Portfolio Assignment 2

Ethical issues and DAG - Dutch dating app Breeze

Name: Wouter van Huis
Student number: 2142469
Institution: Hogeschool van Arnhem en Nijmegen (HAN)
Program: Master of Applied Data Science
Course: Deep Learning & Deployment (2025 P1A)
Date: 04-10-2025

Ethical issues & their origins

The Breeze case raises several ethical concerns around fairness and accountability in algorithmic decision-making. The most pressing issue is indirect discrimination. Because many users like people from their own ethnic group, the algorithm amplifies these patterns and systematically disadvantages minorities (College voor de Rechten van de Mens, 2023a).

From a deontological perspective, this violates the duty to treat everyone equally. Utilitarianism stresses the reduced well-being when users lose trust or leave the platform. Virtue ethics highlights that knowingly allowing biased outcomes reflects a lack of fairness and integrity.

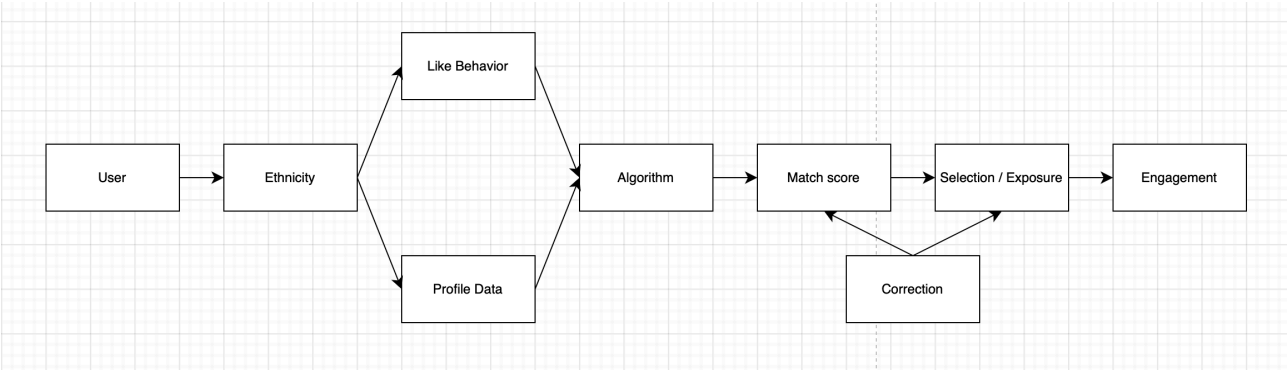
A second issue concerns accountability. Even if the algorithm is a black box, Breeze remains responsible for discriminatory outcomes (College voor de Rechten van de Mens, 2023a).

The dilemma is complicated by privacy and GDPR restrictions. Correcting bias requires some knowledge of ethnicity, but processing such data is prohibited without legal grounds (College voor de Rechten van de Mens, 2023b). This creates tension between respecting privacy and preventing discrimination.

Other challenges include transparency (a self-learning system is opaque), fairness trade-offs (strict parity vs. proportional exposure), and preferential treatment versus correction. Breeze feared adjustments would be positive discrimination, but the Human Rights Institute ruled they are legitimate corrections (College voor de Rechten van de Mens, 2023a). Finally, user churn dynamics show how disadvantaged users may leave, further reducing diversity and reinforcing bias.

DAG of the dilemma

The Directed Acyclic Graph (DAG) visualizes these dynamics. User attributes affect profile data and like behavior, which feed into the algorithm. The algorithm generates match scores that determine exposure, shaping engagement. Ethnicity can leak through proxies such as names or photos. The DAG also shows where fairness corrections can intervene.



What I missed after drawing the DAG

The DAG highlighted feedback loops: when minority users leave, data diversity decreases, reinforcing bias. It also showed the influence of latent variables, such as ethnicity leaking via proxies.

The diagram emphasized the power imbalance between developers and users, and that fairness definitions are ethical choices, not just technical ones. From a deontological view, equal treatment is obligatory; utilitarianism weighs outcomes; virtue ethics stresses fairness as a professional quality. The DAG also underlined legal constraints and the risk of bias drift in self-learning systems.

Recommendations for a data scientist

For a data scientist, several lessons follow. Begin with an ethical impact assessment to identify risks and stakeholders. Define fairness explicitly, use proxies cautiously, and prefer interventions at the ranking or selection stage.

Systems should include monitoring, scenario testing, and clear documentation. Corrections should be iterative, starting small and adjusting based on evidence. Strong human oversight and collaboration with legal and ethical experts are essential.

These steps align with AI and data ethics frameworks. The EU Ethics Guidelines for Trustworthy AI stress fairness, transparency, and human oversight (European Commission, 2019). The ACM Code of Ethics calls for avoiding harm and taking responsibility (ACM, 2018). The FAIR data principles underline data quality and integrity as prerequisites for fair algorithms (Wilkinson et al., 2016).

From an ethical lens, deontology supports non-discrimination, utilitarianism values maximized well-being, and virtue ethics encourages fairness, transparency, and accountability in data science practice.

References

Association for Computing Machinery. (2018). ACM Code of Ethics and Professional Conduct. ACM. https://www.acm.org/code-of-ethics

College voor de Rechten van de Mens. (2023a, September 6). Dating app Breeze mag en moet algoritme aanpassen om discriminatie te voorkomen. Mensenrechten.nl. https://www.mensenrechten.nl/actueel/nieuws/2023/09/06/dating-app-breeze-mag-en-moet-algoritme-aanpassen-om-discriminatie-te-voorkomen

College voor de Rechten van de Mens. (2023b). Oordeel 2023-82. Oordelen.mensenrechten.nl. https://oordelen.mensenrechten.nl/oordeel/2023-82

European Commission. (2019). Ethics guidelines for trustworthy AI. Publications Office of the European Union. https://data.europa.eu/doi/10.2759/177365

Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M., Baak, A., … Mons, B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. Scientific Data, 3(1), 1–9. https://doi.org/10.1038/sdata.2016.18