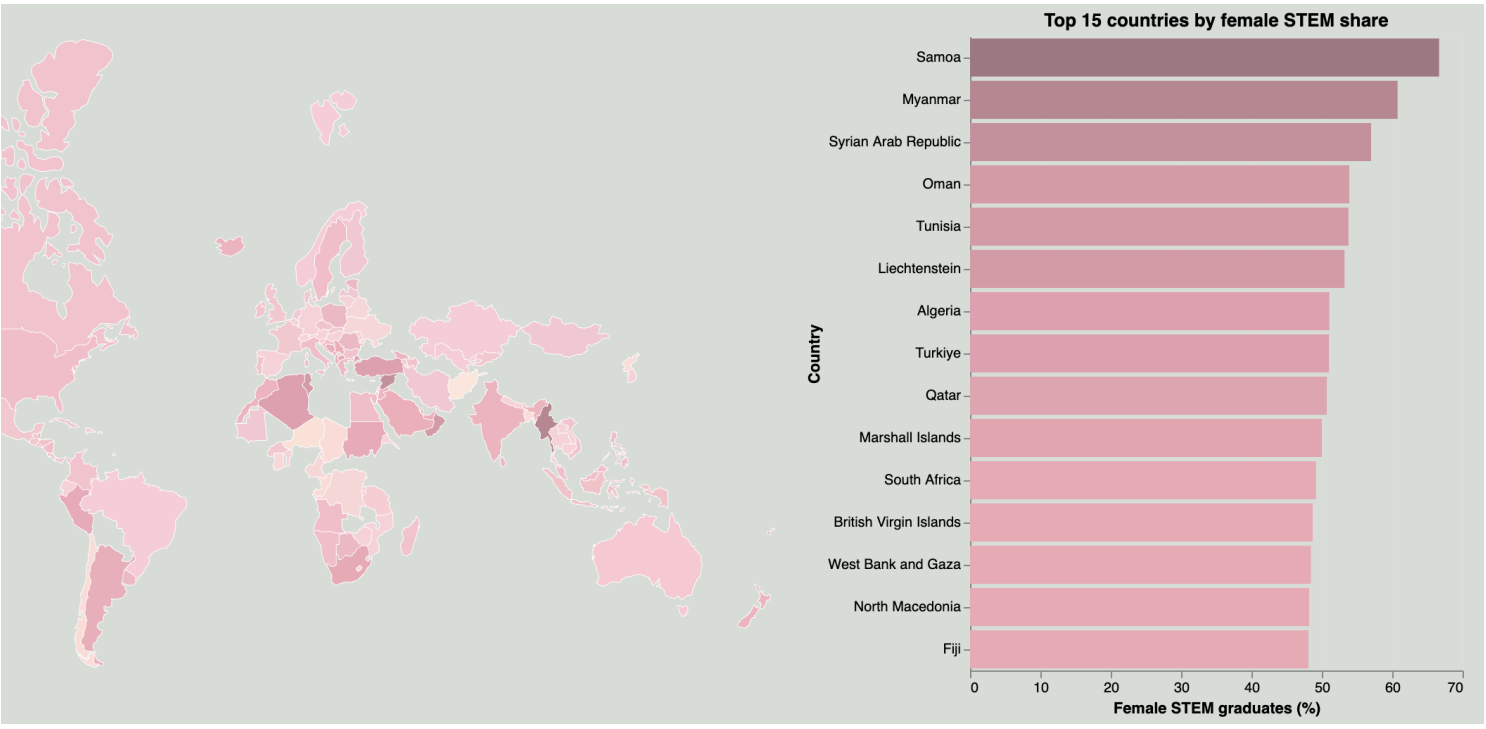
NARRATIVE VISUALIZATION · SI 649

The STEM Gap: *What's Changing* — and What Isn't

A data-driven look at how women's presence in science, technology, engineering, and mathematics has grown, where progress has stalled, and why the gap still persists.

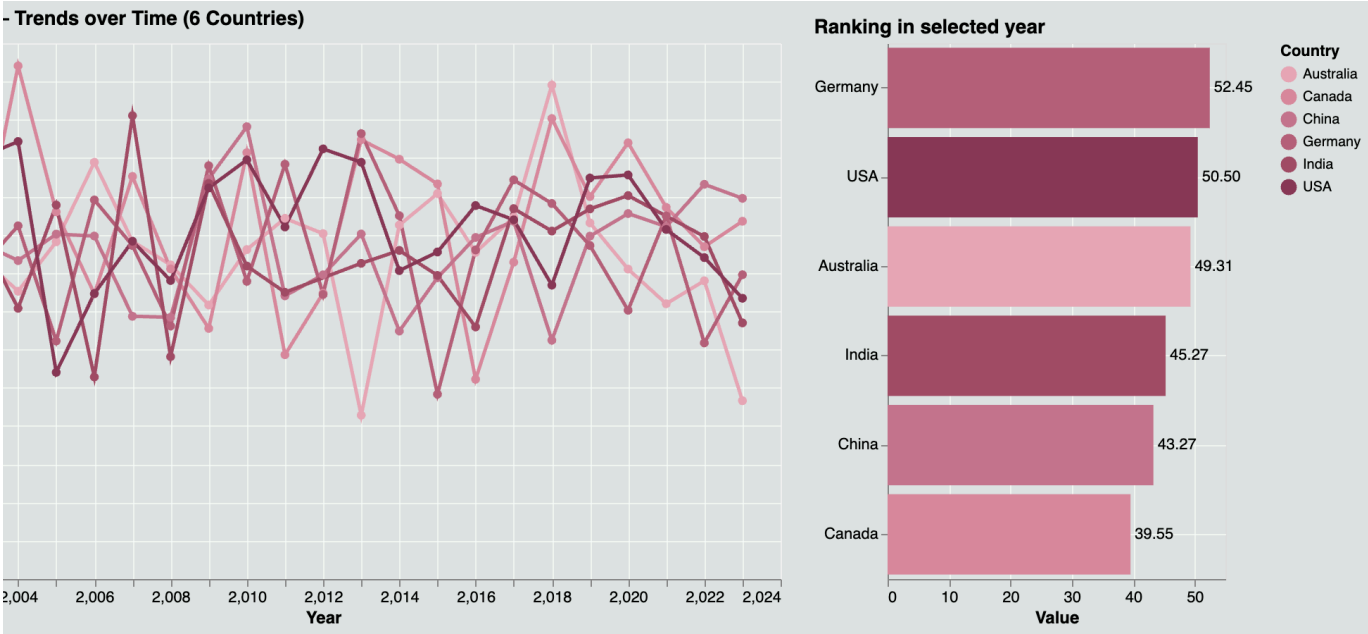
Around the world, women remain underrepresented in STEM education. Before diving into long-term trends, it is helpful to understand the current landscape: **How large is the gender gap today?**



Looking at the most recent year available, we can see how women's share of STEM graduates compares across countries. At a global level, women's share of STEM graduates varies widely across countries, ranging from close to 0% in some regions to nearly 70% in others. However, the distribution is heavily skewed toward the lower end: **92.8% of all data points fall below 50%**, meaning that in the overwhelming majority of countries, women make up less than half of STEM degree recipients.

Geographically, the countries with the highest female STEM representation are not clustered in traditionally expected regions such as Europe or North America. Instead, many of the top performers—including Samoa, Myanmar, Tunisia, and several Middle Eastern and African economies—are concentrated in **Africa and parts of Asia**.

To explore these patterns in greater depth, we focus on six major countries—Australia, Canada, China, Germany, India, and the United States—and examine how women's share of STEM enrollment has evolved over the past two decades.

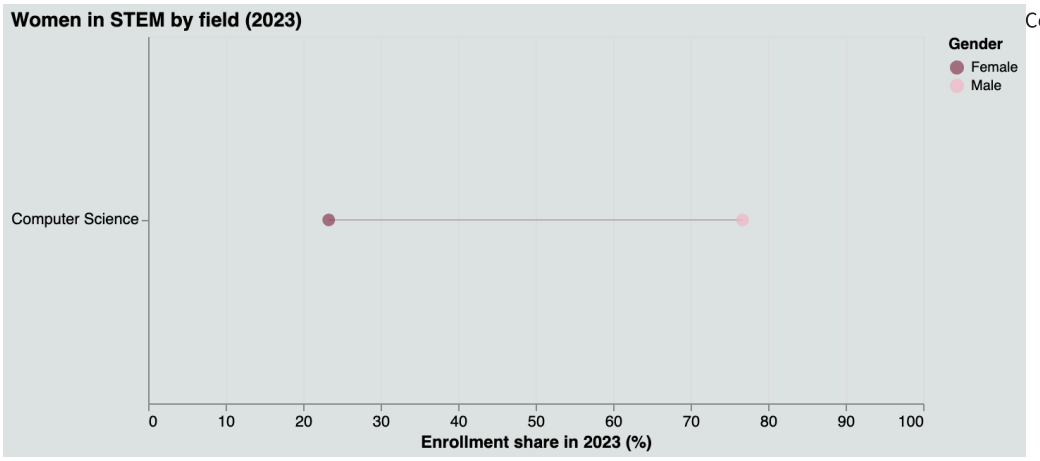


Across the six countries, female STEM enrollment fluctuates around similar ranges, with none consistently reaching 50%. The United States, Germany, China, and Australia remain relatively stable over time, while India shows larger year-to-year swings. Using the year slider highlights how these differences shift in specific years—for instance, in 2016 the U.S. reports the highest enrollment share, whereas Canada ranks lowest. Overall, the trends show **little long-term improvement**, suggesting that women's representation in STEM enrollment has remained persistently limited.

Compared with enrollment, the female STEM graduation rate shows **a clearer upward trend** across the six countries. Although year-to-year fluctuations remain, most countries gradually move toward higher female graduation shares over time. China and the United States show the strongest gains, while Canada and Australia increase more modestly. Despite their different starting points, the general pattern suggests steady improvement in women's completion of STEM degrees over the past two decades.

The Gender Gap Index shows that the six countries maintain relatively similar levels of gender parity in STEM, with most values **fluctuating between 0.6 and 0.9** over the past two decades. Although short-term volatility is common, Germany, India, and China generally achieve higher GGI scores, indicating smaller gaps between women's and men's participation. Canada and the United States fall in the middle range, while Australia consistently records the lowest levels of parity among the six. Overall, the trends suggest modest progress but no sustained convergence toward full gender equality.

STEM encompasses a wide range of disciplines, including Computer Science, Mathematics, Biology, and Engineering. **But do women participate in these fields equally?**



Across most countries—such as the United States and Germany—women's representation exceeds men's in all three STEM fields shown. However, notable exceptions appear. In China, female enrollment surpasses male enrollment in both Engineering and Mathematics, reversing the traditional gender pattern. In Canada, women outnumber men specifically in Computer Science. These deviations highlight how gender dynamics in STEM fields can vary substantially across countries.

Any Questions?

If you have any questions, feel free to contact my email xvming@umich.edu.

Data sources

- World Bank Gender Data Portal – Female STEM tertiary graduates (% of total)
- Kaggle – Women's Representation in Global STEM Education