Template for final Report CPDI 2024/25

Group: Equity In Action

Exploring Gender Bias in Smart Technologies

Members
Noemi Mazzon 2146852
Aurora Cadalino 2093046
Zeynep Ezel 2106002
Halimatou Samateh 2141723

Outline
This project focuses on how gender norms and biases shape the design, implementation, and societal adoption of technology. Biases not only perpetuate stereotypes but also reinforce existing inequalities, undermining inclusivity and hindering equitable access to opportunities in our increasingly digital world. The objective is to draw literature in gender studies and human-computer interaction (HCI), as well as cases on AI-powered assistants (e.g., Alexa, Siri) in order to bridge the gap by raising awareness in gender-inclusive technology design.

The investigation stems from the finding that numerous smart technologies, like voice assistants and AI algorithms, display patterns that reinforce gender biases that serve as the foundation for our inquiry. For example, voice assistants such as Siri and Alexa are designed to have "submissive" traits and frequently default to feminine voices. In a similar vein, biased training data often causes AI systems to reflect societal preconceptions.

Goal and Target
The campaign is targeted at general consumers, especially young people aged 20 to 30, a demographic that represents one of the most active and engaged groups on social media platforms. We believe that this age group plays a crucial role in shaping the future of technology and communication, making it essential to foster awareness and understanding of the gender biases embedded in smart tech. Our goal is to raise awareness about the implicit gender biases embedded in everyday technologies. These are individuals who regularly interact with AI-powered tools like voice assistants, fitness apps, and recommendation systems but may not realize how these technologies perpetuate stereotypes and inequalities. By educating consumers on how societal norms influence the design and behaviour of these tools, the campaign seeks to empower them to question and challenge these biases. Through practical tips, interactive stories, and engaging content, the project aims to make complex issues accessible and relatable, encouraging consumers to adopt more inclusive practices in their technology use and demand equitable design principles from companies. By focusing on this audience, the campaign aspires to spark a grassroots movement for greater inclusivity in the digital world. The campaign will feature a dedicated Instagram page.

Methodology
By reviewing existing studies on gender studies and smart technologies, the project focused on how societal norms influence the design of AI-powered assistants. Then continued by analyzing specific cases of gender biases in voice assistants and the practices of corporations. Our focus is to call for people and technology users to see the background of their smart technologies and how their use and awareness affect companies to adopt gender-inclusive practices.

Roles
Literature Review: Aurora Cadalino, Noemi Mazzon, Zeynep Ezel
Discussions and Refinements: Aurora Cadalino, Noemi Mazzon, Zeynep Ezel
Campaign Design: Aurora Cadalino and Noemi Mazzon
Social Media Content: Aurora Cadalino, Noemi Mazzon, Zeynep Ezel
Report: Noemi Mazzon, Zeynep Ezel and Halimatou Samateh

Challenges and Limits

Simplifying complex topics like algorithmic biases risks losing critical insights, while creating a sense of urgency among indifferent users requires creative strategies. The platform's visual nature demands resource-intensive, high-quality content to sustain interest, yet its format limits in-depth explanations and tangible action. Measuring real impact is also challenging, as engagement metrics do not guarantee behavioral or systemic change. Despite these obstacles, the campaign can enhance its impact through collaborations, interactive content, and diversified storytelling to inspire change and foster inclusivity in AI design. Our project was challenged by changes in group members, therefore we had to pursue a difficult time challenge.

Highlights

AI-powered voice assistants often perpetuate gender stereotypes through default feminized voices and submissive responses which reinforce traditional caregiving roles and systemic inequalities in technology and society. The gendering of Alexa is neither neutral nor inevitable; it is a deliberate political act that reflects and perpetuates existing systems of power. By coding femininity into Alexa, her creators reinforce the association between women and domestic labor, contributing to the erasure of women's bodies and histories in the digital age. To achieve equity in technology, it is essential to challenge the gender stereotypes embedded in smart technologies. Design teams behind virtual assistants lack female AI scientists, reflecting serious gender disparities in technology. Siri, named by a co-founder after the Norwegian word for "beautiful woman who guides to victory", exemplifies how gender stereotypes permeate AI. 2021 analysis of user-generated content found that up to 76.5% of users referred to Alexa as "her," and over 81% did so for Siri, a strong tendency to assign a female gender from society (Source). Apple has faced criticism for failing to address biases. In the very late year of 2018, internal guidelines instructed Siri to deflect mentions of feminism, showcasing how tech firms consciously avoid addressing gender inequality (Source). As of 2024, women represent approx. 29% of the global workforce in artificial intelligence (AI) (Source). In the European Union, women hold 16.7% of ICT specialist roles (Source). Only in January 2024, Apple's board of directors achieved gender parity, becoming the first and only major tech company (Source). Through the on-going situation both in practice and background, this project decided to move on with an awareness campaign.

Connection to the Beijing Platform and the 30th Anniversary

The project aligns with Objective J.2 of the Beijing Platform for Action, which calls for a balanced and non-stereotyped portrayal of women in media. Our project contributes to challenging media and ICT stereotypes. On the 30th anniversary of the Beijing Platform, this initiative emphasizes the importance of addressing modern digital biases, which are extensions of the systemic inequities highlighted. For continued progress in promoting gender equality in AI, we aim to produce projects for action.

References and Web Resources

- Andreas Walther, Flora Logoz, Lukas Eggenberger, *The gendered nature of AI: Men and masculinities through the lens of ChatGPT and GPT4, Computers in Human Behavior: Artificial Humans, Volume 2, Issue 2*, 2024
- Dignum, V. (2019), *Responsible Artificial Intelligence: How to Develop and Use AI in a Responsible Way*, Springer
- Case studies on AI ethics and gender from the Economic Forum and UN
- Insights from the Inclusive Design Research Centre
- *I'd blush if I could: Closing Gender Divides in Digital Skills through Education*, UNESCO, 2019
- *An analysis of the reproduction of gender bias in the speech of Alexa virtual assistant*, Christiane B. Oliveira and Marilia A. Amaral, 2022
- *Alexa, Google, Siri: What are Your Pronouns? Gender and Anthropomorphism in the Design and Perception of Conversational Assistants*, Marta Costa-jussa, Hila Gonen, Christian Hardmeier, Kellie Webster, 2021