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Women in AI: Is There a Singapore Model?

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SYNOPSIS

The 4th Industrial Revolution introduced Machine Learning and Artificial Intelligence (AI) to the forefront and very soon, if not already, AI will be embedded in almost all spheres of our lives. While AI technologies like Alexa and Siri have female names and voices, there are very few women involved in developing AI products and services. Is there a model Singapore can offer?

COMMENTARY

ACCORDING TO the World Economic Forum, only 22 per cent of AI professionals globally were female in 2018; it increased marginally to 26 percent in 2020. This is no match against the rapid growth in the field. For example, in the United States, the hiring increase for Artificial Intelligence Specialists increased 74 percent annually over the past four years but few women managed to be part of this growing sector.

We are increasingly living in a digital ecosystem and AI research is a big part of exploring the possibilities in the interface between digitalisation and human lives. Unfortunately, women's involvement is still relatively insignificant this arena. If AI is going to serve the many aspects of our day-to-day existence and make sensitive decisions about the lives of people, it is important to ensure that those who are part of its development and governance are representative of the society they aim to transform and the people they plan to serve.

A favourable climate for early STEM education for girls plays a crucial role in developing tech and AI talent pool in the future. – image from Creative Commons

Women in AI

The Science, Technology, Engineering, and Mathematics (STEM) field has historically been a male-dominated one, so the limited presence of women in AI might not be surprising. According to the AI Now Institute women comprise only 15 and 10 percent of AI research staff at Facebook and Google respectively.

These are Big Tech companies that run the world and their internal policies can influence and frame similar operations globally. It is no secret that gender inequality cases have come to the forefront in both Google and Facebook.

Their new-age tech business models should not replicate age-old discrimination we see in the world vis-à-vis women and employment opportunities. What this does is narrow opportunities for not only female tech graduates but also female users because the type of output created in a male-dominated industry may not necessarily resonate with their interests or needs.

It needs to be guaranteed that technology treats everyone receiving the service equally and is not biased, unintentionally or systemically.

Dangers of Gender Discrimination

There have been reports on the implications of this gender bias including in hiring processes. In addition, speech-to-text technology does not work very well for women given it was built based on the characteristic of male voices. This raises questions on the effectiveness of AI systems for all end users.

The WEF study mentioned earlier predicted that in 2022, 85 per cent of AI projects will deliver erroneous outcomes owing to such bias in data, algorithms, or in the teams

responsible for managing them. And those erroneous outcomes will impact more women than men.

There is also the issue of bias in facial recognition technology that not only impacts gender but also race. This presents an additional bias for women in minority groups.

A 2021 Deloitte report highlights that 71 per cent of respondents strongly agreed that adding women in this field would bring unique perspectives that are needed in the industry and 63 per cent endorsed that AI and Machine Learning models would always produce biased results as long as it continues to be a male-dominated field.

There is also an economic case to be made. Specialists in AI development is an emerging profession and diversifying talent sources would diminish the dearth of labour in the field. A diverse workforce is better equipped to identify and remove AI biases and inaccuracies that can cost companies heavily.

Inclusion of women is crucial in defining problems, designing solutions, selecting data inputs, constructing algorithms, testing prototypes and making final decisions, all necessary for improving the overall design and functionality of AI systems.

Women in AI: Is There a Singapore Model?

Globally, Singapore has been able to outrank top countries like the US and India in engaging women in tech, AI in particular. Singapore, together with Italy and South Africa, has one of the smallest gender gaps in this field where on average 28 per cent of the AI talent pool is female. Is there a model Singapore can offer to the rest of the world?

A favourable climate for early STEM education for girls plays a crucial role in developing tech and AI talent pool in the future. Primary and secondary schools encourage opportunities in tech-based curricular and co-curricular activities and encourage participation in tech competitions at early age.

STEM subjects at higher education are taken up by both males and females, although the uptake still favours males. A focus on the economic value of such training is also something that Singapore has done – in preparation for jobs of the future.

We need to closely examine what we are doing right and what obstacles can be removed for greater women's participation. Women can go far in the industry; for example, three of them in particular have shown how much they can give back to society:

Melissa Chua, Head Capability Development (Cyber AI) at the Defence Science and Technology Agency (DSTA); Ayesha Khanna, co-founder and CEO of artificial intelligence solutions firm and incubator ADDO Ai, and founder of 21C GIRLS, a charity that delivers free coding and AI classes to girls in Singapore; and Vennila Vetrivillalan, Assistant Director Data Analytics at the Singapore Management University who has years of experience in data analytics and AI.

We could very well be the test study for gains that could be had by having inclusivity in STEM education and in STEM professions.

Social and cultural norms have for long discouraged women from pursuing this field of expertise. We already have done well with an insistence on unbiased, early tech education. Further study and appropriate intervention can help narrow Singapore's gender gap. AI is still in the early stages of professional expansion and it is critical to start taking necessary action. Not intervening now will be a missed opportunity.

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