Using AI Changes the Paradigm of Women's Participation in Politics

Iris - Panagiota Efthymiou, Anastasia Psomiadi, Kyvelle Constantina Diareme, Souzana Chatzivasileiou

Using AI Changes the Paradigm of Women's Participation in Politics[1]

Iris - Panagiota Efthymiou[2], Anastasia Psomiadi[3], Kyvelle Constantina Diareme[4], Souzana Chatzivasileiou[5]

Abstract

The effect of AI on how people are viewed and handled in society is important and profound. However, a vicious cycle is maintained with AI's algorithms design and implementation. Among others, predictive models, machine learning and AI algorithms train and test themselves using datasets, as a result, they "learn" mainly based on the data input in a model. Nowadays and in this context, it seems that there is a growing scientific dialogue concerning bias in training AI (Falco, 2019; Lu, 2019; Straw, 2020) as well as whether datasets, on which decisions are made, only represent fractions of reality (Günther et al., 2017). The technology often captures and reproduces regulated and restrictive beliefs regarding gender and race, which are then repetitively strengthened: Gender relations be materialized by inventions and, through their enrolment and incorporation of machinery, masculinity, and femininity gain of turn their importance and character. When robots progress in certain cognitive functions, their comparatively weak abilities will definitely get better. This list incorporates the innovative approach to the dilemma, empathy, negotiation, and belief. Automation and AI will also replace many of today's workers at the same time creating new opportunities for specialized personnel– so that is why women need to get into this emerging sector and ensure that they can secure new jobs when their jobs are squeezed. In addition, AI may provide the ability to alter male and female epistemological assumptions. The narration of "hard" and "soft" intelligence, for instance, is often described as male and female. The rise and development of AI is also seen as pushing economic growth and strengthening political influence. In politics, UK politics still dominates the ambition of economic development by technical advancement. Jude Browne states (Clementine Collett & Sarah Dillon) that a national AI agency equivalent to Human Fertilization and Embryology (HFEA) has yet to be set up by the government of the UK that will fill the divide between national, experts and government, for example. Browne claims that it includes the dominance, primarily guided by the goals of economic wealth, of private interest over the public interest. There is a possibility that economic growth and political influence play an important part in influencing AI laws and policies at the cost of other motivations, which are more morally equal. Consequently, a dual-purpose must be incorporated into an equitable AI policy. Firstly, to ensure there is no rise in social and economic disparity due to the advancement of AI technology. Secondly, to call AI to cut this down. AI must first and foremost enable us to promote our democratic liberties, enhance social harmony, and enhance unity, rather than jeopardise our individual trajectories and networks of solidarity.

Keywords: Artificial intelligence; women; gender equality; social and economic development; politics

[2] Iris - Panagiota Efthymiou is Board Member and President of the Interdisciplinary Committee, of the Hellenic Association of Political Scientists (HAPSc), Scientific Associate at the Laboratory of Health Economics and Management University of Piraeus, Board Member of Womanitee, HAPSc: Athens, Greece.
[3] Anastasia Psomiadi is Founder and President of APSON CSR, Founder isnd President of Womanitee, Athens, Greece.
[4] Kyvelle Constantina Diareme is Member of HAPSc, New York College, Athens, Greece.
[5] Souzana Chatzivasileiou is Member of HAPSc, researcher at the Laboratory of Health Economics and Management, University of Piraeus, Greece.

Introduction

Background

The dawn of information that derives from AI as a quality improvement tool is an incredible potential for enhancing the efficiency of the patients and healthcare teams, lowering costs, and reducing the community's health impact. It offers a broad overview of the legal and regulatory structure of the AI tools developed to enforce healthcare; stresses the need to promote equity, accessibility, and addresses critical reasons for further change (Efthymiou et al., 2020). The study is used to advise realistic policy initiatives aimed at raising the number of women in data and AI technologies. A growing number of industries are shaping the emergence of artificial intelligence. AI for instance is projected to have a short-term or long-term effect on global productivity (Acemoglu and Restrepo, 2018), equity and inclusion (Bolukbasi et al., 2016), environmental outcomes, and many other areas (Norouzzadeh et al., 2018). The future impacts identified on the sustainable development of AI suggest both positive and negative. There is no published report, however, which systemically assesses the degree to which AI can affect all facets of sustainable development — the 17 Sustainable Development Goals and the 169 globally adopted Sustainable Development Goals (SDGs) in the 2030 Agenda are described as this report. This is a crucial research gap since AI can impact the ability to fulfill all of the SDGs (Vinuesa et al, 2020). Artificial intelligence – the ability of computers and other devices to simulate human intelligence and subsequently operate intelligently without human interference – would undoubtedly fundamentally change the environment. It is difficult to predict when and where its impact is felt. One thing for sure: AI would interrupt patterns of work. In the next few decades, it will remove and generate tens of millions of workers. And AI will affect us in countless ways, as decision-making and other job processes penetrate. The IMF estimates 11% of jobs currently occupied by women (more than those currently held by men) are affected by AI and other emerging technologies. In talent management tools, there have been reports of AI algorithms that produce results that slanted women, since the data on which algorithms are trained were cumulative (Gallego et al., 2019).

AI is one of those areas where women can be immensely successful, in particular by encouraging women's participation. Women are a necessary force to be integrated by organizations to speed up the AI maturity of companies. In particular, a strong focus on female workers in artificial intelligence will serve to alleviate some of the greatest challenges facing businesses, such as selection disparities, in the eye of machine learning technology. Therefore it is important to mobilize women on a global basis and to include them in all artificial intelligence enterprises from research to production, in order to achieve the highest levels of AI maturity (Minevich, 2020). The past has been demonstrated. Now

we have to learn and grasp and use the holistic idea of the past as a framework for further developments (Efthymiou-Egleton, 2017).

A scenario in the current perspective of AI

The Current Situation

STEM, Data Science and AI are disciplines that make it very clear that women are very under-represented. Women make up just 28 percent of the population in science and technology, and as they look at the percentage of women who graduate from colleges there, they decline. Some 55% of graduates are women but just a limited sum of over one-third of those graduates is in STEM. Research from the World Economic Forum, 2019, for example, indicates that only 3% of women attend classes in information communication technology (ICT) with about 5% preferring mathematics and numbers, and a little more than 8% preferring engineering. There is also no gender in the present situation in the AI professions. Just 13.8% of women have written research papers related to artificial intelligence; less than one percent of the women are AI practitioners. In other words, numerous teams, and in particular women at the epicenter, provide for companies to take measures to develop, introduce, and accelerate the sophistication of the AI industry. Unfortunately, few companies currently understand that women are critical to enhancing AI maturity. Initiatives in the STEM and STEM-related sectors have been introduced to resolve the gender gap crisis. The primary focus of these campaigns is on the promotion of women, A.I., and special programs for schooling and training to address the issue (Courtland, 2018; Minevich, 2020). The use of artificial intelligence, the manipulation of natural language, and sentimental interpretation is necessary to change the culture, the economy, and politics, along with computers. (Efthymiou, Egleton and Sidiropoulos, 2020)

The role of AI in minimizing the gender gap

AI is a realistic and necessary approach to solve the gender gap crisis. What's keeping women out of the sciences? (McKinsey, 2018). New technologies that aim to help towards this aim have emerged. For example, the BCG GAMMA (BCG, n.d.) can reduce gender and leadership disparities by eliminating inequalities in recruiting, assessment, and promotional decisions; by helping to improve women's employee retention; and, potentially, by engaging in day-to-day contact that impacts employee inclusion. In addition, according to Ariane Hegewisch, Program Director for jobs and income at the Women's Policy Research Institute, it is crucial to remove the gender algorithms that can also lead to gender gap involvement that includes more females in STEM, AI, and data science.

Lastly, less bias can lead more women into STEM and will contribute to improved retention rates in the workplace (Microsoft, 2018; Minevich, 2020; UN General Assembly, 2015).

Many studies have demonstrated the need for different teams to reduce the skewed data and findings propagated by machine learning materials and to improve artificial intelligence capabilities for companies' overall technical performance. Moreover, the best way to incorporate this diversity is through the mass pool of women in the world and through a coordinated initiative, conducted by leading companies around the world, such as IBM, Microsoft, and others, channeling them to artificial intelligence zones. These businesses will then serve as templates for other industries to focus women on artificial intelligence and serve as a critical and substantial catalyst for a general paradigm change that transforms women into the most important source of company AI maturity (Minevich, 2020; Orduña, 2019; UN General Assembly, 2015).

Future of AI and women health

AI is going to revolutionize the practice of medicine and change the delivery of healthcare. As a platform for improved health care provides unparalleled opportunity to enhance patient and clinical team performance, minimize costs, and reduce the health effects of the community (Efthymiou et al., 2020). For pharmaceutical drugs, AI should concentrate on educating pregnant women and their doctors about the maternal and fetal effects of pharmacological taken during pregnancy, in particular in women's health. It will make it easier for the patient and the doctor to make healthier and more educated decisions. Improving drug discovery and pharmacovigilance has been done, but nothing has been done to fix the safety of the drug during breastfeeding. We consider two ways in which AI methods could be used to enhance our understanding of the pharmacological effects of the pregnancy, amongst them: a.) sound, accurate knowledge from clinical evidence, b) the design of tailored animal trials for confirmation of particular hypotheses. New AI approaches are a must in future research to clarify the maternal and fetal effects of opioid exposure. An AI for other facets of pregnancy, maternal and fetal wellbeing, including lactation, will advise the necessary research into the impact of pharmacologic on breastfeeding (Davidson and Boland, 2020).

Gender bias in artificial intelligence

Increasingly, artificial intelligence affects people's views and behaviours. The over-representation of men in the creation of these technologies could subtly reverse decades of gender equality advancement. For decades, people have established analytical theory to guide decisions and discourage them from focusing exclusively on personal knowledge. The intelligence of the machine,

however, learns mainly from the observation of data. While the ability of a computer to handle vast amounts of data will partially achieve this, the subsequent use of technology will begin with this manipulation as the data are filled with traditional gender ideas. Leading thinkers in the developing field dealing with artificial intelligence distortions are often predominantly female, indicating that those theoretically influenced by bias are more likely to see, understand, and strive and find a solution. Therefore, gender balance in machine learning datasets is important to stop perpetuating gender ideologies that negatively affect models that have gender as a parameter, and not only. It is challenging, but not insurmountable, to recognise gender distortions in training knowledge of machine learning algorithms. While it can be important for researchers to consider the prevalence in a culture that machine learning algorithms learn gender identity, it does not gain realistic implementations in deciding on people's lives. Justice in machine learning, in general, is a growing priority, and women ought to be at the forefront of who determines the idea of fairness. Advancing the career of women in the field of artificial intelligence is not just a right in itself; advancement in gender equity, backed by decades of feminist philosophy, must be avoided (Leavy, 2018).

In using AI systems, the financial industry is already mature. For example, before credit cards are issued or small loans are given, they are used to determine credit risk. It could easily lead to biases if data from rejected clients were used and connected to a variety of rules. One law like this might be: "If the consumer is a guy, do not grant his order." The LinkedIn career site, for example, has been reported to have a problem where high paying positions were not seen quite so much for women's study as for men because of the way their algorithms had been written (Dastin, 2018; Reese, 2016). The original users of the work search feature on the web were primarily men for these high-paid jobs, and so the effect was that they gave these jobs to men – thereby clearly increasing the distortion towards women. A study with Google found a similar problem (Büchel, 2020). Same with Amazon (Dastin, 2018).

We have to look back to the evidence from which the machine learns, in many respects a representation of the social prejudicial ties, in order to end the negative prejudice present in many AI systems. In 2016 a team (Bolukbasi et al., 2016) explored the use of word embedding as a dictionary of word sense and machine learning relationships. They also learned an analogue generator to create word connections with data from Google News Papers. AI machines perpetuate damaging stereotypes themselves. Digital female workers like Siri, Alexa, and Cortana have been accused of having replicated normative stereotypes about the position of women as submissive and secondary to men (Pallister, 2020).

Woman and AI

In crucial areas of our society – including planning, defense, and policy making-systems focused on artificial intelligence are rapidly influencing decision-making. That is incredibly necessary. The emergence of AI hopes to transcend human speed, processing, and thinking limits, opening up a whole host of new ways of living and functioning. That is the positive view, at least. A cynical perspective suggests that AI can simply improve our cognitive restrictions more tightly in specific – which can have consequences for gender equity, rather than abolishing our cognitive restrictions. While AI algorithms are not biased themselves, we humans can train them inadvertently.

AI algorithms are designed to learn and associate large quantities of existing data. The judgments of the algorithms are as successful as the preparation and understanding of data that they use. If a sufficient number of texts and pictures showing women doing homework and men working outside the home are supplied to an algorithm, it will improve the predictive chances of those organisations and learn to use them for their potential processing of decision-making. The computing sector has long been masculine and most computer scientists without a feminine point of view construct the AI training and testing data sets. Social media offers a convenient and inexpensive knowledge source for data sets that can be used in AI, so do open data sets and crowdsourced initiatives, especially in research into social sciences. The social trends and feelings of people, especially in the western world, are widely monitored by Twitter and Facebook. Twitter has about 330 million active monthly users, with 500 million daily tweets posted. A lot of studies has culminated in the usability and amount of these data by using tweets to learn social pattern for AI algorithms (Bano, 2018; Noriega, 2020; Prates, Avelar, and Lamb, 2020).

The consequences of gender-biased artificial intelligence

The battle against equality for men and women in cyberspace has intensified online hate speech (Frenda et al., 2019) The amount of hateful material reported in social media against women is even worse than that of their friends. This material offers a model of sexual animosity and prejudices from which AI can benefit. On 27 January 2018, research took place (Bano, 2018) to track tweets linked to the names of five men and five women leaders. In general, we learned that more hostile feelings towards the female heads were demonstrated against the men on that day. On average, men's Twitter users tweeted more than female users about politicians. On Google Image Search a related encounter is likely. When you type in the words "Chairman" or "Prime Minister," almost 95% of the photos in the results are from males. AI will derive two apparent truths from such evidence and the social media details mentioned here: first, that many female leaders are less compassionate than male leaders; and

second, that woman leaders are less likable. These online posts and tweets are not ephemeral things that ultimately fade into the ether; they are recorded and finally add to the corpus of information on social trends online. These data are used to take future decision-making and to build social reality by increasing AI dependence. Of course, one should not ignore that a debate around its applications, safety, and privacy is raging (Efthymiou, Egleton and Sidiropoulos, 2020). There is a growing concern around online privacy and incidents like the case of Cambridge Analytica and Facebook (Hinds et al., 2020) strengthen these concerns. Recent publications also explore gender and the use of social media apps (van der Schyff, Flowerday and Furnell, 2020) as well as gender differences in privacy tendencies on social network sites (Tifferet, 2019).

The victors have written literature in the past. Now it is published by people who build web material in cyberspace. Online gender prejudice is a threat to equality and will make life more difficult for women in the future if not addressed now. The World Economic Forum predicted about another hundred years before we hit fair status, but that might also be too premature if we do not fix AI's prejudices now (Bano, 2018).

Conclusion

Big data and machine learning provide exciting tools for companies and their workers. However, there is a fair risk of disappointment if we do not monitor their potential preconditions. Cognitive complexity presents one with the greatest possible market advantage for artificial intelligence. When we speak about women in technology, we all have conscious and unconscious biases. Artificial intelligence is capable of resolving but also perpetuating bias. We need more women in AI in order to be able to build AI programmes for women and the health of women. AI and other innovations provide women with the ability to restructure and reinvent their responsibilities, interests, careers, and lives. Getting a woman to reinvent artificial intelligence or redefining AI will also be impossible to determine, but, predictably, AI would have a woman in the future. AI can redefine qualifications for expertise, employment prospects, and the allocation of employees between sectors and occupations and to effectively engage in politics in developing and developed countries.

References

Acemoglu, D. and Restrepo, P. (2018). Artificial Intelligence, Automation, and Work. *National Bureau of Economic Research*, Working Paper Series, Working Paper 24196.

Bano, M. (2018). Artificial intelligence is demonstrating gender bias – and it's our fault. *King's College London.* https://www.kcl.ac.uk/news/artificial-intelligence-is-demonstrating-gender-bias-and-its-our-fault (Accessed: 11/10/2020).

BCG (n.d). BCG GAMMA. Available at: https://www.bcg.com/en-ao/beyond-consulting/bcg-gamma/default (Accessed: 9/10/20).

Bolukbasi, T., Chang, K. W., Zou, J., Saligrama, V. and Kalai, A. (2016). "Man Is to Computer Programmer as Woman Is to Homemaker? Debiasing Word Embeddings". *Cornell University*. Available at: http://arxiv.org/abs/1607.06520 (Accessed: 10/10/20).

Büchel, B. (2018). Artificial Intelligence Could Reinforce Society's Gender Equality Problems. *The Conversation*. Available at: http://theconversation.com/artificial-intelligence-could-reinforce-societys-gender-equality-problems-92631 (Accessed: 9/10/20).

Courtland, R. (2018). Bias Detectives: The Researchers Striving to Make Algorithms Fair. *Nature* 558 (7710): 357–60.

Collett, C. and Dillon, S. (2019). AI and Gender: Four Proposals for Future Research. *Cambridge.* Available at: https://www.repository.cam.ac.uk/bitstream/handle/1810/294360/AI_and_Gender___4_Proposals_for_Future_Research_210619_p8qAu8L%20%281%29.pdf?sequence=1&isAllowed=y (Accessed: 18/10/20).

Dastin, J. (2018). Amazon scraps secret AI recruiting tool that showed bias against women. *Reuters*. Available at: https://www.reuters.com/article/us-amazon-com-jobs-automation- insight/amazon-scraps- secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G (Accessed: 25/10/20).

Davidson, L., and Boland, M. R. (2020). Enabling Pregnant Women and Their Physicians to Make Informed Medication Decisions Using Artificial Intelligence. *Journal of Pharmacokinetics and Pharmacodynamics* 47(4): 305–18.

Duranton S., Erlebach, J., Brégé, C., Danziger, J., Gallego, A. and Pauly, M. (2020). What's Keeping Women Out of Data Science?. *Boston Consulting Group.* Available at: https://www.bcg.com/en-ao/publications/2020/what-keeps-women-out-data-science (Accessed: 5/11/2020).

Efthymiou - Egleton, I. P. (2017). *"Wellness": A New Word for Ancient Ideas*. UK: Xlibris.

Efthymiou I. P., Efthymiou - Egleton Th. W., Sidiropoulos S. (2020). Artificial Intelligence (AI) in Politics: Should Political AI be Controlled?. *International Journal of Innovative Science and Research Technology*, 5(2): 49-51.

Efthymiou, I. P., Sidiropoulos, S., Kritas, D., Rapti, P., Vozikis, A. and Souliotis. K. (2020). AI Transforming Healthcare Management during Covid-19 Pandemic. *HAPSc Policy Briefs Series,* 1(1): 130–38.

Falco, G. (2019). Participatory AI: Reducing AI Bias and Developing Socially Responsible AI in Smart Cities. *2019 IEEE International Conference on Computational Science and Engineering (CSE) and IEEE International Conference on Embedded and Ubiquitous Computing (EUC)* (pp. 154-158). IEEE.

Frenda, S., Ghanem, B., Montes, M., and Rosso, P. (2019). Online Hate Speech against Women: Automatic Identification of Misogyny and Sexism on Twitter. *Journal of Intelligent and Fuzzy Systems,* 36(5):4743-4752.

Gallego, A., Krentz, M., Tsusaka, M., Yousif, N. and Taplett, F. B. (2019). How AI Could Help—or Hinder—Women in the Workforce. *BCG.* Available at: https://www.bcg.com/publications/2019/artificial-intelligence-ai-help-hinder-women-workforce (Accessed: 8/10/20).

Günther, W. A., Mehrizi, M. H. R., Huysman, M. and Feldberg, F. (2017). Debating big data: A literature review on realizing value from big data. *The Journal of Strategic Information Systems,* 26(3): 191-209.

Hinds, J., Williams, E. J. and Joinson, A. N. (2020). "It wouldn't happen to me": Privacy concerns and perspectives following the Cambridge Analytica scandal. *International Journal of Human-Computer Studies*, 102498.

Hunt, V., Prince, S., Dixon-Fyle, S. and Yee, L. (2018). Delivering through Diversity. *McKinsey.* Available at: https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Organization/Our%20Insights/Delivering%20through%20diversity/Delivering-through-diversity_full-report.ashx (Accessed: 17/10/20).

Leavy, S. (2018). Gender Bias in Artificial Intelligence: The Need for Diversity and Gender Theory in Machine Learning. In *Proceedings of the 1st International Workshop on Gender Equality in Software Engineering*, 14–16. GE '18. New York, NY, USA: Association for Computing Machinery.

Lu, D. (2019). Google's hate speech AI may be racially biased. *New Scientist* 243, 3243, p.7.

Microsoft (2018). Changing the face of STEM. Available at: https://news.microsoft.com/europe/features/changing-the-face-of-stem/ (Accessed: 23/10/20).

Minevich, M. (2020). Women Are The Key To Scaling Up AI And Data Science. *Forbes*. Available at: https://www.forbes.com/sites/markminevich/2020/03/16/women-are-the-key-to-scaling-up-ai-and-data-science/ (Accessed: 15/10/2020).

Noriega, M. (2020). The Application of Artificial Intelligence in Police Interrogations: An Analysis Addressing the Proposed Effect AI Has on Racial and Gender Bias, Cooperation, and False Confessions. *Futures,* 117, 102510.

Norouzzadeh, M. S., Anh N., Kosmala M., Swanson A., Palmer M.S., Packer C., and Clune, J. (2018). Automatically Identifying, Counting, and Describing Wild Animals in Camera-Trap Images with Deep Learning. *Proceedings of the National Academy of Sciences* 115 (25): E5716–25.

Orduña, N. (2019). AI-driven companies need to be more diverse. Here's why. *World Economic Forum*. Available at: https://www.weforum.org/agenda/2019/07/ai-driven-companies-need-to-be-more-diverse-here-s-why/ (Accessed: 9/10/20).

Pallister, K. (2020). *Why Artificial Intelligence Is Biased Against Women*. *IFLScience*. Available at: https://www.iflscience.com/editors-blog/why-artificial-intelligence-is-still-gender-biased/ (Accessed: 9/10/2020).

Prates, M. O. R., Avelar, P. H. and Lamb, L. C. (2020). Assessing Gender Bias in Machine Translation: A Case Study with Google Translate. *Neural Computing and Applications,* 32(10): 6363–81.

Reese, H. (2016). Bias in machine learning, and how to stop it. *TechRepublic*. Available at: https://www.techrepublic.com/article/bias-in-machine-learning-and-how-to-stop-it/ (Accessed: 18/10/20).

Straw, I. (2020). The automation of bias in medical Artificial Intelligence (AI): Decoding the past to create a better future. *Artificial intelligence in medicine*, 110, 101965.

Tifferet, S. (2019). Gender differences in privacy tendencies on social network sites: a meta-analysis. *Computers in Human Behavior*, 93: 1-12.

UN General Assembly (2015). Transforming Our World: The 2030 Agenda for Sustainable Development. Available at: https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf (Accessed: 13/10/20).

van der Schyff, K., Flowerday, S. and Furnell, S. (2020). Privacy Risk and the Use of Facebook Apps: A gender-focused vulnerability assessment. *Computers & Security*, 101866.

Vinuesa, R., Azizpour, H., Leite, I., Balaam, M., Dignum, V., Domisch, S., Felländer, A., Langhans, S. D., Tegmark, M. and Nerini, F. F. (2020). The Role of Artificial Intelligence in Achieving Sustainable Development Goals. *Nature Communications* 11 (1): 1–10.