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Part A: Research Report on the Dark Side of AI

1. Problem Definition

1.1. Body Scan Jeans Technology and AI

The use of AI technology called body scan jeans technology involves 3D body scanning to accurately measure customers for a customized fit. By offering customers the option to have their bodies scanned, H&M can provide a more tailored and satisfying shopping experience. This not only enhances customer satisfaction but also reduces the likelihood of returns and exchanges, ultimately benefiting both the company and the consumer. However, the incorporation of AI in this area raises important ethical issues and potential risks. One of the main concerns is the privacy and security of personal data. When customers undergo a body scan, their measurements and body images are collected and stored. As technology advances, there are growing concerns about the use, availability, and protection of data in the fashion industry, highlighting the significance of ethical and responsible utilization of AI.

1.2. Technical and Implementation Aspects Causing Potential Threats/Risks

The main concern with AI-powered body scan jeans technology is the potential for biases to be magnified and personal privacy to be compromised.

- **Data Bias:** Models that predict body measurements in technology heavily depend on training data. However, if the training data lacks diversity, the resulting AI models may not accurately represent the full range of body types and sizes. Consequently, biased outcomes may occur, where the technology performs well for certain groups but poorly for others. For instance, if the dataset primarily consists of body scans from specific ethnic backgrounds or body shapes, it may not accurately accommodate individuals who deviate from these profiles.
- **Privacy Concerns:** Collecting and storing sensitive personal data is an integral part of utilizing 3D body scanning technology. However, it is important to understand the substantial risk of data breaches or forbidden use of this information. If the detailed body measurements and shapes are not adequately protected, it could result in privacy issues and potential misuse for various purposes, such as identity theft.
- **Lack of Algorithmic Transparency:** The absence of transparency in the AI system's decision-making process creates a challenging situation because it is unclear how algorithms arrive at their conclusions. This opacity makes it difficult to detect and address biases, which can undermine trust in

technology. Customers may find it challenging to understand the reasoning behind specific recommendations, further eroding their confidence.

2. Problem Definition

- **Individual Level:** The use of biased artificial intelligence in body scan jeans technology can lead to negative customer experiences and dissatisfaction. Individuals whose body types are not well-represented in the training data may receive inaccurate recommendations, leading to ill-fitting clothing and disappointing shopping experiences. Additionally, the privacy concerns associated with extensive body scanning may make customers feel uncomfortable and violated.
- **Organizational Level:** Using AI technologies that have biases or privacy concerns can potentially harm a company's reputation. If customers experience negative outcomes or feel that their privacy has been violated, they may lose trust in the brand. As a result, the company may experience lower sales, decreased customer loyalty, and potential legal repercussions. Moreover, organizations may also face financial burdens associated with handling data breaches and complying with privacy regulations.
- **Societal Level:** The use of biased AI technologies can have a negative impact on society by increasing body image concerns and causing societal biases. When AI fails to accurately represent diverse body types, it can lead to feelings of exclusion and dissatisfaction among those affected. Moreover, the adoption of biased AI may further preserve these biases, making it difficult to promote diversity and inclusivity in the fashion industry.

3. Current Progress

- **Diversity and Inclusion:** Researchers and organizations are recognizing the importance of having varied and inclusive training data. They are actively working to gather body scans from a diverse group of people, including various ethnicities, genders, and body shapes, in order to promote inclusivity in AI models. Some companies are collaborating with groups that specialize in body diversity to enrich their datasets.
- **Privacy Protection Measures:** Companies are improving their data protection strategies to address privacy concerns by implementing measures such as encrypting sensitive data, using secure storage systems, and enforcing strict access controls. Additionally, the current trend focuses on promoting transparency in data usage policies to ensure that consumers are informed about how their data is collected, used, and protected.

- **Algorithmic Transparency and Accountability:** The field of enhancing the transparency of AI algorithms is constantly progressing, with scientists actively developing methods to improve the interpretability of AI decision-making processes. This includes providing explanations for recommendations and enabling users to understand how their data influences the results. Furthermore, efforts are being made to integrate fairness audits and bias detection tools to consistently assess and rectify biases in AI models.
- **Regulatory Frameworks:** Regulatory bodies are increasingly prioritizing the ethical aspects of artificial intelligence and the protection of data. Laws such as the GDPR and CCPA set forth stringent rules for safeguarding data privacy and obtaining user consent. This requires companies to obtain explicit consent for data collection and provide users with options to opt-out, thereby giving individuals greater control over their personal information.

4. Future Direction

Proposing Continuous Monitoring Systems: The implementation of continuous monitoring systems is a crucial step towards addressing biases and privacy concerns in body scan jeans technology. These systems would regularly assess AI outputs to detect any signs of bias and ensure ongoing adherence to privacy standards. By integrating continuous monitoring into the AI lifecycle, companies can take proactive measures to identify and correct biases and potential privacy breaches as they arise.

This approach involves:

- Continuous Monitoring of Bias: Employing artificial intelligence to constantly assess the effectiveness of body scan models among diverse demographic groups, aiming to identify and rectify any biases present.
- Privacy Assessments: Consistently evaluate the methods of handling data to guarantee adherence to privacy regulations and safeguard customer information.
- Integration of User Feedback: Utilizing user feedback as a means to pinpoint shortcomings in fit recommendations and enhance the performance of AI models.

Part B: Discussion of the Issue in the Context of Maori Culture/Communities

- **Relevant Aspects of Maori Culture and Reality Affected by AI Bias**
  The Maori, being the indigenous people of New Zealand, have distinct cultural principles and social systems that must be recognized and protected in the context of AI

implementation. The biases and privacy concerns linked to AI can significantly impact Maori communities, increase existing inequalities, and put their cultural heritage at risk.

- **Vulnerability to Impact**
  Due to historical inequalities, Maori communities are particularly vulnerable to the adverse impacts of biased AI. When biased AI is employed in body scan technology, it can produce inaccurate representation of the different body shapes and sizes present among the Maori population. Consequently, this leads to insufficient fit recommendations and deepen feelings of exclusion.
- **Threat to Maori Values and Rights**
  The application of detailed body scan data can violate Maori principles such as '*manaakitanga (hospitality, kindness)*' and '*whanaungatanga (relationships, kinship)*'. Mishandling personal information contradicts the core values of respect and trust in Maori culture. Additionally, biased AI has the potential to threaten the rights of Maori as stated in the '*United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)*', which focuses the importance of non-discrimination and protecting native rights.

Specific Impact in the Maori Context

- **Cultural Representation and Inclusivity**
  The fashion industry holds a crucial position in reflecting culture. Failure of AI technologies in fashion to accurately represent Maori body types may result in limited inclusivity and visibility for Maori people. This exclusion can contribute to social degrading and reduce the cultural richness evident in the fashion world.
- **Data Sovereignty**
  The challenge of data sovereignty presents a significant barrier for indigenous groups such as the Maori. It is essential to address the gathering and utilization of body scan data in a manner that upholds the Maori's authority over their own information. This involves ensuring that Maori individuals have the power to decide how their data is collected, used, and stored, and that they receive the benefits from its utilization.

Conclusion

To effectively address the limitations of AI in body scan jeans technology, a comprehensive strategy is needed. This strategy should involve different types of data, safeguarding privacy, enhancing algorithm transparency, and establishing ongoing monitoring. In the Maori cultural setting, it is essential to acknowledge the distinct vulnerabilities and rights of the Maori community in order to ensure that AI advancements promote inclusivity and honor cultural values. By following these guidelines, the risks associated with AI can be minimized and its advantages can be shared fairly.

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