies in algorithmic

design as well as algorithmic transparency to improve user trust and accountability. By integrating these insights, this dissertation aims to contribute to the broader discourse on AI ethics, ensuring that dating applications evolve in ways that uphold fairness, diversity, and social responsibility.

2. Literature review

Artificial Intelligence has become an essential tool in business, facilitating decision-making in recruitment, finance, healthcare, and digital platforms. However, the deployment of this technology requires careful consideration of its ethical implications, particularly regarding algorithmic bias. One of the primary sources of AI bias is input bias, which occurs when training datasets are unrepresentative or skewed, leading to the reinforcement of pre-existing societal disparities (Kundi et al., 2022, p. 200). When AI models are trained on biased data, they perpetuate patterns of exclusion and inequality, rather than correcting them.

Input bias manifests in multiple forms, including social bias, which is linked to social identities; racial bias, which leads to discrimination based on race and ethnicity; gender bias, which favors one gender over another; and intersectional bias, which arises from overlapping forms of discrimination (Mehrabi et al., 2021). Studies examining AI's role in employment, criminal justice, and online platforms consistently highlight the risk of biased algorithms reinforcing systemic inequalities (Binns, 2018; Buolamwini & Gebru, 2018). Given the widespread implications of input bias, addressing its presence in AI-powered dating platforms is crucial to ensuring fair and ethical matchmaking practices.

Another significant concern is cognitive bias, which originates from implicit bias in human decision-making, feedback loops in AI models, and consumer bias in AI-driven platforms. As Etzioni and Etzioni (2017) argue, AI bias is not just a technological flaw but an ethical failure, requiring human oversight and intervention. Despite the growing recognition of this issue, regulatory frameworks addressing AI bias remain fragmented and inconsistent, highlighting the need for clearer governance mechanisms to ensure accountability and fairness in AI-driven systems (Hunkenschroer & Luetge, 2022).

Beyond cognitive bias, AI systems can also introduce algorithmic bias when models rely on correlations between behavioral attributes and demographic characteristics. Research suggests that AI-driven profiling can inadvertently reinforce cultural stereotypes by linking user behaviors, such as media consumption patterns or product preferences, to specific demographic groups (Silva & Kenney, 2018). Additionally, bias can occur in data processing, where the regularization of data can reduce minority representation, while the lack of generalizability of a model trained on one demographic might cause it to fail with another (Kundi et al., 2022).

Ethical AI governance is centered around principles such as transparency, fairness, privacy, and trustworthiness, which are essential for ensuring that AI systems are both ethically sound and commercially viable (Rossi, 2018). However, some scholars argue that AI-driven platforms often optimize for engagement rather than ethical fairness, leading to algorithmic decision-making that disadvantages certain user groups (Chen & Xie, 2020). For instance, in recruitment, AI screening tools have been shown to discriminate against women and minorities due to biased training data (Silva & Kenney, 2018). A well-documented example is Amazon's AI-driven hiring tool, which was trained on historical employment data favoring male candidates, leading the algorithm to systematically downgrade résumés that contained words associated with women (Dastin, 2018). This case highlights how AI bias emerges not just from algorithmic flaws, but from systemic disparities in the underlying datasets.

In healthcare, AI models have misdiagnosed patients from underrepresented racial groups, highlighting how training data disparities translate into discriminatory outcomes (Kundi et al., 2022). These cases illustrate how algorithmic bias, if left unchecked, can produce real-world harm, making AI ethics a critical concern for businesses.

The same ethical risks associated with AI bias in recruitment and healthcare are now emerging in AI-driven dating apps, where algorithmic matchmaking systems determine visibility, desirability, and interactions. The next section explores how these biases translate into ethical dilemmas within digital matchmaking platforms.

A review of the privacy policies and terms of service of leading dating platforms, namely Tinder, Bumble, and Grindr, reveals the extent to which algorithmic decision-making and data processing shape user experiences. These platforms acknowledge the use of AI for content moderation, user matching, and profile visibility ranking (Bumble Inc., 2024; Grindr LLC., 2024; Match Group., 2024). However, their policies provide limited transparency regarding how AI-based decisions may impact marginalized user groups. This lack of algorithmic transparency raises ethical concerns, as users are often unaware of the criteria determining their visibility, desirability, or content moderation status. Critics argue that dating apps are dehumanizing the dating process (Rossi, 2021). Furthermore, Wang (2023) argues that AI

algorithms increasingly dictate user interactions in online dating, limiting genuine, organic connections.

AI bias in dating apps operates through three primary mechanisms. First, collaborative filtering is a widely used match recommendation technique that identifies patterns in user interactions, such as swiping and messaging. While this method optimizes recommendations based on detected user preferences, it creates a self-reinforcing feedback loop, where pre-existing biases become amplified over time, reducing diversity in recommendations and leading to more homogeneous social interactions (Narr, 2021; Nader, 2020).

Secondly, dating app ranking algorithms prioritize profiles based on engagement-driven metrics, meaning that users who receive fewer interactions appear less frequently (Binns, 2018). This disproportionately affects marginalized groups, including racial minorities, women, and LGBTQ+ users, who often receive lower visibility due to historical biases in user preferences (Harrison & Wicks, 2019). As a result, these users experience reduced visibility, limiting their potential matches and reinforcing digital exclusion.

Third, moderation bias in dating apps presents another ethical challenge. In this case, LGBTQ+ profiles are disproportionately flagged as inappropriate due to AI misclassification (Smith & Anderson, 2018). This results in shadow banning, where users' profiles remain active but are significantly less visible to potential matches (DiBenigno, 2020). These issues highlight broader concerns about algorithmic opacity, as users are often unaware of why their visibility is restricted or how moderation decisions are made.

Lack of transparency in algorithmic decision-making significantly exacerbates AI bias. Opaque algorithms hinder stakeholders' ability to recognize and challenge discriminatory outcomes (Latorre & Sedeño, 2023; Mittelstadt, 2019). Transparency, as a core principle of ethical AI governance, entails clear communication of how match recommendations are generated, thereby enabling greater user trust and accountability. In AI ethics, transparency relates to the ability to reconstruct and replicate the machine’s output, thereby explaining it (Latorre & Sedeño, 2023). Explainability is critical for ensuring fairness, as it allows users and regulators to assess whether AI systems operate with unintended biases. Fairness, a core principle of AI

ethics, remains a contested concept, as different definitions influence algorithmic design and outcomes (Silva & Kenney, 2018).

To address these ethical challenges, research suggests that AI-driven dating platforms must implement bias mitigation strategies, including algorithmic audits, fairness-aware machine learning models, and greater user control over recommendation criteria (Mittelstadt, 2019). However, companies often fail to implement these measures, as AI-driven engagement models prioritize profitability over inclusivity (Hunkenschroer & Luetge, 2022). This raises questions about corporate responsibility in mitigating AI bias, which this study evaluates using stakeholder theory.

Stakeholder theory provides a comprehensive framework for examining the ethical implications of AI deployment in dating apps, as it highlights managerial responsibilities beyond profit maximization and underscores ethical obligations towards stakeholders affected by technological innovations, particularly marginalized communities (Ademola, 2024; Aguirre et al., 2020). Traditionally, corporate governance has been shareholder-centric, prioritizing financial returns for investors. However, stakeholder theory challenges this approach by emphasizing that businesses operate within broader social and ethical networks and must consider the interests of all affected groups, including users, regulators, and society at large (Ademola, 2024).

This perspective is particularly relevant in AI-driven matchmaking, where algorithmic decisions impact not only individual users but also broader social structures. Stakeholder theory helps assess how dating app companies balance technological advancement with fairness obligations, since the pillar of the theory is its focus on ethical obligations, especially toward marginalized communities who are disproportionately affected by algorithmic bias (Roff, 2020; Aguirre et al., 2020). Freeman (1994) argues that companies have an ethical duty to all stakeholders, not just those with financial stakes in the organization.

Within this framework, stakeholders in AI-powered dating apps can be categorized as primary or secondary stakeholders. Primary stakeholders include users directly affected by algorithmic biases, such as marginalized groups who experience reduced visibility and engagement. Secondary stakeholders encompass regulatory bodies, advocacy groups, and ethical AI

researchers, who influence or are indirectly affected by AI governance practices and policies in dating platforms (Wood et al., 2021). Recognizing this distinction helps clarify ethical responsibilities and the focus of governance strategies.

This research integrates stakeholder theory with AI bias literature (Kundi et al., 2022) to evaluate dating app governance strategies. In stakeholder theory, managerial responsibility extends beyond financial performance to fostering relationships that generate value for all stakeholders (Hall et al., 2015). This includes minimizing negative externalities and ensuring that technological advancements do not exacerbate existing biases (Fiorini et al., 2018).

Marginalized stakeholders, often overlooked in AI ethics discussions, face unique challenges that must be addressed. Defined as individuals from vulnerable social and economic backgrounds, marginalized stakeholders experience algorithmic discrimination that reflects broader structural biases (Chowdhury et al., 2024). The failure to account for their experiences can entrench disparities rather than promote inclusivity.

Applying stakeholder theory specifically to the context of AI-driven dating platforms offers a unique perspective for addressing ethical challenges. It allows researchers and practitioners to critically evaluate how algorithmic design decisions influence various stakeholder groups, particularly those who are vulnerable or marginalized. Rather than treating bias solely as a technical issue, this theoretical perspective frames it as a managerial and governance responsibility, demanding proactive measures to ensure fairness, transparency, and inclusivity (Freeman, 1994; Fiorini et al., 2018).

Understanding the perspectives of marginalized stakeholders is particularly relevant given the rise in hate crimes and digital discrimination (FBI, 2024). As AI increasingly shapes social interactions, its impact on underrepresented groups must be critically examined. AI ethics and governance frameworks must move beyond abstract principles to address the lived experiences of those affected by algorithmic bias. By shifting managerial responsibility from shareholder primacy to collective value creation, businesses can integrate more socially responsible practices (Derry, 2012). Within the dating app industry, this means actively assessing whether matchmaking algorithms reinforce discrimination or promote equitable user experiences. The

extent to which these platforms mitigate harm and uphold social responsibility serves as a critical benchmark for their ethical standing.

2.1. Stakeholder Theory

Stakeholder theory, initially proposed by Freeman (1984), provides a robust framework for addressing the ethical complexities of AI governance, particularly due to its emphasis on balancing diverse stakeholder interests rather than solely focusing on profitability. The theory has been widely applied beyond corporate governance, notably in technology ethics, to analyze how emerging technologies affect different societal groups (Harrison & Wicks, 2019). By placing marginalized stakeholders at the center of analysis, stakeholder theory facilitates a critical assessment of AI-driven biases and their broader social impacts.

To address the challenges related to the usage of AI in dating apps, this study uses stakeholder theory as a guiding framework. Stakeholder theory is chosen over other ethical perspectives because it shifts the focus from individual users to a broader view of all affected parties, including users, dating app companies, policymakers, and society at large (Ademola, 2024). Unlike utilitarian approaches, which emphasize overall efficiency and user engagement, stakeholder theory considers the ethical obligations companies have toward diverse user groups, particularly those at risk of discrimination (Roff, 2020; Aguirre et al., 2020).

Historically, corporate management has primarily focused on shareholders, with bondholders playing a smaller role. Their rights over companies arise from agreements that they have willingly entered. However, stakeholder theory challenges this perspective by claiming that businesses are not separate entities from but exist within society. Thus, stakeholder theory is uniquely suited to this study for several reasons. First of all, it shifts the ethical focus from individual users to the broader ecosystem of affected stakeholders. Secondly, it recognizes marginalized users as key stakeholders whose concerns must be addressed in AI governance. Thirdly, it holds dating app companies accountable for ensuring algorithmic fairness, transparency, and inclusivity.

This work focuses on marginalized stakeholders, a group rarely examined in existing research (Freeman, 2023; Hall et al., 2015). As such, marginalized stakeholders can be defined as stakeholders that come from vulnerable social identities or belong to lower social classes.

Marginalized stakeholders include individuals from vulnerable social identities and lower socioeconomic classes, those subjected to racial profiling, individuals with comparatively low income, and those who experience stigmatization due to their sexual orientation or physical and mental disabilities. Eventually multiple sources of marginalization interact in an intersectional manner (Kaufmann & Derry, 2024). In the context of dating apps, this means that AI bias does not affect all users equally, but rather interacts with existing social inequalities in complex ways. Moreover, marginalized users' concerns are often dismissed or trivialized by other stakeholders, such as dating app companies, policymakers, or even other users. Chowdhury et al. (2024) discusses how their experience are systemically trivialized by other stakeholders, resulting in structural bias that persist, in the context of this dissertation, into AI systems. This leads to a cycle where discriminatory AI outcomes are overlooked or justified as "neutral" technical limitations, rather than being actively addressed.

Applying stakeholder theory to AI matchmaking requires identifying who is affected by algorithmic decision-making in dating apps. In this context, stakeholders can be categorized into primary and secondary groups, each playing a distinct role in shaping AI ethics in digital matchmaking. Primary stakeholders include particularly marginalized groups such as racial minorities, women, and LGBTQ+ individuals, who are directly affected by algorithmic biases in dating app matchmaking. These users experience reduced visibility, exclusionary filtering, and moderation bias, which influence their ability to engage equitably within digital matchmaking platforms. Secondary stakeholders encompass AI developers, policymakers, advocacy groups, and regulatory agencies, who hold ethical and legal responsibilities in ensuring that AI matchmaking systems are fair, transparent, and accountable. These actors shape the design, regulation, and oversight of AI systems, influencing how bias is identified, addressed, or, in some cases, overlooked.

By identifying these stakeholders, this study uses stakeholder theory to assess corporate responsibility in AI governance, focusing on how dating app companies address or neglect the needs of marginalized users.

2.2. AI Bias in Dating Apps as a Stakeholder Issue

As it was mentioned, stakeholder theory is particularly relevant in dating apps because AI matchmaking does not impact all users equally. AI-driven systems, optimized for profitability

and engagement, can amplify exclusionary patterns, particularly affecting underrepresented groups (Fiorini et al., 2018).

One of the biggest concerns surrounding AI governance in dating platforms is AI bias, which can be defined as a situation where AI algorithms can reproduce or exacerbate existing inequalities in socioeconomic status, race, ethnic background, religion, gender disability, or sexual orientation (Kundi et al., 2022). According to Kundi et al. (2022), there are 3 different types of bias, namely input bias, algorithmic bias, and cognitive bias. Each of them plays a significant role in shaping AI outcomes. These classifications provide a framework for evaluating how AI biases impact marginalized communities and inform strategies for mitigating these issues.

2.2.1. Input Bias

Input bias originates from the data used to generate the predictive models (Kundi et al., 2022). Because AI algorithms learn from historical data, they inherently reflect the biases present in that data. There can be cases where the training data lacks diversity. This can occur due to an environment with an underrepresented population or due to biased data collection practices. In any of these cases, the AI system is likely to produce skewed outcomes, reinforcing and amplifying societal inequalities. Thus, AI may reinforce existing biases. For example, AI may perpetuate socioeconomic bias, where individuals or groups are disadvantaged based on their financial standing or class; it can also reinforce systemic bias, also known as institutional bias, which refers to policies and practices in institutions (such as healthcare, education, law enforcement, media, and government) that favor certain social groups while disadvantaging others (Kundi et al., 2022). As a result, this bias in training data leads to reduced visibility and exclusion for marginalized groups, making it more difficult for them to receive matches. (Kundi et al. 2022) further classify input bias into 4 categories. Social bias involves preferences or prejudices based on identity factors such as sex, religion, ethnicity, or socioeconomic background (Kundi et al., 2022). Racial bias is defined as participating in discriminatory behavior, holding any negative attitudes toward or having less favorable reactions toward people, based on their ethnicity (Kundi et al., 2022) Gender bias manifests in stereotyping and/or favouring one gender over another, as well as excluding transgender individuals. In machine learning it can occur due to datasets inclined towards a certain gender (Kundi et al., 2022). Intersectional bias highlights how overlapping factors, such as race and gender, can

create compounded disadvantages. For example, black women have been found to have lower chances of receiving medical tests for high-risk conditions (Kundi et al., 2022).

2.2.2. Algorithmic Bias

Algorithmic bias occurs when AI models process data in ways that reinforce and exacerbate discrimination, even if the input data is neutral (Silva & Kenney, 2018). Dating apps often optimize algorithms for engagement and profitability rather than fairness, leading to biased ranking and recommendation systems. Bias also arises in data processing. Regularization, intended to prevent overfitting, can reduce minority representation, while lack of generalizability occurs when models trained on one demographic fail in another. If training data does not reflect diverse populations or embeds societal disparities, AI reinforces existing inequalities (Kundi et al., 2022). Due to that, primary stakeholders (users) coming from marginalized groups receive fewer matches due to AI-driven desirability rankings that prioritize high-engagement profiles over diverse representation.

2.2.3. Cognitive Bias

Cognitive bias persists in digital spaces, where AI-moderated interactions replicate real-world discrimination. Biases prohibited offline often resurface online, amplifying systemic inequalities (Silva & Kenney, 2018).

This type of bias originates from:

- Implicit bias in human decision-making: Humans unconsciously apply biases in labeling and annotating data, which AI then learns and propagates.
- Feedback loops in AI models: If AI systems continuously learn from biased user interactions, they can reinforce discriminatory outcomes, such as recommending stereotypical content or disproportionately filtering out certain groups.
- Consumer bias in AI-driven platforms: AI systems used in social media, dating apps, or e-commerce platforms often adapt to user preferences, inadvertently reinforcing societal biases present in consumer behavior.

The persistence of cognitive bias in dating apps reflects the failure of AI governance mechanisms to intervene in self-reinforcing exclusionary patterns. Addressing cognitive bias

requires rethinking AI's role in matchmaking and implementing user-controlled transparency features.

2.3. AI Bias Mitigation

While dating apps often justify biased AI outcomes as technical limitations, stakeholder theory frames AI bias mitigation as a corporate ethical responsibility rather than a mere governance issue. Companies must proactively address AI-driven discrimination rather than reactively implementing superficial diversity initiatives.

Stakeholder theory mandates that:

- AI developers and dating app companies integrate bias mitigation strategies from the design phase, rather than addressing discrimination only after user complaints.
- Policymakers and regulators enforce ethical AI principles, ensuring that dating platforms comply with fairness, transparency, and accountability standards.
- Users and advocacy groups hold dating platforms accountable for algorithmic fairness through legal challenges, media scrutiny, and public discourse.

Since AI is not inherently ethical or unethical and it simply follows the incentives and constraints set by its developers (Etzioni & Etzioni, 2017), ethical challenges in AI are fundamentally human problems that require human solutions. However, regulatory bodies and governance structures struggle to track AI-driven selection processes, leaving room for discriminatory decision-making without accountability (Hunkenschroer & Luetge, 2022). While regulations exist, they leave room for unethical behavior, underscoring the need for firms to go beyond legal compliance when developing predictive AI tools.

2.4. Principles for Ethical AI Implementation

The ethical implications of AI in dating applications extend beyond mere algorithmic efficiency. Literature underlines transparency, fairness, privacy, and, most of all, trustworthiness as key features of any contemporary AI systems aiming to be ethical and commercially successful (Rossi, 2018). While AI-powered dating platforms claim to enhance user experience by optimizing matchmaking, they also risk reinforcing social biases, excluding marginalized groups, and obscuring decision-making processes (O'Neil, 2016; Noble, 2018; Mittelstadt et al., 2016).

2.4.1. Fairness and Algorithmic Discrimination

One of the most pressing ethical concerns in AI-powered dating applications is the issue of fairness and a problem of algorithmic discrimination. The central question for the scholars revolves around the extent to which intervention in AI algorithms is justified to enhance fairness. On the one hand, some of them argue that manually intervening in the algorithm so that it does not produce its “natural” outcome is a way to generate inclusivity through positive discrimination; yet it raises some concerns related to definition of what is “fair”. On the other hand, some scholars highlight that lack of inclusivity is the result of the algorithm’s total control over what is shown to a given user, as their stated preferences may be overridden by algorithmic predictions (Nader, 2020). From a stakeholder perspective, dating platforms must navigate the tension: either to prioritize fairness or prioritize profit-driven engagement. Stakeholder theory suggests that balancing these interests requires active engagement with marginalized users to ensure that algorithmic fairness does not merely serve corporate interests but addresses real-world discrimination (Freeman et al., 2020).

2.4.2. Transparency and Algorithmic Accountability

Transparency is another fundamental component of ethical AI usage, particularly in the context of dating applications where algorithmic decision-making directly influences users’ social and emotional interactions. Transparency is understood as the ability of stakeholders to reconstruct and replicate AI’s operations thereby providing a clear explanation for output or behavior (Latorre & Sedeño, 2023). Corporate disclosure regarding AI operations is critical, as it allows users and regulators to scrutinize the assumptions, choices, and adequacy determinations embedded in AI systems (Kroll, 2018).

Despite platforms' stated commitments to fairness and safety, their policies lack sufficient transparency regarding AI-driven decision-making. For instance, Bumble’s privacy policy acknowledges the use of "automated decision-making" to enhance user experience, yet it does not specify how recommendations are generated (Bumble Inc., 2024). Similarly, Grindr's content moderation policy references machine learning tools for content analysis but provides no criteria for how profiles are flagged as inappropriate (Grindr LLC., 2024). The absence of detailed explanations for algorithmic processes raises concerns about the fairness and accountability of these matchmaking platforms.

Transparency is also important when considering AI input gathering. The lack of transparency in Generative Artificial Intelligence (GAI) training has exposed issues in responsible design, trust in AI outputs, and intellectual property rights. This has generated countless legal disputes and social tensions regarding what and how AI collects its training data (Fioravante & Vaccaro, 2024). In dating apps, undisclosed AI training mechanisms may inadvertently reinforce harmful biases, reducing the visibility of marginalized groups or perpetuating exclusionary patterns (Noble, 2018). Given that dating app algorithms profoundly influence social inclusion and interpersonal relationships, these platforms must adhere to transparency standards similar to those implemented in high-stakes AI applications, such as finance and healthcare. Without such measures, dating platforms risk perpetuating opaque decision-making processes that reinforce social inequalities, ultimately undermining user trust and corporate accountability (Noble, 2018; Bogen et al., 2022).

Across industries, AI models are increasingly designed to adapt to evolving ethical and regulatory requirements. In finance, risk-aware AI models dynamically adjust fraud detection mechanisms in response to shifting economic trends. In cybersecurity, context-aware AI continuously evaluates threats in real time to update security protocols (Liu et al., 2020). Similarly, privacy-aware AI plays a critical role in data protection, ensuring compliance with frameworks such as GDPR and HIPAA while safeguarding user information (Shokri et al., 2019). Additionally, ethics-aware AI has gained prominence in corporate governance, aligning algorithmic decisions with broader principles of social responsibility (Mittelstadt, 2019). These examples illustrate that AI-driven regulatory frameworks are not static but evolve alongside legal and ethical considerations (Johnson, 2015).

With AI governance differing across jurisdictions, platforms must develop adaptive strategies to remain compliant with changing legal landscapes. In this case, regulatory-aware AI might represent a proactive approach, allowing platforms to integrate legislative updates into their operational frameworks in real time. Rather than relying on periodic adjustments, this model emphasizes continuous legal alignment, ensuring that AI-driven decisions reflect current regulatory and fairness principles. Scholars argue that ethical AI governance requires ongoing oversight and adaptation, as rigid compliance frameworks often fail to account for emerging societal expectations (Johnson, 2015). By embedding legal responsiveness within AI systems,

platforms can shift from reactive policy enforcement to a dynamic approach that prioritizes fairness and accountability.

The concept of "regulatory awareness" introduced here addresses the gap in traditional compliance frameworks by dynamically aligning AI decision-making processes with evolving legal and ethical standards in real-time. The regulatory-aware AI model introduces an adaptive approach to algorithmic decision-making, ensuring that systems align with current legal and ethical standards in real-time. Unlike static compliance frameworks, which rely on pre-established policies, regulatory-aware AI continuously incorporates updated legislation and fairness principles into its operational logic. In the context of dating apps, this approach could mean dynamically adjusting matchmaking algorithms, moderation policies, and content visibility rules based on regional anti-discrimination laws or fairness directives. For instance, platforms operating in jurisdictions with strict bias-mitigation requirements might be required to implement algorithmic auditing, whereas others may focus on transparency obligations for user profiling (Noble, 2018).

By integrating regulatory-aware AI, dating apps can enhance transparency, fairness, and accountability, addressing concerns about algorithmic bias and user trust. As AI systems increasingly mediate digital interactions, ensuring ongoing compliance with evolving ethical and legal standards is essential in fostering inclusive and responsible algorithmic matchmaking.

2.4.3. Trustworthiness

Trustworthiness in AI is not just a technical issue but an ethical obligation, requiring dating platforms to foster confidence among users, regulators, and advocacy groups. Trust in AI is built through a combination of transparency, accountability, and ethical governance. Without these key elements, users may view AI-based recommendations with skepticism, leading to decreased engagement and potential reputational damage for dating platforms (Floridi et al., 2020).

AI trustworthiness is built through:

- Clear Communication of AI Processes – Users should understand how matches are generated, what factors influence their visibility, and how AI refines decision-making.

- Bias Audits and Ethical Oversight – Regular audits ensure that AI matchmaking systems do not reinforce discrimination, while ethics boards provide corporate accountability (Hagendorff, 2021).
- Human Oversight in Decision-Making – AI should function as an assistive tool rather than an autonomous matchmaking authority, ensuring that users have control over their dating preferences.

By embedding ethical governance structures, increasing transparency, and prioritizing user trust, AI-powered dating platforms can mitigate ethical risks and enhance their credibility.

2.4.4. Data Privacy and Informed Consent in Dating Apps

AI-driven platforms collect extensive personal data, including user preferences, interaction patterns, and even biometric information, often without clear user awareness (Binns et al., 2018). The European General Data Protection Regulation (GDPR) mandates that companies obtain explicit informed consent before processing personal data, yet many dating platforms provide vague disclosures about how data is collected, stored, and used (Regulation (EU) 2016/679; Wachter & Mittelstadt, 2019).

To address these risks, dating applications must implement robust data protection measures, including transparent data policies, opt-in consent mechanisms, and enhanced security protocols to prevent unauthorized data access (Binns, 2018).

2.5. AI Regulation in the United States and the European Union

Regulatory approaches to AI ethics and bias in dating apps differ across jurisdictions. The European Union's GDPR mandates strict transparency, fairness, and privacy protections, requiring companies to justify algorithmic decisions affecting users (General Data Protection Regulation, 2016). In contrast, the United States lacks comprehensive AI legislation, with companies largely self-regulating AI bias mitigation. This discrepancy raises questions about the effectiveness of AI governance in mitigating algorithmic discrimination across regions (White House AI Bill of Rights, 2022; New York City's Automated Employment Decision Tools Law, 2023).

At the same time, the EU AI Act aims to regulate high-risk AI applications, which may include dating algorithms, ensuring fairness and bias audits (European Parliament, 2023). These differences highlight the ongoing debate on AI fairness and accountability, questioning whether self-regulation is sufficient or if stronger oversight, similar to the EU model, is necessary in dating platforms (Zhuang, Woon, & Linpei, 2022; Zytko, Furlo, & Aljasim, 2022).

3. Ethical and Social Dynamics of Dating Apps

To address the research questions, this thesis explores the ethical challenges associated with AI biases in dating apps. Dating applications represent an important field of study, as they have fundamentally altered the nature of romantic interactions, replacing traditional social dynamics with AI-mediated matchmaking (Homnack, 2015).

While AI-powered dating applications offer new opportunities for connection, they also present significant ethical risks. These include concerns about algorithmic discrimination, privacy violations, and the reinforcement of harmful social biases (Binns, 2018). Addressing these issues is critical to ensuring that AI-driven matchmaking platforms promote inclusivity and fairness, rather than exacerbating pre-existing inequalities.

Research suggests that dating apps are widely used across diverse demographics. According to Vogels and McClain (2023) from the Pew Research Center, three in ten adults report having used dating apps or websites, with usage particularly high among: Younger adults (under 30), LGBTQ+ individuals, Men, and people who have never been married.

These findings highlight why dating apps are an important subject of ethical inquiry, as their influence extends across multiple social groups, with AI shaping romantic and social experiences in deeply personal ways.

3.1. User Experiences and Ethical Considerations

User experiences on dating apps vary, with reports of both positive and negative interactions. While 53% of users describe their experiences as positive, 46% report negative experiences. Gender disparities in user experiences are also notable: men tend to rate their online dating experiences more positively (57%) than women (who are divided between 48% pos. and 51% neg.). Besides, LGBTQ+ users rate their experiences higher (61%) compared to their heterosexual counterparts (53%) (Vogels & McClain, 2023).

A significant concern in dating app culture is that women are more likely to feel overwhelmed by the number of messages they receive, meanwhile men are more likely to feel insecure about the lack of messages received. Most adults are also skeptical about the capability of dating algorithms to predict love (only 21% believe it is possible).

Additionally, younger women face higher rates of online harassment:

- 56% of women under 50 have received unsolicited sexually explicit messages or images.
- 43% have been persistently contacted despite expressing disinterest.
- 37% have been subjected to offensive name-calling.
- 11% have received threats of physical harm (Vogels & McClain, 2023).

These statistics highlight the pressing ethical issues surrounding user safety, consent, and the role of AI in moderating harmful interactions.

In terms of platform preferences, Tinder remains the most widely used dating app, particularly among younger adults (46%), followed by Match (31%) and Bumble (28%). Grindr and HER are used by very few online adults (6% and 3%, respectively), but are more widely used by LGB adults than straight adults. Thus, Grindr offers a unique insight for this study centered on the LGBT population (Vogels & McClain, 2023).

3.2. Dating Apps and Ethical Issues

AI-driven dating applications reshape how people meet and form relationships, leading to important ethical considerations regarding their impact on dating culture, user privacy, discrimination, and inclusivity (Homnack, 2015). These concerns have generated divergent scholarly perspectives, with some researchers criticizing AI's role in digital dating while others argue that dating apps provide valuable opportunities for empowerment.

One of the primary criticisms of dating apps is their perceived dehumanization of the dating process. Rousi (2021) argues that dating apps, much like their ‘natural continuation’ in sex robots, commodify and publicize intimate relationships in ways that Western societies previously deemed taboo. This commodification occurs because dating apps operate on engagement-driven algorithmic systems that encourage users to treat potential partners as interchangeable profiles rather than unique individuals. The gamification of swiping mechanisms reinforces superficial engagement, prioritizing visual appeal over deeper compatibility, which reduces romantic interactions to a transactional experience. Wang (2023) expands on this critique by describing how AI has ‘colonized’ online dating, meaning that

algorithmic systems dictate and regulate the process of social matching through predefined parameters rather than organic human interactions.

Despite these criticisms, some scholars view dating apps as empowering tools that can reduce traditional barriers to romantic autonomy. Loh (2023) describes dating apps as a "feminist technology" as they empower women to choose their partners, which, historically, was a problem in patriarchal societies. Klincewicz (2022) supports this position and argues that dating apps enable some positive outcomes for lonely people, nomads, or minorities, while associated risks can be mitigated. Moreover, de Vries (2024) suggests that state-run, non-profit dating platforms could enhance user matching without the commercial incentives that often prioritize engagement over genuine connections. However, their potential societal benefits justify efforts to mitigate associated risks. In this context, AI serves as a powerful tool that, when thoughtfully implemented, can enhance the dating experience and contribute to more meaningful connections.

Algorithms trained on historically biased datasets tend to favor white, conventionally attractive, and higher-income users, leading to exclusionary practices that disadvantage people of color, LGBTQ+ individuals, and those from lower socioeconomic backgrounds (Noble, 2018; Bogen et al., 2022). Harding (2024) describes dating apps as inherently "designed for white people by white people," explaining that built-in features such as relevancy scores reinforce mainstream white Western beauty standards. The design of these algorithms, often trained on data from predominantly white user bases, results in the prioritization of white profiles even when users indicate different preferences.

One of the primary mechanisms of bias reinforcement is collaborative filtering, a widely used AI technique that recommends matches based on user behavior (Schafer, Konstan, & Riedl, 2001). While effective at personalizing recommendations, this method also homogenizes user behavior and amplifies existing patterns of racial and gender-based preference (Nader, 2020). For instance, even if a user does not consciously engage in racial discrimination, the algorithm learns from their previous swiping patterns, reinforcing racial self-segregation (Narr, 2021). Over time, this creates a feedback loop where users are primarily exposed to profiles that resemble their past selections, limiting diversity in matchmaking.

The homophilic nature of dating app algorithms further exacerbates discrimination (Tufekci, 2015). By prioritizing historical user behavior over diversity, AI-driven matchmaking reinforces heteronormative and racialized beauty standards. If the majority of a dating app's users engage with white profiles, the AI will prioritize white users, even when individuals express interest in diverse matches. Additionally, queer and non-binary users frequently report reduced visibility, as algorithms struggle to classify their identities within binary gender-based filters (McDermott, 2021).

Gender bias is another critical issue in dating app algorithms. Research suggests that male users tend to receive greater visibility and match frequency than female and non-binary users, reinforcing traditional gender power imbalances (McDermott, 2021). This bias arises because engagement-driven AI systems prioritize interaction-heavy profiles, which disproportionately benefits users who initiate more conversations (typically men).

Moreover, LGBTQ+ users often experience content moderation bias, where AI systems mistakenly flag their profiles as inappropriate due to heteronormative algorithmic training (Bogen et al., 2022). This results in shadow banning, where their profiles remain active but become significantly less visible to potential matches.

Another major concern with AI-driven dating platforms is the opacity of self-learning algorithms. While developers establish initial parameters, AI systems continue evolving autonomously, often resulting in outcomes whose underlying logic remains opaque even to creators. This lack of transparency raises ethical concerns, particularly when users are unaware of how their data is used to refine and optimize matchmaking processes. Given these issues, dating app developers have an ethical responsibility to mitigate algorithmic bias. They must actively incorporate strategies to reduce bias in their algorithms, recognizing that these systems are not ethically neutral and have a profound influence on societal norms. As such, a detailed examination of how three major dating platforms – Bumble, Grindr, and Tinder – utilize AI is necessary to assess their approaches to addressing these concerns.

4. AI Implementation in Popular Dating Apps

To understand how AI shapes user experiences in digital matchmaking, this section examines the AI-driven features of Bumble, Grindr, and Tinder, highlighting their advantages, ethical challenges, and broader implications for inclusivity, privacy, and bias mitigation.

4.1. Bumble

Bumble is designed and marketed as a feminist dating app tailored for female empowerment, as underlined by marketing centered around women, and most of the senior staff being women. Women initiate conversations in heterosexual matches, reducing the likelihood of harassment. AI features, such as 'Deception Detector' to identify fake profiles (Bumble Buzz, 2024c), further enhance user safety. Whitney Herd, Bumble's founder, has expressed ambitions for AI to revolutionize dating and combat loneliness (PYMNTS, 2023; Shrikant, 2024).

Bumble adopts a very AI "optimistic" approach. Whitney Herd, the founder, said in an interview that Bumble uses AI to change the 'dating landscape' and stated further some very ambitious goals like to "address" the loneliness epidemic in America" (PYMNTS, 2023). In another interview, she used to describe a vision of the future of dating where an AI assistant is conceptualized as a "concierge" who serves as an intermediary between people. While the platform makes some AI tools open source, the core ranking system remains opaque. User experiments (Anonymous, 2020; Arjun, 2024) suggest that desirability-based ranking disproportionately disadvantages minority users, as their profiles receive less visibility in a predominantly white, heteronormative user base.

While Bumble has taken steps to incorporate ethical AI principles, the lack of transparency in desirability-based rankings contradicts its feminist mission by reinforcing existing beauty and racial hierarchies in digital matchmaking.

4.2. Grindr

As the largest LGBTQ+-focused dating app, Grindr presents unique ethical challenges, particularly concerning privacy and data security. Unlike other dating platforms, Grindr users often face heightened risks of discrimination, harassment, and even physical harm due to their sexual orientation or gender identity. In 29 U.S. states, LGBTQ+ individuals still lack legal

protection against employment discrimination, making data security a critical concern (Waldman, 2019).

AI is integral to Grindr's features, including content moderation, fake profile detection, and AI-driven chat assistants. However, AI-powered "virtual partners" and "artificial wingmen"–premium features marketed as enhancing user engagement–raise significant privacy concerns. These tools are trained on existing user messages, meaning private conversations are used as training data to develop AI-driven interactions.

While Grindr requests user consent for data usage, the lack of transparency regarding how this data is processed creates unease. Some users and even Grindr employees have expressed concerns about potential AI surveillance and data misuse (Schiffer, 2024). Furthermore, the risk of data leaks remains a serious issue, as Grindr has previously been criticized for sharing user location and HIV status with third-party companies (Waldman, 2019).

Despite its role in fostering LGBTQ+ communities, Grindr must enhance its AI governance by ensuring greater transparency, data security, and user control over AI-driven interactions.

4.3. Tinder

As the most widely used dating app globally, Tinder integrates AI across multiple features, from match recommendations to harassment detection. One of its most controversial AI-driven tools is "Smart Photos," which automatically reorders a user's profile pictures based on engagement data. While this feature aims to optimize matchmaking, it also reinforces desirability-based ranking systems, which categorize users based on perceived attractiveness rather than personal compatibility.

A well-documented study by OkCupid found that Black women and Asian men face significant discrimination in online dating environments, receiving the fewest matches and interactions (Woyera, 2023). Tinder's AI, which prioritizes engagement metrics, may unintentionally amplify these biases by displaying users who generate the highest levels of engagement more frequently.

Moreover, Tinder's automated message screening system, designed to detect harassment and offensive language, has been criticized for lacking nuance. Some users report that consensual conversations, particularly those involving LGBTQ+ individuals, are flagged as inappropriate, reflecting biases in AI moderation training (Woyera, 2023).

To address these ethical concerns, Tinder and similar platforms must:

- Implement bias-aware AI models that prevent racial and gender-based exclusion in desirability rankings.
- Enhance user control over AI-driven recommendations to reduce algorithmic homogenization.
- Ensure greater transparency in AI-driven moderation policies to prevent disproportionate censorship of LGBTQ+ users.

5. Methodology

This study employs a qualitative research design to explore the ethical and social implications of AI-driven matchmaking in dating applications. The qualitative approach is particularly suited to investigating emerging ethical concerns in AI ethics, allowing for in-depth analysis rather than statistical validation.

Drawing on the insights provided by Reinecke et al. (2016), several compelling reasons support the choice of a qualitative research design for this study. First, "the strength of qualitative research is typically seen as theory elaboration and theory generation rather than theory testing" (Reinecke et al., 2016). As Reinecke puts it, this is valuable for examining new or emergent questions in business ethics, such as is the case in the use of AI technology and its usage in dating apps.

Additionally, within the field of business ethics, qualitative researchers are uniquely positioned to observe and analyze novel phenomena as they unfold in "real time", rather than attempting to explain events that have already taken place (Reinecke et al., 2016). Even though AI algorithms have emerged decades ago, their implications for business ethics change constantly, alongside the underlying societal issues, which justifies a present-oriented qualitative approach, rather than one which would focus on the datasets describing previous phenomena.

This research follows an exploratory and descriptive approach. Exploratory research is valuable in this context as it is a relatively new phenomenon, which has yet to be fully investigated and defined. By focusing on the intersection of AI ethics and dating apps this research becomes essential for gaining insights into emerging issues where theoretical frameworks are still evolving. In the field of AI ethics within dating platforms, exploratory research provides the flexibility to uncover patterns, user impacts, and ethical considerations that might not yet be fully understood. This study employs a thematic analysis of secondary sources synthesizing insights from existing academic literature, corporate reports, industry analyses, and media coverage to illustrate ethical implications of AI in dating apps.

This study's methodology draws upon the work of Muhammad Naeem, Wilson Ozuem, Kerry Howell and Silvia Ranfagni and their article "A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research" (2023). This method is chosen as it helps

to materialize the theory generation potential of the quantitative approach through keywords, themes and the building of connections.

5.1. Selection of dating apps for analysis

To critically assess the intersection of AI, bias, and ethical considerations, this study examines three widely used dating applications: Tinder, Bumble, and Grindr. These platforms were selected due to their distinct user demographics, varying approaches to AI-driven matchmaking, and the unique ethical challenges they present.

Bumble was selected for its emphasis on gender dynamics, particularly in heterosexual matches, where women initiate conversations. This feature was introduced to challenge traditional dating norms and mitigate harassment, an issue that specifically affects women on dating platforms. By analyzing Bumble, this study investigates how AI can contribute to safer and more inclusive online dating experiences, particularly for marginalized users.

Tinder, as the most globally recognized dating app, provides a valuable case study due to its large user base and AI-driven recommendation system. Tinder uses machine learning algorithms to analyze user interactions (such as Likes, Nopes, and profile details) to refine and personalize match suggestions. Additionally, the platform integrates factors such as user activity levels and geographical proximity to optimize compatibility recommendations.

Grindr, which primarily caters to LGBTQ+ users, presents unique privacy and security concerns that differentiate it from other dating apps. Given the increased risks of discrimination and harassment faced by queer users, Grindr’s AI-powered features must balance personalization with ethical considerations around user safety. According to Grindr's Help Center, the platform employs machine learning for automated decision-making and profiling, enabling personalized recommendations and security enhancements. AI is used to detect and flag potential violations of community guidelines, helping to prevent unauthorized or harmful activities.

The increasing prevalence of dating apps has significantly altered the landscape of modern relationships, contributing to the normalization of digital matchmaking. However, alongside their societal acceptance, these platforms have also introduced ethical dilemmas, particularly concerning user safety, consent, and discrimination.

5.2. Data Gathering

Research design is based on secondary data, which can be defined as data collected by others, not specifically for the question at hand (Cowton, 1998). The database for this study can be found in the Appendix 1. It consists of corporate media released by companies that detain dating apps, such as Tinder and Bumble, news articles and opinion pieces found on newspapers such as The New York Times or The Guardian, and blog posts from technology and lifestyle centered blogs such as Wired and Medium.

In addition to academic sources and prior research, this study also examines the privacy policies and terms of service of major dating platforms–Tinder, Bumble, and Grindr. These documents outline the platforms' legal and ethical commitments regarding data processing, algorithmic transparency, and content moderation. Their analysis reveals key corporate governance strategies related to algorithmic bias and the absence of explicit mechanisms for mitigating discrimination.

The selection of sources followed a structured process to ensure relevance, diversity, and methodological rigor. The criteria were as follows:

1. Content Relevance – the sources had to explicitly discuss:
    - The intersection of AI and dating apps.
    - The relationship between dating apps and bias (e.g., social, gender, racial bias).
    - The implementation of AI in dating platforms.
2. Keyword-Based Identification – The search process included a keyword analysis, requiring titles to contain at least one of the following:
    - "AI" + "dating apps"
    - "AI" + a marginalized group (e.g., *women, LGBTQ+, Black users*).
    - "Dating apps" + a marginalized group.

This resulted in an initial corpus of 380 sources, including duplicates, republications, and unrelated articles.

Given the large dataset, a cluster random sampling method was applied to ensure a balanced representation across different source types: corporate reports, news articles, opinion pieces and blog posts. The aim was the collection of a significant sample of consumer,

journalistic/academic and corporate perspectives to further analyze. A time limit was imposed on December 31st of 2024.

After filtering, the final dataset comprised 48 sources, including 7 corporate reports detailing AI usage, 23 news articles analyzing AI ethics and discrimination in dating apps, 10 opinion pieces discussing societal and ethical concerns and 6 blog posts on AI matchmaking trends.

All papers are examined and shown in the chronological order they were released. To systematically assess bias in AI-driven dating apps, this study adopts the classification framework established by Kundi et al. (2022) and Silva & Kenney (2018). Bias is categorized into three types:

1. Input Bias – Bias embedded in training datasets due to historical inequalities (e.g., racial, gender, socioeconomic bias).
2. Algorithmic Bias – Bias arising from AI decision-making processes, which may unintentionally reinforce discrimination.
3. Cognitive Bias – Bias originating from user behaviors and preferences, which influence AI's learning and matchmaking patterns.

Each source in the dataset was analyzed for:

- Mentions of specific social biases (e.g., racial, gender, LGBTQ+ discrimination).
- Indications of bias sources (e.g., whether bias stems from data inputs, algorithms, or consumer behavior).
- Discussions on AI implementation methods (e.g., algorithmic transparency, bias mitigation strategies).

The chosen sources provide sufficient data for qualitative thematic analysis, aligning with established standards in exploratory research (Reinecke et al., 2016). While statistical data would further strengthen the analysis, the selected qualitative materials adequately illustrate patterns of bias and ethical governance in AI matchmaking.

5.3. Thematic Analysis Approach

This study employs thematic analysis as the primary qualitative method to systematically examine how AI bias, transparency, and fairness manifest in dating applications. By

categorizing insights from secondary sources, including corporate reports, journalistic articles, and academic literature, this analysis identifies recurring patterns in AI ethics discourse within dating platforms. The thematic approach is particularly suited to this study because it allows for a structured yet flexible investigation of ethical concerns, aligning empirical findings with theoretical perspectives such as stakeholder theory and AI bias classifications (Kundi et al., 2022).

Following Naeem et al. (2023), this study adopts a six-step thematic analysis framework that ensures a rigorous, transparent, and replicable coding process.

1. Data Familiarization and Selection of Key Extracts. The first step involves immersion in the collected dataset to identify key passages, recurring narratives, and thematic signals relevant to AI governance in dating apps. This dataset comprises of corporate reports detailing AI implementation in dating apps, news articles and opinion pieces covering AI ethics and algorithmic discrimination, and blog posts discussing matchmaking trends and AI decision-making. To ensure alignment with the research questions, priority is given to excerpts discussing:

- Algorithmic bias in dating recommendations (e.g., desirability rankings, racial bias).
- Transparency issues in AI decision-making (e.g., opaque matching algorithms).
- Corporate responsibility and bias mitigation strategies.

2. The second step is identification and extraction of relevant keywords by closely examining the previously collected data. Following upon the work of Muhammad Naeem et. al and their article "A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research" (2023), the "Six R" rules for the selection of keywords will be employed. Realness – captures actual user experiences (e.g., "shadow banning LGBTQ+ users"). Richness – encompasses deeper social implications (e.g., "algorithmic desirability bias"). Repetition – identifies frequently occurring terms across multiple sources (e.g., "racial bias in AI matchmaking"). Rationale – aligns with theoretical concepts (e.g., "stakeholder responsibility"). Repartee – encourages discourse on AI ethics (e.g., "fairness-aware algorithms"). Regal – represents overarching themes in AI governance (e.g., "corporate transparency").

3. Coding Process. At this stage, codes (short phrases that summarize key patterns) are assigned to relevant data excerpts. Codes are derived using the "Six R" coding principles (Naeem et al., 2023) to maintain clarity and relevance: Robust – codes must represent raw data in a meaningful way. Reflective – they should connect empirical data to theoretical constructs (e.g., bias classifications from Kundi et al., 2022). Resplendent – codes should fully encapsulate AI ethics concerns without being overly broad. Relevant – must align with research questions, avoiding unnecessary tangents. Radical – Includes perspectives that may challenge dominant narratives (e.g., AI empowerment vs. discrimination). Righteous – ensures consistency in thematic categorization. For example, the term "racial bias in desirability scores" might be coded as "algorithmic bias – racial preferences", linking the observation to the broader issue of AI reinforcement of societal biases.This stage structures the raw data into interpretable segments, forming the foundation for deeper thematic analysis.

4. Theme development. Once coding is complete, similar codes are grouped into broader themes, reflecting key ethical concerns in AI-driven dating. Themes are constructed using Naeem et al.'s (2023) "Four R" principles: Reciprocal – themes must show interconnections between codes (e.g., bias and transparency). Recognizable – clearly identifiable across different sources. Responsive – directly addresses the study's objectives. Resourceful – provides actionable insights for AI governance in dating apps. Examples of emerging themes:
    1. Algorithmic Bias and Discriminatory Outcomes – Examines how AI reinforces racial, gender, and socioeconomic inequalities in dating apps.
    2. Transparency and Ethical AI Governance – Explores the opacity of matchmaking algorithms and corporate accountability.
    3. Stakeholder Responsibility and Fairness – Investigates how dating apps address AI bias concerns and mitigate harm to marginalized users.

5. During step five, "Conceptualization through interpretation of keywords, codes and themes", the thematic insights are synthesized into key conceptual takeaways that bridge AI ethics discourse with stakeholder theory and bias classification models (Kundi et al., 2022).

6. The final step involves constructing a conceptual model that visually represents the relationships between AI ethics, bias, transparency, and corporate responsibility. The model includes:

- Three primary sources of bias (input, algorithmic, consumer) and their effects on marginalized groups.
- Corporate strategies for bias mitigation and AI governance.
- Stakeholder engagement in AI decision-making.

By integrating theoretical perspectives with empirical findings, this model provides a structured framework for understanding and addressing AI-related ethical dilemmas in dating apps.

5.4. Thematic Codes and Emerging Patterns

Thematic coding focused explicitly on identifying the ethical risks related to input bias, algorithmic bias, and cognitive bias. Each thematic code was operationalized based on clear definitions provided in the literature (Kundi et al., 2022; Silva & Kenney, 2018), ensuring methodological clarity.

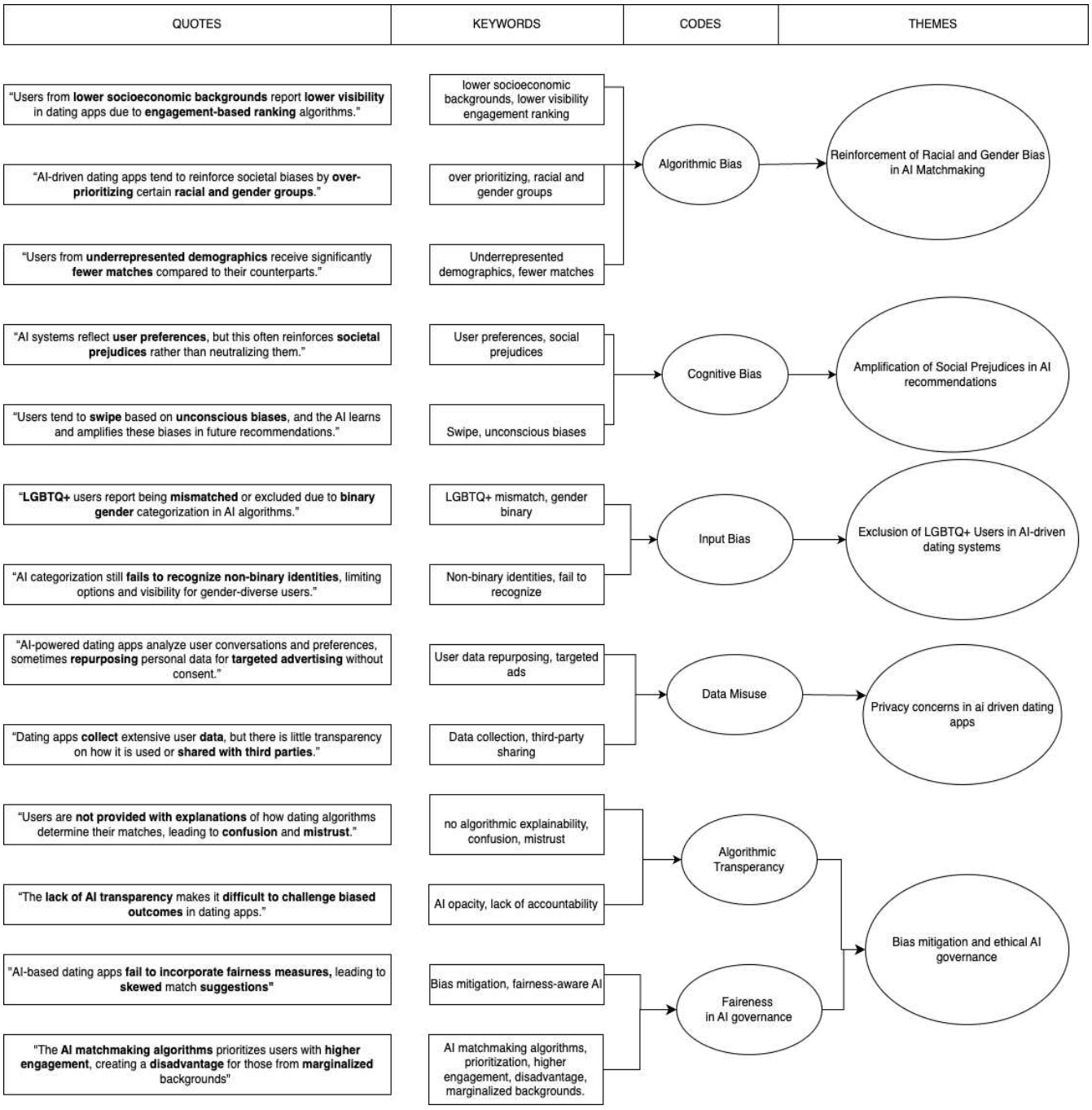

Figure 1: Thematic analysis (by author)

As shown in Figure 1, the thematic analysis identified five core themes: Reinforcement of Racial and Gender Bias in AI Matchmaking, Amplification of Social Prejudices in AI Recommendations, Exclusion of LGBTQ+ Users in AI-Driven Dating Systems, Privacy Concerns in AI-Driven Dating Apps, and Bias Mitigation and Ethical AI Governance. Through an iterative coding process, specific instances of algorithmic decision-making, bias, and AI governance were categorized to reveal recurring patterns in AI-driven dating platforms.

The Algorithmic Bias code emerged from sources discussing how AI-driven dating apps replicate and reinforce racial and gender biases through ranking and filtering systems. For example:

- "Users from lower socioeconomic backgrounds report lower visibility in dating apps due to engagement-based ranking algorithms."
- "AI-driven dating apps tend to reinforce societal biases by over-prioritizing certain racial and gender groups."

These findings support the assertion that AI matchmaking algorithms prioritize user engagement over inclusivity, disproportionately disadvantaging underrepresented groups. As Kundi et al. (2022) suggest, algorithmic bias arises when AI systems mirror societal patterns without accounting for fairness.The Cognitive Bias code reflects AI's tendency to reinforce social biases by learning from user preferences and unconscious biases. The following examples illustrate this phenomenon:

- "AI systems reflect user preferences, but this often reinforces societal prejudices rather than neutralizing them."
- "Users tend to swipe based on unconscious biases, and the AI learns and amplifies these biases in future recommendations."

This aligns with prior research showing that AI systems do not operate in isolation but instead reflect the implicit biases of their users (Silva & Kenney, 2018). Such reinforcement loops make discriminatory matchmaking patterns self-perpetuating rather than corrective. The Input Bias code focuses on AI's failure to accommodate diverse gender identities, leading to discriminatory outcomes for LGBTQ+ users. The following quotes highlight these issues:

- "LGBTQ+ users report being mismatched or excluded due to binary gender categorization in AI algorithms."
- "AI categorization still fails to recognize non-binary identities, limiting options and visibility for gender-diverse users."

These findings support claims that many AI matchmaking systems remain constrained by heteronormative classifications, failing to recognize non-binary and gender-fluid identities (McDermott, 2021).

The Data Misuse code addresses ethical concerns related to AI-driven data collection and user privacy violations. These concerns are reflected in the following excerpts:

- "AI-powered dating apps analyze user conversations and preferences, sometimes repurposing personal data for targeted advertising without consent."
- "Dating apps collect extensive user data, but there is little transparency on how it is used or shared with third parties."

Such concerns are well-documented in broader AI ethics literature (Bogen et al., 2022). The lack of transparency in data handling exacerbates mistrust and raises legal and ethical questions about user autonomy in AI-driven platforms.

The final theme focuses on corporate responsibility and governance in mitigating AI bias. Two key codes – Algorithmic Transparency and Fairness in AI Governance – emerged from sources emphasizing the need for AI accountability:

- "Users are not provided with explanations of how dating algorithms determine their matches, leading to confusion and mistrust."
- "The lack of AI transparency makes it difficult to challenge biased outcomes on dating platforms."

Additionally, fairness concerns were reflected in the following excerpts:

- "AI-based dating apps fail to incorporate fairness measures, leading to skewed match suggestions."
- "The AI matchmaking algorithms prioritize users with higher engagement, creating a disadvantage for those from marginalized backgrounds."

As noted by Hunkenschroer & Luetge (2022), ensuring fairness in AI systems requires transparency in how recommendations are generated, as well as mechanisms for mitigating biases in AI training data.

5.5. Key Observations from Thematic Analysis

From the findings above, three major patterns emerged:

1. Algorithmic ranking systems reinforce racial and gender biases. Seven reports explicitly highlight racial bias in dating app algorithms, demonstrating

that engagement-driven ranking models favor white, conventionally attractive users over marginalized communities.

2. Gender-based discrimination is primarily reported as a consequence of user behavior rather than AI.

   Eight reports highlight gender-based discrimination, mostly centered on male behavior toward women, reinforcing the notion that user actions influence AI recommendations. However, some concerns were raised about dating apps reinforcing gender stereotypes.

3. Transparency and fairness are emerging as critical governance issues. AI-driven matchmaking systems prioritize engagement over equity, yet a lack of transparency prevents users from understanding or challenging biased outcomes. Calls for AI fairness-aware design continue to grow, especially in ensuring diverse and representative matchmaking.

6. Discussion

This research demonstrates how AI implementation within dating platforms interacts closely with ethical governance practices, raising critical issues about fairness, inclusivity, and corporate responsibility. While platforms typically highlight their algorithms' efficiency in user engagement and match recommendations (Paul & Ahmed, 2024), the underlying biases embedded in these systems present significant ethical challenges. This research thus emphasizes the urgent need for increased transparency and stronger accountability measures in AI-driven matchmaking (Binns, 2018; DiBenigno, 2020).

Findings indicate clear patterns of racial and gender biases emerging from common algorithmic practices, such as collaborative filtering, engagement-driven ranking systems, and automated moderation (Nader, 2020; Narr, 2021; DiBenigno, 2020). These biases often arise unintentionally, resulting from historical user preferences reflected in training datasets rather than explicit discrimination by developers. Despite the increasing academic attention to algorithmic bias in digital matchmaking, empirical validation remains constrained by the proprietary nature of platform data. Dating platforms operate on closed AI models, with internal datasets–such as match rates, visibility rankings, and moderation logs–protected under corporate confidentiality policies. Additionally, direct data collection would necessitate compliance with stringent privacy regulations such as GDPR and CCPA, as user interactions within dating apps involve sensitive personal information (Bumble Inc., 2024; Grindr LLC., 2024; Match Group., 2024). Given these constraints, this study adopts a governance-focused approach rather than an empirical quantification of discrimination. Future research may explore partnerships with dating platforms to analyze anonymized datasets while maintaining ethical integrity. Consequently, marginalized groups–including racial minorities, women, and LGBTQ+ users–experience reduced visibility, diminished match opportunities, and frequent misclassification or shadow banning due to moderation errors (Smith & Anderson, 2018).

Stakeholder theory provides a meaningful lens through which to examine these dynamics (Freeman, 1994; Wood et al., 2021). Rather than solely maximizing user activity or profitability, dating platforms must integrate stakeholder interests into their AI governance models. Companies, therefore, face an ethical obligation not merely to respond reactively but proactively mitigate algorithmic biases. Practical steps may include regular audits of AI

systems, fairness-aware design processes, and enhanced user agency in customizing recommendations (Mittelstadt, 2019; Silva & Kenney, 2018).

Furthermore, the research identifies substantial regulatory gaps, noting significant disparities in AI governance across different jurisdictions (Hunkenschroer & Luetge, 2022). Such fragmentation not only complicates compliance for multinational platforms but also highlights the necessity of developing unified regulatory frameworks. Policymakers and industry leaders must collaborate to establish common standards guiding AI ethics in digital matchmaking, promoting fairness and transparency.

Finally, the concept of "regulatory awareness," proposed in this study, emerges as a strategic approach to enhance AI fairness and user protection. Regulatory awareness involves platforms actively aligning their technological practices with evolving legal frameworks, proactively adjusting algorithms, and improving user transparency. This forward-looking strategy positions companies not as passive observers of regulations but as responsible actors shaping ethical digital environments.

6.1 Key Findings and Theoretical Contributions

The thematic analysis identified key patterns in how AI biases manifest in dating apps. Specifically, it revealed significant algorithmic discrimination against racial minorities due to AI engagement optimization, particularly through desirability-driven ranking systems, which consistently disadvantage users from marginalized racial backgrounds (Nader, 2020; Narr, 2021; DiBenigno, 2020). Additionally, discrimination against LGBTQ+ users emerges primarily from AI's limitations in handling non-binary and gender-diverse identities, resulting in misclassification or reduced visibility (McDermott, 2021).

Furthermore, this study demonstrates that gender biases in AI matchmaking are often a reflection of user behaviors, which are then reinforced by AI recommendations rather than being explicitly designed into the algorithms themselves. This distinction aligns with broader theories on algorithmic amplification of social biases (Silva & Kenney, 2018).

Theoretical contributions of this research include:

- Advancing Stakeholder Theory in AI Ethics: This study applies stakeholder theory to digital matchmaking, illustrating how AI governance must address the needs of marginalized user groups, not just platform profitability (Freeman et al., 2020; Harrison & Wicks, 2013).
- Extending Algorithmic Bias Classification: The research expands on existing AI bias frameworks (Kundi et al., 2022) by identifying the interaction of input, algorithmic, and cognitive biases within dating apps and their compounded effects on marginalized users.
- Linking Algorithmic Governance to Ethical AI Development: This study bridges the gap between AI governance and ethical AI development by emphasizing the role of transparency, bias mitigation, and corporate responsibility in reducing discrimination (Mittelstadt, 2019; Rossi, 2018).

6.2. Practical Implications for AI Governance in Dating Apps

Given the ethical concerns surrounding AI-driven dating apps, this study also provides practical recommendations for developers, policymakers, and AI governance bodies:

- Algorithmic Transparency: Dating platforms should provide users with explainability features that allow them to understand how matchmaking decisions are made. Users should have access to algorithmic logic, particularly regarding recommendation criteria.
- Bias Mitigation Strategies: Platforms must adopt fairness-aware machine learning approaches to counteract algorithmic biases. This includes diverse training datasets and algorithmic adjustments to prevent the reinforcement of discriminatory user preferences (Buolamwini & Gebru, 2018).
- Enhanced AI Moderation for Safety: AI-driven moderation tools must distinguish between harmful and consensual interactions, ensuring that context-based learning models prevent over-censorship while effectively mitigating harassment (Datey et al., 2022).
- Ethical AI Development Frameworks: Companies should involve marginalized stakeholders in AI governance to ensure that algorithmic decision-making aligns with ethical AI principles and does not inadvertently reinforce structural discrimination (Yang, 2021).

6.3. Broader Impact and Future Research Directions

By addressing the intersection of AI, bias, and ethical governance in dating applications, this study contributes to the broader discourse on AI ethics and digital platform accountability. The findings emphasize that AI, as a sociotechnical system, is not value-neutral but rather a reflection of the biases embedded in both user behavior and algorithmic design (Mineo, 2024). Future research should explore algorithmic audits, which implies standardized algorithmic fairness audits across dating apps to evaluate and mitigate AI-driven bias. Also, it would be possible to investigate the role of policy interventions in ensuring that AI-powered dating platforms comply with ethical AI guidelines.

6.4. Limitations

Understanding and addressing AI bias in dating applications requires a comprehensive analytical approach that extends beyond direct algorithmic testing or empirical platform evaluations. This study highlights governance structures, ethical dilemmas, and stakeholder dynamics, emphasizing the broader implications of AI-driven matchmaking rather than conducting a comparative legal analysis of jurisdictional regulations. While regulatory differences shape AI governance, the discussion focuses on overarching challenges that platforms face in ensuring fairness and accountability. The introduction of regulatory-aware AI as a conceptual framework underscores its potential as a long-term strategic approach, particularly as legal landscapes evolve. However, given its complexity and the need for extensive empirical validation, its full implementation remains beyond the immediate scope of this research and would warrant a dedicated, in-depth study.

The analysis of Tinder, Bumble, and Grindr’s policies reveals a consistent pattern: all three platforms reserve the right to employ AI-driven decision-making, yet none provide transparent details about how their algorithms function. This underscores the need for independent audit mechanisms to evaluate algorithmic fairness in digital services. Integrating "regulatory-aware AI" into the ethical policies of these platforms could be a critical step toward reducing systemic biases. However, at present, platforms have not demonstrated sufficient initiative in adopting such measures.

At the same time, certain limitations of this study must be acknowledged. While this research underscores the perspectives of marginalized user groups and aims to address ethical concerns

affecting them, it does not incorporate first-hand user experiences. This, somewhat counterintuitively to its declared purpose, limits its ability to capture how affected user groups perceive the highlighted issues. However, business ethics are not solely synonymous with user satisfaction–understanding corporate perspectives is equally important for this study to hold managerial relevance. Future research should include qualitative interviews or survey-based approaches to integrate direct user insights.

Another key limitation concerns the absence of large-scale statistical datasets. This constraint stems primarily from data access restrictions imposed by dating platforms, which typically treat user behavior, engagement metrics, and algorithmic performance data as proprietary and confidential. Given the sensitivity of personal data and the regulatory constraints imposed by data protection frameworks such as GDPR in the European Union and CCPA in California, accessing granular user-level statistics is highly restricted. Moreover, platform owners are not legally required to disclose algorithmic decision-making processes or demographic breakdowns of their matchmaking models. While some independent studies have analyzed AI bias in dating platforms through experimental user accounts and survey-based methodologies, large-scale empirical assessments remain challenging due to these privacy and proprietary constraints.

Additionally, the scope of analyzed platforms remains limited. Tinder, Bumble, and Grindr were selected due to their market influence, but other dating apps with different user demographics and algorithmic models might provide further insights. Expanding the research to platforms such as Hinge or OkCupid could enhance the generalizability of the findings. Future work could also explore collaborations with independent digital rights organizations or regulatory bodies to facilitate more structured access to anonymized datasets, allowing for a more comprehensive empirical validation of algorithmic fairness in matchmaking applications.

7. Conclusion

Rather than simply automating matchmaking, Artificial Intelligence has fundamentally reshaped digital dating landscapes, bringing both opportunities and ethical concerns. This research builds on discussions about AI bias, platform accountability, and ethical governance, demonstrating that AI can simultaneously reduce and reinforce social inequalities. The analysis highlights how algorithmic ranking systems, content moderation filters, and engagement-driven recommendations contribute to the visibility – or exclusion – of marginalized users. Without direct discriminatory intent from developers, biases emerge as a byproduct of historical user data and system optimization goals. Addressing these issues requires greater transparency, fairness, and proactive governance to ensure dating platforms provide inclusive and equitable experiences.

As matchmaking platforms integrate AI more deeply into their operations, the need for ethical oversight grows. Many AI-driven decisions occur within opaque frameworks, leaving users unaware of how matches are determined or why certain profiles receive higher visibility. Bias mitigation strategies should extend beyond post hoc regulatory adjustments, shifting towards dynamic, fairness-aware AI governance. Rather than reacting to emerging ethical concerns, platforms must embed safeguards within their AI models from the outset, aligning with principles of social responsibility and inclusivity.

This study introduces regulatory-aware AI as a strategic concept, underscoring the potential of AI systems to evolve alongside shifting legal frameworks. Instead of static compliance measures, platforms could develop machine learning-driven regulatory tracking models, designed to adapt to legislative changes in real time. By embedding legal responsiveness into AI governance, companies would not only maintain compliance but actively contribute to ethical AI standard-setting.

Future research should explore adaptive regulatory mechanisms, focusing on how AI can autonomously assess jurisdictional variations and refine its decision-making processes. Developing algorithms capable of continuous legal assessment would allow dating platforms to adjust policies dynamically, ensuring responsible AI deployment within evolving ethical and legal landscapes.

Algorithmic bias in dating apps is not accidental– it is a direct result of corporate decision-making, where engagement-driven AI systems are prioritized over fairness-based interventions. Stakeholder theory, therefore, challenges dating app companies to take accountability for these outcomes and adopt fairer matchmaking models. Algorithmic bias is primarily driven by business decisions prioritizing profitability, raising ethical accountability concerns for dating app companies (Silva & Kenney, 2018; Freeman et al., 2020).

Addressing AI bias in matchmaking is not a purely technical problem – it is a fundamental challenge of corporate responsibility and social equity. Platforms that take a proactive approach to AI ethics, focusing on explainability, user trust, and fairness-aware algorithmic design, will lead the industry toward more responsible digital matchmaking ecosystems. By integrating real-time compliance mechanisms and ethical safeguards, AI-powered dating platforms can foster more transparent, diverse, and socially responsible interactions, ensuring that technological advancements align with human values.

Appendix 1: Database

DOCUMENT NAME	DATE	PUBLICATION	DOCUMENT TYPE	AUTHOR
AI powered Tinder: How to Use AI to Create a Better Matching System	14.08.2023	Medium	Blog Post	Woyera
Are Dating Apps Racist? Here's What Tinder and Others Can Do To Protect Users of Color	12.03.2024	Mozilla Foundation	Blog Post	Xavier Harding
Bumble to Leverage AI to help Users with profile creation and conversations	10.09.2024	TechCrunch	Blog Post	Lauren Forristal
Cupid's Digital Bias: Why Dating Apps Leave More Black Singles Matchless	21.09.2024	Black Enterprise	Blog Post	Jeroslyn JoVonn
How AI is Powering Modern Dating App Experiences	12.09.2023	Medium	Blog Post	Consagoustech
The Unexpected Love Affair Between Tinder and Artificial Intelligence	29.07.2020	APRO Software	Blog Post	Peter Kudlacek
Bumble Releases Open-Source Version of Private Detector A.I. Feature to Help Tech Community Combat Cyberflashing	05.12.2024	Bumble Buzz	Corporate Press Release	Bumble Buzz
Bumble's A.I.-Powered Deception Detector Weeds Out Spam, Scam, and Fake Profiles	07.12.2024	Bumble Buzz	Corporate Press Release	Bumble Buzz
How Bumble is Taking on Misogyny in A.I. and Synthetic Media?	05.12.2024	Bumble Buzz	Corporate Press Release	Bumble Buzz

Tinder Introduces Are You Sure?, an Industry-First Feature That is Stopping Harassment Before It Starts	21.05.2021	Tinder Pressroom	Corporate Press Release	Tinder Pressroom
Tinder Unveils 'Photo Selector' AI: Feature to Make Choosing Profile Pictures Easier	17.07.2024	Tinder Pressroom	Corporate Press Release	Tinder Pressroom
With Bumble's Private Detector, You Have Control Over Unsolicited Nudes	09.12.2024	Bumble Buzz	Corporate Press Release	Bumble Buzz
AI and dating apps: a match made in heaven or hell?	04.09.2024	City AM	News Article	Jess Jones
Are the algorithms that power dating apps racially biased?	17.02.2019	Wired	News Article	Thomas McMullan
Black women say dating apps like Hinge are biased. Now some are testing it.	03.10.2024	The Washington Post	News Article	Rivan Stinson
Bumble CEO Says AI Can Help Foster Meaningful Connections	31.08.2023	PYMTS	News Article	PYMNTS
Bumble class action claims dating app discriminates against straight women	17.10.2024	Top Class Actions	News Article	Anne Bucher
Bumble founder Whitney Wolfe Herd says the app could embrace AI: 'Your dating concierge could go and date for you'	10.05.2024	CNBC	News Article	Aditi Shrikant
Bumble's CEO Lidiane Jones talks Tech, AI, and the Future of Dating	21.03.2024	TIME	News Article	Wilhemina Boen

Dating apps prepare to launch AI features to help users find love	30.12.2024	The Guardian	News Article	Raphael Boyd
Digital Ageism on dating apps: discrimination affects people Aged 30 onwards	14.05.2024	Universitat Oberta de Catalunya	News Article	Elisabet López
Five ways artificial intelligence can improve your dating life	06.06.2024	The Conversation	News Article	Neil McArthur
From AI dating to flirt coaches: How AI is changing dating, for better or worse	22.03.2024	CBC	News Article	Britnei Bilhete
Hinge CEO: Searching for a partner in real life won't "hold a candle to" meeting online with AI	05.12.2024	Semafor	News Article	Rachyl Jones
How dating sites automate sexual racism	04.04.2022	The Harvard Gazette	News Article	Liz Mineo
How Tinder, Bumble and other dating apps are using AI to help Gen Z 'flirt' online	03.09.2024	The Times of India	News Article	Tech Desk TOI
Inside Grindr's plan to squeeze its Yess	28.04.2024	Platformers	News Article	Zoe Schiffer
Least Desirable'? How Racial Discrimination Plays Out In Online Dating	09.01.2017	NPR	News Article	Ashley Brown
New study reveals how photo filters influence likability on dating apps	30.09.2024	PsyPost	News Article	Eric W. Dolan
Online dating is about to radically change	19.12.2024	CNN	News Article	Samantha Murphy

Popularity Matters More than Compatibility on Dating Apps	27.11.2023	Tepper School Of Business	News Article	Carnegie Mellon University
The Biases we feed to Tinder algorithms	16.01.2019	diggitmagazine	News Article	Magdlena Rolle
The darkest side of online dating	01.07.2024	BBC News	News Article	BBC News
The Dating-App Diversity Paradox	19.09.2024	The Atlantic	News Article	Faith Hill
Tinder and Other Dating Apps Test AI 'Wingman' Concept	01.09.2024	PYMTS	News Article	PYMNTS
Tinder Asks Does This Bother You?	27.01.2020	Wired	News Article	Arielle Pardes
Tinder's new AI Tool will curate your dating profile pictures for you	17.07.2024	CNBC	News Article	Aditi Shrikant
Welcome To The Age of AI-Powered Dating Apps	23.08.2023	Intelligencer	News Article	John Herrman
AI dating might actually not be so bad	11.11.2024	The Japan Times	Opinion Piece	Dave Lee
Apps promised to revolutionize dating. But for women they're mostly terrible	17.05.2021	The Guardian	Opinion Piece	Nancy Jo Sales
Council Post: How To Overcome Yes And AI Bias In Dating Apps	26.10.2022	Forbes	Opinion Piece	Igor Khalatian
Gaze Into the Dystopian Hell of Bots Dating Bots	17.05.2024	Slate	Opinion Piece	Nitsh Pahwa
I was racially profiled by a dating app - and I'm not the only one	30.08.2023	iNews	Opinion Piece	Radhika Sanghani

Matchmaking 2.0: How AI Is Revolutionizing Online Dating	17.03.2023	Forbes	Opinion Piece	Igor Khalatian
Online Dating Apps Are Actually Kind of a Disaster	18.05.2021	Wired	Opinion Piece	Nanci Jo Sales
Queer Dating Apps Are Unsafe By Design	20.06.2019	The New York Times	Opinion Piece	Ari Ezra Waldman
When Love and the Algorithm Don't Mix	14.02.2024	Time	Opinion Piece	Apryl Williams
Why do dating apps bring out the worst in men?	27.01.2022	The Guardian	Opinion Piece	Nancy Jo Sales

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