xCoAx 2020
Computation,
Communication,
Aesthetics & X
2020.xCoAx.org
Graz, Austria

“Some Things You Can Ask Me”: About Gender and Artificial Intelligence

Pedro Costa
pedro.carv.c@gmail.com
Universidade de Lisboa, Faculdade de Belas-Artes, Centro de Investigação e de Estudos em Belas-Artes (CIEBA), Portugal

Keywords: Artificial Intelligence, Digital Assistants, Gender, Feminization.

This study explores the relationship between gender and artificial intelligence, aiming to assess the reasons why digital assistants tend towards femininity and highlighting the social and cultural conventions that inform their development. It begins by confronting gender conceptions as defined by a binary framework with the evolution and integration of artificial intelligence in our daily life. Aiming to examine gender assumptions in current AIs, it draws on a previous analysis of four digital assistants regarding their anthropomorphization, tasks, and behaviours. It then complements this view with a survey of user preferences and gender perception regarding the interactions of these AIs. To this end, the project involves development of chatbots that gather information through dialogue and also raise awareness on how current digital assistants tend towards feminization. In this manner, this study seeks to discuss digital assistants’ stance towards gender and question the social and cultural views they reflect back to us.

1. Purpose of the Research and its Importance to the Field

Personal digital assistants are no longer a thing of the future: they talk to us, listen to us, help us and, as artificial intelligence's increasing ubiquity often goes unnoticed, they become a natural part of our daily interactions. They are now embedded into our mobile devices and web-based services, not only assisting us in daily tasks but increasingly acting as friendly companions. In an attempt to become closer to our social reality, they are assigned human-like traits, features or even personalities. However, this growing anthropomorphization inevitably entails gender attribution which results in a behaviour that conforms to certain stereotypes and reinforces traditional assumptions of gender.

In this sense, this study seeks to question why femininity seems to be often present in AI, assessing the reasons behind this phenomenon and emphasizing its implications. In this way, it aims to understand, explore and expose the relationship between gender and artificial intelligence, discussing the cultural conventions that inform the conception of this technology and the way digital assistants tend to reinforce gender roles or stereotypes, reflecting social and cultural values back to their users.

It follows a theoretical, analytical and practical approach, seeking to raise awareness on the implications of assigning gender to digital assistants and incite reflection on this phenomenon.

Current discussions surrounding the sociocultural consequences of the integration of AI technology into our daily life, either by entities like UNESCO or in online media contexts, attest to the current relevance of this research, namely, by addressing gender issues and questioning associated stereotypes. We consider it relevant to expand on these discussions, exposing the implications of the growing ubiquity of digital assistants and discussing their stance towards gender, while taking into account that the rapid development of AI often eludes critical stances on the social and cultural roots that inform its evolution.

2. Background and Related Work

Artificial intelligence is already part of our daily life, as digital assistants become more ubiquitous, ranging from mobile devices to online services (Dale 2016). These assistants are gradually humanized, thus evolving from mere assistants to daily companions, developing emotional bonds with their users (Weizenbaum 1976; Richardson 2015). This intention of turning their interactions more natural encompasses a growing anthropomorphization, which reveals the presence of gender attributes. Socially, gender is mainly perceived through a binary framework, and certain acts, tasks and even jobs are identified as specifically masculine or feminine, reflecting stereotypes and a structural hierarchization of labour (Butler 1990; Prentice and Carranza 2002; Hester 2016).

In this sense, we can observe how digital assistants currently automate traditionally feminine jobs that reflect upon their tasks of service, assistance and emotional labour (West and Zimmerman 1987). Gender is also present in their voice, name and avatar, and their behaviour often conforms to "stereotypical and gendered behaviour patterns" as they fill the roles of caregivers and other roles coded as feminine in western society (Weber 2005). As such, we end up perceiving these entities not only as mere machines but also as "mirrors or substitutes" and the way we relate to our peers starts influencing how we relate to artificial intelligence and how it relates to us (Weber 2005).

Current trends in their development are not naïve regarding this phenomenon, although corporations are more focused in further anthropomorphizing and humanizing these entities. And while Alexa and Cortana intentionally present themselves as feminine personas, Google Assistant and Siri appear to be trying to become more diverse and unbiased in their characterization.

Observing this tendency, researchers and academics highlight the way gender (and, by extension, femininity) is instrumentalized to manage interactions between digital assistants and users (Eyssel e Hegel 2012; Piper 2016; Bergen 2016). In turn, common debates often advance user preference as a justification for feminized AIs and even popularize the belief that it's due to the field being mostly developed by men (Nickelsburg 2016; Steele 2018; Chambers 2018). In both contexts gender neutrality is seen as illusory since anthropomorphized virtual assistants inevitably engage with traditional and binary assumptions of gender. In this sense, there is little agreement on how to tackle these issues, and neutrality is often questioned in favour of gender diversity, namely, allowing the user to customize their assistant, and some authors even point out how these entities could fluctuate between more than one gender, thus being genderfluid.

3. Description of the Proposed Approach

Firstly, we aim to assess the theoretical foundations of this phenomenon and the questions that arise with it. Drawing on a previous study that confronts how gender is perceived under a binary framework with the integration of artificial intelligence in our daily lives (Costa & Ribas 2018), it begins by discussing how digital assistants tend to emulate feminine features through their anthropomorphization, the tasks they perform and their behavioural traits. The study begins with a theoretical approach, which structures the analysis of digital assistants, both complementing and informing the project's development.

Furthering this discussion, it observes the main questions that researchers and academics raise when examining the relationship between gender and artificial intelligence, confronting these views with the common discourse around the feminization of digital assistants in the context of online media coverage, while also paying attention to how AI is portrayed in popular culture.

This view is supported by a previous analysis of Alexa, Cortana, Google Assistant and Siri that revealed how they tend to be feminized, be it through their voice, tasks or social interactions, thus lacking a counterpart or just mere diversity. Expanding on these results, we intend to examine how current digital assistants evolve in their portrayal of gender, according to the functionalities and features that are being prioritized in their development as promoted by Amazon, Apple, Google and Microsoft in their official websites and announcements.

We also intend to develop surveys as to assess user preference regarding AI's interaction and characterization. On one hand, the project aims at collecting this data by creating a chatbot inspired by ELIZA that questions users regarding their preferences when interacting with current digital assistants while also creating chatbots inspired by the Turing's Imitation Game that question how users perceive gender in AI. On the other hand, it aims at creating chatbots with different personalities, functionalities and interactions, which seek to raise awareness on issues related to the current integration of AI in our daily life and on how these entities portray gender.

4. Expected Contributions

With this study, we intend to promote critical thinking surrounding this phenomenon with its theoretical and analytical approaches and incite reflection on how artificial intelligence currently engages with gender conceptions, eventually reflecting them back to us. It aims to inform designers that contribute to the development of this technology but also the users of their creations, namely those that use these digital assistants on a daily basis. Additionally, the analysis will allow us to assess current preferences regarding artificial intelligence and how users tend to perceive its gender through the behaviour it exhibits. Following this idea, the project will retrieve this data through chatbots that question users. Another set of chatbots will confront users with stereotypes, roles and archetypes that refer to both AI and gender, through different dialogues, functions and personalities, ironically reinforcing some of the stereotypes we currently engage with.

5. Progress Towards Goals

The research proposed here is in continuity with the one developed in the Masters in Communication Design and New Media (2016-2019) at the Faculty of Fine-Arts, University of Lisbon, and presented at xCoAx in 2018 and 2019. In this way, it seeks to expand on those results and deepen their discussion as part of an ongoing PhD program, started in September 2019 at the same institution. Since the end of the master's degree, we have further developed the research's theoretical, analytical and practical components. We have started to look into how current discussions in specialized contexts and online media coverage approach this phenomenon and how fiction

and pop culture depict gendered AIs, observing how neutrality is often questioned in favour of gender diversity, namely, how these entities could be more androgynous and genderfluid (Costa & Ribas 2019). We have also extended our previous analysis (Costa & Ribas 2018) to Google Assistant and looked into current trends of development regarding Alexa, Cortana, Google Assistant and Siri, that reveal an intention of turning them more ubiquitous, anthropomorphized and humanized. Lastly, we have been planning on how to expand the project, namely through bots that gather data for the analysis and bots that further discuss gender attribution in artificial intelligence.

References

Bergen, Hillary.
2016. "'I'd blush if I could': Digital assistants, disembodied cyborgs and the problem of gender." *Word and Text: A Journal of Literary Studies and Linguistics*, 6. 95–113.

Butler, Judith.
1990. *Gender Trouble: Feminism and the Subversion of Identity*. New York and London: Routledge Classics.

Costa, Pedro and Luísa Ribas.
2018. "Conversations with ELIZA: on Gender and Artificial Intelligence." *Proceedings of xCoAx 2018: 6th Conference on Computation, Communication, Aesthetics and X*. Madrid, Spain.103–116.

Costa, Pedro and Luísa Ribas.
2019. "Some things you can ask me: about gender and artificial intelligence." *Proceedings of xCoAx 2019: 7th Conference on Computation, Communication, Aesthetics and X*. Milan, Italy. 49–66.

Dale, Robert.
2016. "Industry Watch: The return of the chatbots." *Natural Language Engineering* 22 (5):811–817.

Eyssel, Friederike, and Frank Hegel.
2012. "(S)he's Got the Look: Gender Stereotyping of Robots." *Journal of Applied Social Psychology* 42 (9):2213–2230.

Hester, Helen.
2016. "Technology Becomes Her." *New Vistas* 3 (1):46–50.

Huffman, Scott.
2018. "The future of the Google Assistant: Helping you get things done to give you time back." Accessed April 29, 2020. https://www.blog.google/products/assistant/io18/.

Nickelsburg, Monica.
2016. "Why is AI female? How our ideas about sex and service influence the personalities we give machines." *GeekWire*. Accessed January 27, 2020. https://www.geekwire.com/2016/why-is-ai-female-how-our-ideas-about-sex-and-service-influence-the-personalities-we-give-machines/.

Piper, Allison.
2016. "Stereotyping Femininity in Disembodied Virtual Assistants." Master of Arts, Rhetoric, Composition and Professional Communication, Iowa State University.

Prentice, Deborah A., and Erica Carranza.
2002. "What Women and Men Should Be, Shouldn't Be, Are Allowed to Be, and Don't Have to Be: The Contents of Prescriptive Gender Stereotypes." *Psychology of Women Quarterly*: 269–281.

Richardson, Kathleen.
2015. *An Anthropology of Robots and AI*. New York and London: Routledge.

Steele, Chandra.
2018. "The Real Reason Voice Assistants Are Female (and Why it Matters)." *Medium*. Accessed January 27, 2020. https://medium.com/pcmag-access/the-real-reason-voice-assistants-are-female-and-why-it-matters-e99c67b93bde.

UNESCO.
2019. "I'd blush if I could: closing gender divides in digital skills through education", *UNESDOC Digital Library.*

Weber, Jutta.
2005. "Helpless machines and true loving care givers: a feminist critique of recent trends in human-robot interaction." *Info, Comm & Ethics in Society* 3:309–218.

West, Candace, and Don H. Zimmerman.
1987. "Doing Gender." *Gender and Society* 1 (2):125-151.

Weizenbaum, Joseph.
1976. *Computer Power and Human Reason: From Judgment to Calculation*. New York/San Francisco: W.H. Freeman and Company.