



# Diverse Teams, Better Algorithms: The positive impact of Women on AI performance

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## Abstract

Artificial intelligence (AI) is one of the most transformative technologies of the 21st century shaping everything from health care to finance to entertainment. Yet while AI continues to evolve rapidly it remains a field where Women are significantly underrepresented. According to various reports women represent only a small fraction of the global workforce in AI related roles. The gender gap is especially evident in technical positions such as AI researchers, data scientists & software engineers. However a slow change has begun, the obstacles and the glass ceiling is being overcome and the invisibility has become observable.

My paper will bring out the transformation and drastic changes in AI and ML areas, the contribution of women innovators, the challenges and the way forward in addressing the gender gap & importance of mentorship.

**Key Words:** AI & ML, STEM, Algorithms, Innovations, Ethical policies.

## Introduction

The field of AI and ML has historically been dominated by men but the contributions of women in these areas have been significant and transformative. In recent years women have made notable studies in advancing research in AI and ML, development and application of their contribution have been crucial in making these technologies more inclusive, ethical and impactful. How can one elaborate what AI is? In simple words AI is not mere a technique, it's something which determines the method of a work, opportunities and determines the strength in a way that it is recognized as very important or playing a key role. AI is determining the pace of the world and where are women in this Algorithm, are their contributions good enough on par with men or are they missing out from the scene. The world has a gender equality problem and AI mirrors gender bias in our country. Although globally more women are accessing the internet every year, in underdeveloped economies only 20% are connected. According to Sola Mahfouz a quantum computing researcher and advocate for women in STEM says, "When technology is developed with just one perspective, it's looking at the world half

blind”. So the AI field needs more women and that requires enabling and increasing girls and women's access to and leadership in STEM and ICT educators and careers. Contributions of women innovators with context to AI

One of the earliest & most prominent female pioneers in AI was Ada Lovelace, who is often credited as the world's first computer programmer. In the mid nineteenth century she worked with Charles Babbage on the design of an analytical engine, a mechanical computer that could perform complex calculations. She recognized the potential of analytical engines to go beyond simple arithmetic and to be used for more complex tasks such as generating music, and creating graphics. Her insights of ideas laid the foundation of modern computer programming and she remains an inspiration for Women in STEM fields to this day. In the early twentieth century Grace Hopper became one of the first programmers of the Harvard Mark 1 computer and went on to develop the first compiler for the computer programming languages. Hopper's contribution to the development of COBOL, a programming language that remains in use today paved the way for modern software engineering.

In the mid twentieth century a group of women known as ‘ Human computers’ worked at NASA performing complex calculations by hand for space programming. Katherine Johnson was instrumental in the success of first manned space flights and later became a leading advocate for STEM education for Women and minorities. More recently significant contributions were made by Fei Li, a computer scientist and professor at Stanford University who has been at the forefront of developing computer vision systems that can recognize and classify images. She has founded the AI4ALL organization which provides opportunities for young people from underrepresented groups To learn AI and ML. Cynthia Breazeal, professor at MIT, developed the first Social Robot, Kismet in 1997 and developed Human Machine interactions in a natural way. There are many more innovators who are working and putting their Mark in the areas of AI and ML. Prominent Indian women innovators Usha Rengaraju, she has prepared an AI project for autistic people wherein with the support of AI, the persons with autism can do their regular daily activities with ease. Preeti Jyothi, has created automatic speech recognition (ASR) systems and code switching models which will be helpful for a person who speaks two different languages in a conversation and this complex issue can be easily understood by AI.

Bindu Reddy, has founded Abacus AI company in 2019. This company is the first in the world to develop an AI super Assistant for enterprises & professionals. Abacus AI is also providing solutions for large language models. Neha Shukla has been working under World Economic Forum Generation AI as Youth Council Chair to bring out the ethical AI policies to make AI transparent, responsible and specially in safeguarding children. She wrote a book titled “Innovations for everyone: Solving real & world problems with STEM.

## Challenges

According to research by Harvard Business School, women are using 25% less AI when compared to men. It's because the number of women in the STEM sector is less and also women face criticism at work. No belief in technology may also be a reason for the rise in the gap. As per Deloitte Global 2025 estimations, men are using AI to enhance their work productivity whereas women are in the belief that more usage of AI in their work reflects their inefficiency. According to World Economic Forum estimates the danger of loss of employment due to automation come to 57% which belong to women. So one can see a silent divide among gender in the AI related areas. In the context of AI, an Algorithm is a set of mathematical and statistical rules of instructions that machines use to learn from data, identify patterns & make autonomous decisions or predictions and hence they are considered the fundamental building blocks of Artificial intelligence and Machine Learning systems from the simple logic of a spam filter to the complex operations of a self-driving car. Now if these Algorithms are designed by men in such a way that the machine doesn't understand certain features or characteristics of women in a natural way but by learning only through prompts or commands given to it by men, in such a case it resembles women only by the characteristics given to it by men as the men are dominant in this technological sector and the participation of women is very less. The recruitment tool by Amazon bring an interesting note that the inputs or commands, prompts given to a key language models and when the inputs are not concerned to female then the information concerned to female will not be reflected. During a recruitment tool by Amazon, it has rejected the resumes of 'Women' as the commands were given with concerned to male data. Another interesting note was that when an input was given for a doctor and a nurse, a male doctor and a female nurse was understood by AI.

UNESCO, UN Women gave some instructions that AI shouldn't increase gender disparities. There are many platforms or programmes working in encouraging and preparing efficiency in AI among women and encouraging them to become future leaders. When compared to world, India is in the first position, the skill rate of Indian women is 1.7 more than world's average but in comparison with men the average is low(2.78). The participation of women in AI and ML courses was 5% in 2024 and in 2025 it increased to 20%. The participation or involvement of women in AI related activities will bring a new way of looking at things like, novel thinking in health care, education, framing of ethical policies thereby safeguarding or protecting children from unwanted issues. It's a good beginning that Indian women are striving hard to minimize the gender gap but the gap between urban and rural women if considered, a lot more has to be done.

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