Women in Technology: Challenges and Opportunities

Dr. Zaher Al- Sai

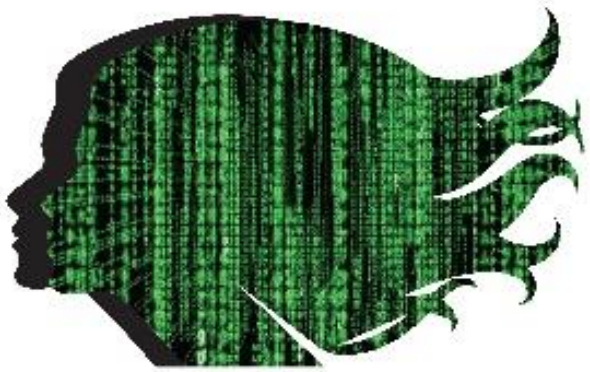
Founder of Big Data Minds MENA
WiDS Ambassador @Stanford
Founder of Arabian Women in Data Science and AI

Arabian Women in Data Science and AI (AWiDS-AI) aims to encourage more women to use their individual talents, skills, and femininity as they endeavor to excel in the field of Data Science and Artificial Intelligence by motivating them to **connect, learn, and grow together**.

Founder of:

KiDS in Data Science

Build a Brighter Data-Driven Future



WOMEN IN DATA SCIENCE

JORDAN

ARABIAN WOMEN IN DATA SCIENCE

Advancing Arabian Women in Data Science

BIG DATA MINDS MENA

Unlock Your Dark Data

Ambassador of:

womentech GLOBAL AWARDS

Women in Data Science Worldwide

WOMEN IN DATA SCIENCE
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ARABIAN WOMEN IN DATA SCIENCE

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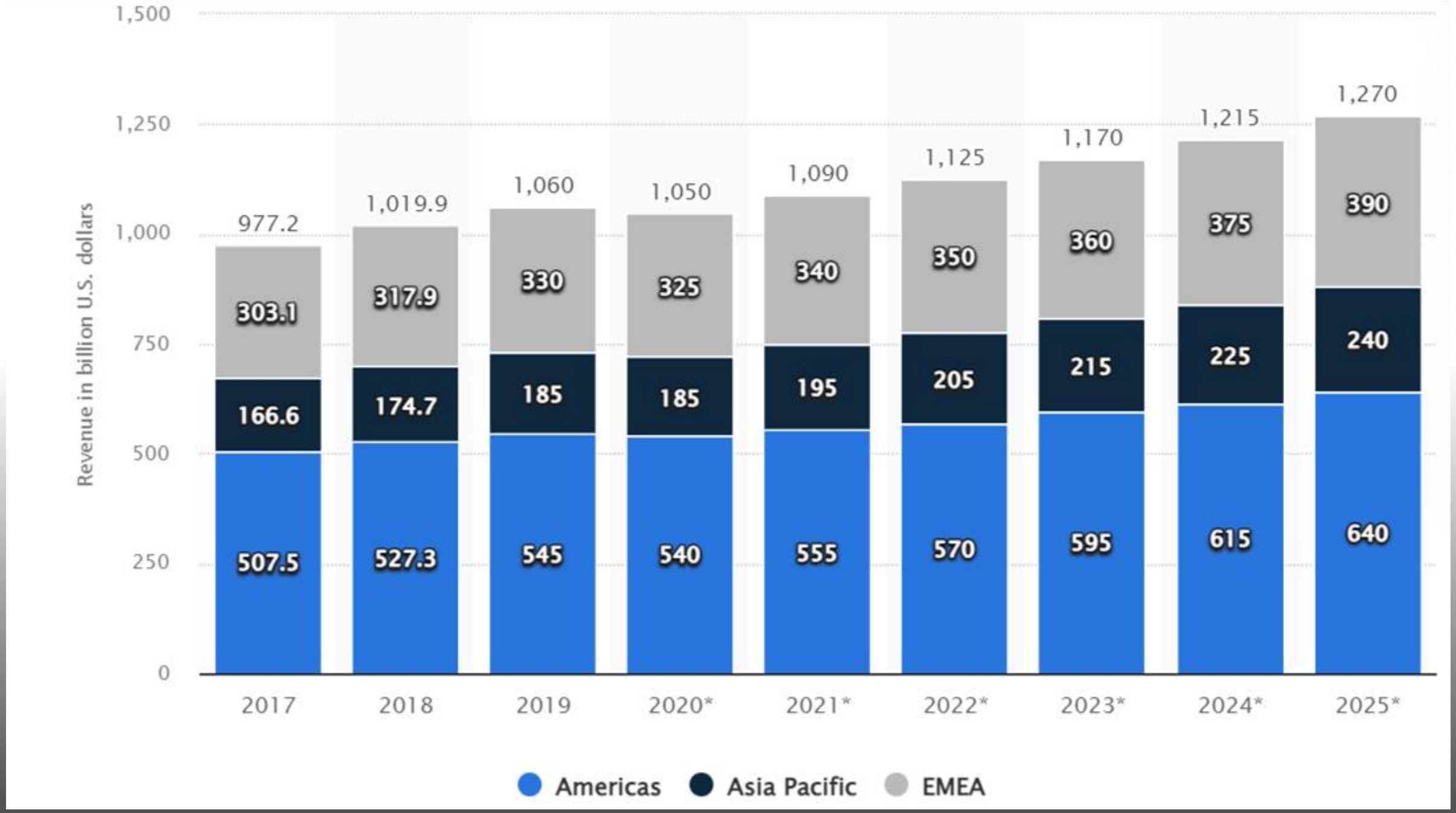
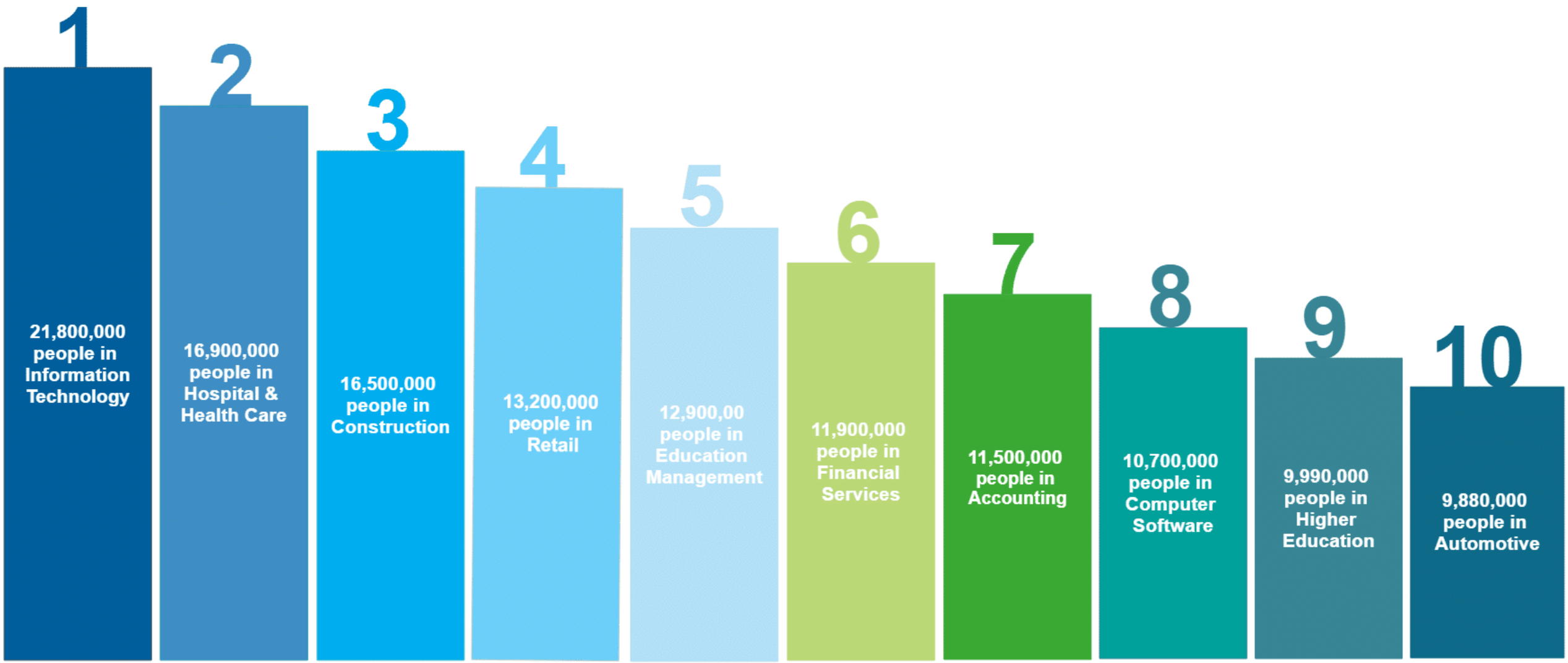
WOMEN in tech®

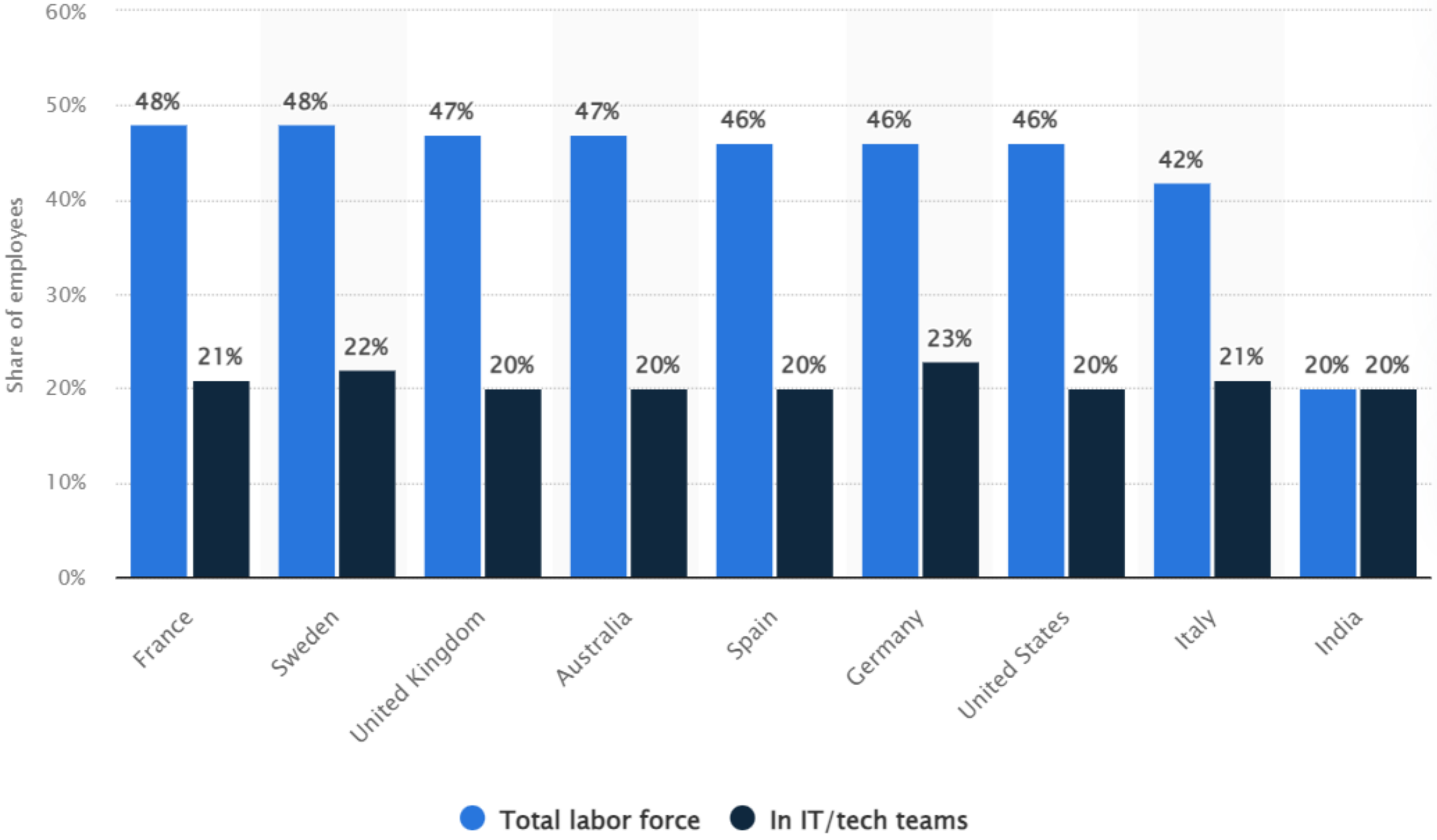
WOMEN IN IT

Information technology (IT) services and business services revenue from 2017 to 2025, by region

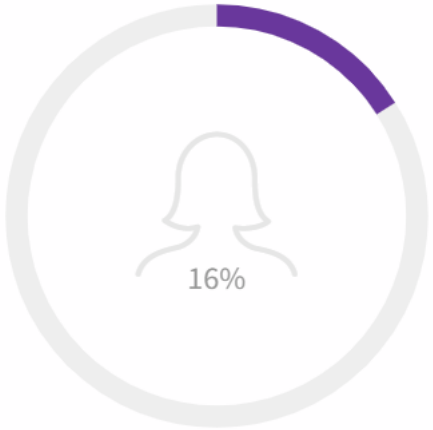



1
21,800,000 people in Information Technology
2
16,900,000 people in Hospital & Health Care
3
16,500,000 people in Construction
4
13,200,000 people in Retail
5
12,900,00 people in Education Management
6
11,900,000 people in Financial Services
7
11,500,000 people in Accounting
8
10,700,000 people in Computer Software
9
9,990,000 people in Higher Education
10
9,880,000 people in Automotive

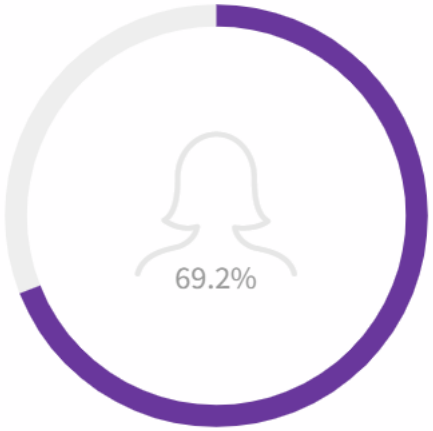
Female representation in technology organizations in 2021, *by selected countries*



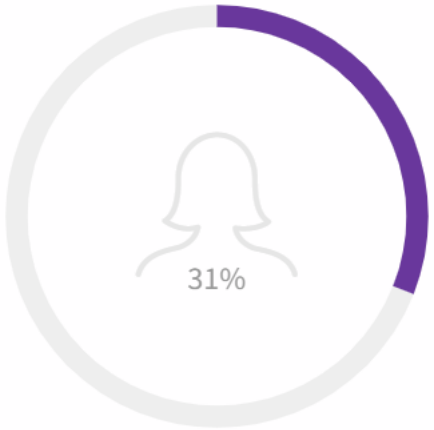
Women with Bachelor's degree in Computer and Information Sciences



Tech Layoffs by Gender

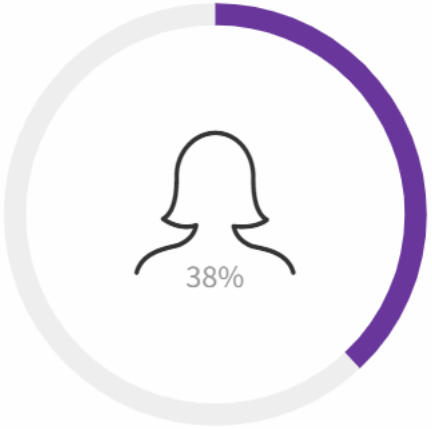


Women Working at GAFAM

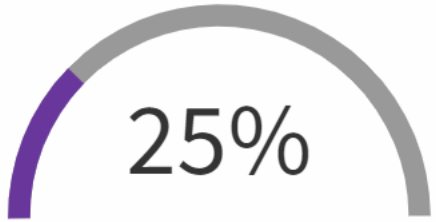


GAFAM (Google, Apple, Facebook, Amazon and Microsoft)

Women employed in Computer Science



25% Women in C-Suite



It will take an astonishing 268 years to eradicate the financial gender gap

World Economic Forum, 2021

268

Neil Armstrong

How a Young Engineer Saved the Moon Landing?

How a Young Engineer Saved the Moon Landing!

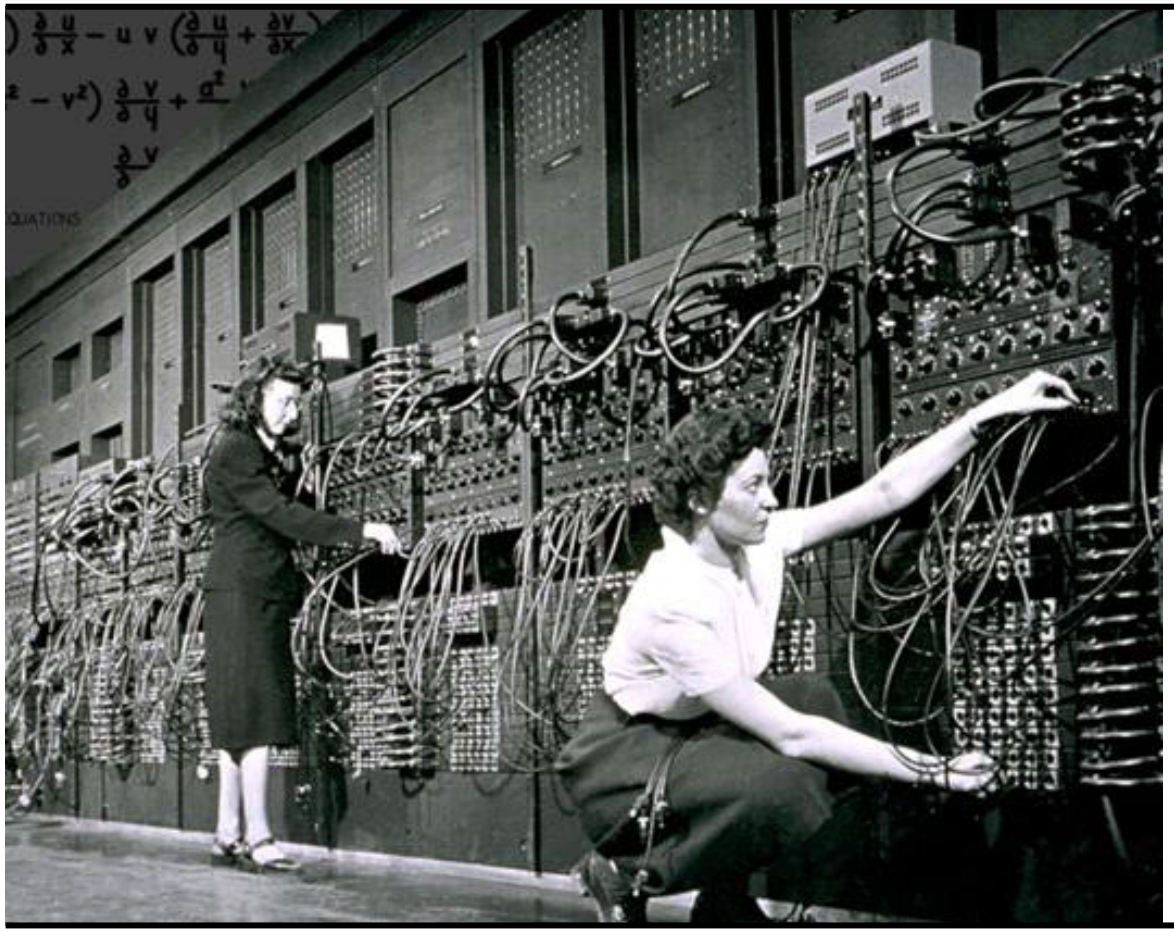
Margaret Hamilton developed NASA's in-flight software for Apollo.

Source: NASA

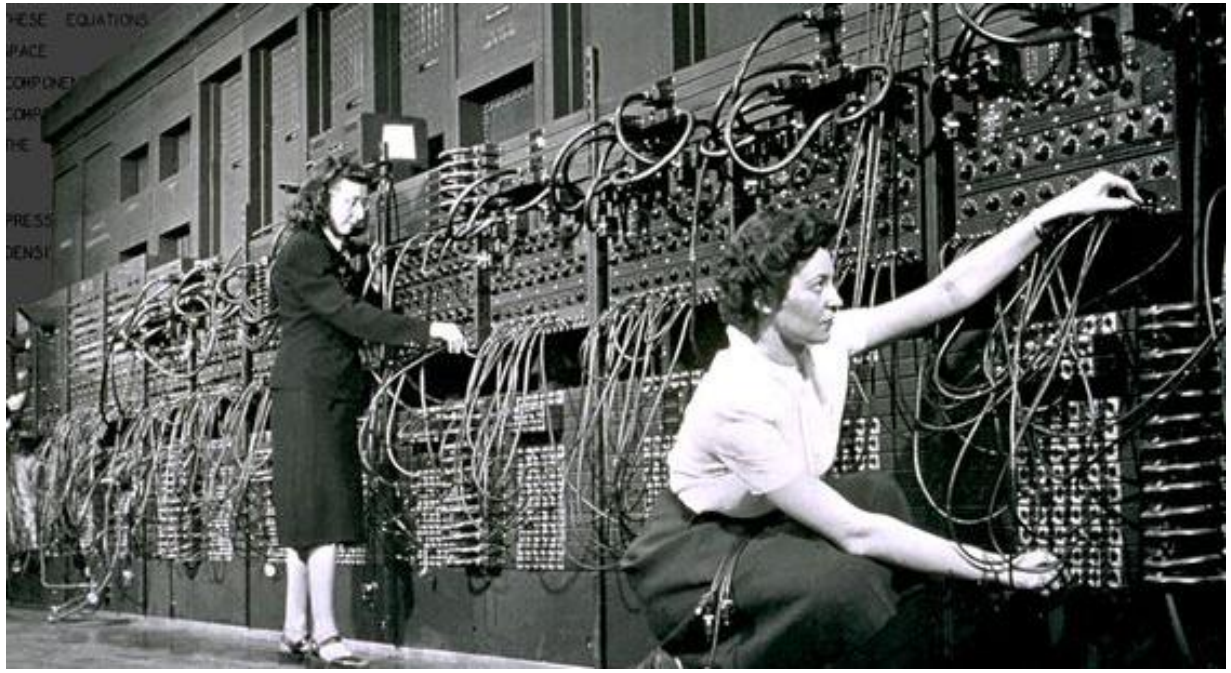
Katherine Johnson

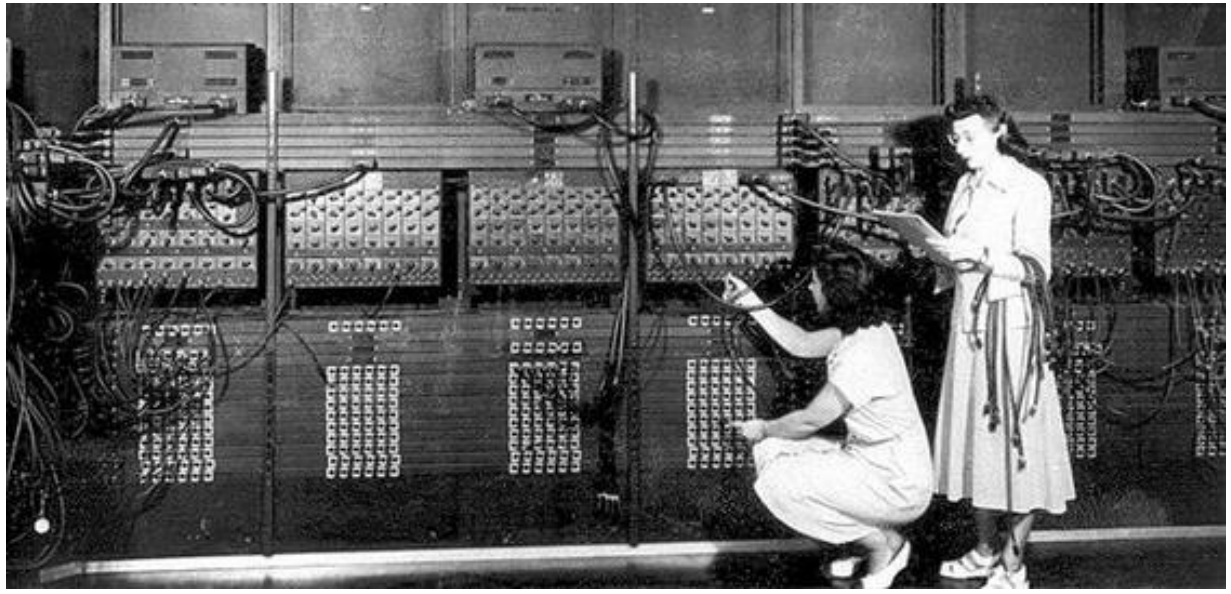
John Glenn

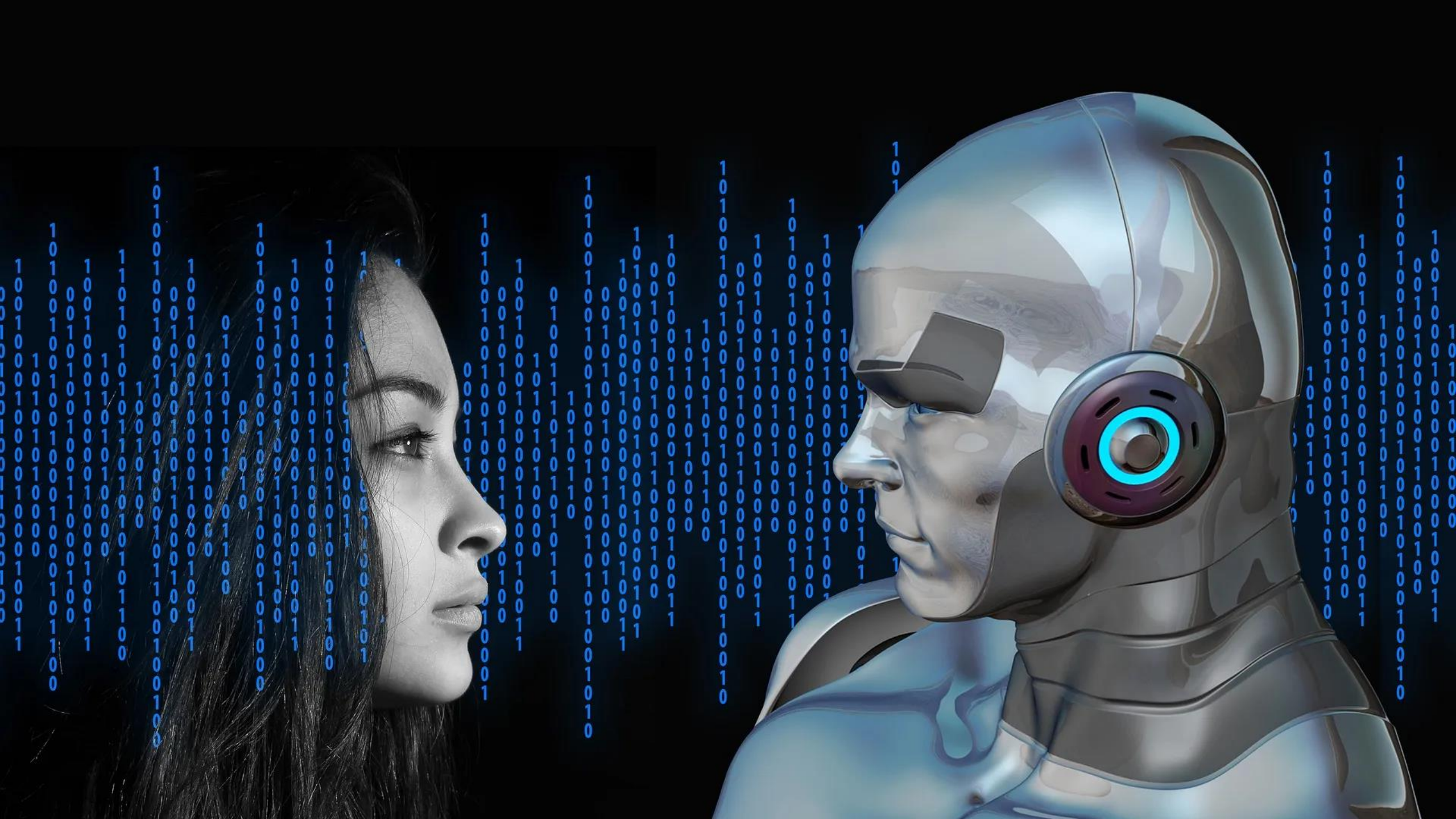
Marlyn Wescoff [left] and Ruth Lichterman were two of the female programmers of ENIAC.



- On 14 February 1946, journalists gathered at the Moore School of Engineering at the University of Pennsylvania to witness a public demonstration of one of the world's first general-purpose electronic digital computers: the Electronic Numerical Integrator and Computer (ENIAC).







WHAT IS HOLDING BACK WOMEN IN TECH?

Results based on Ipsos data from an online survey (n=363) and depth interviews (n=6) among women in tech recruited via We Are Tech Women network and associated networks - conducted between May and Oct 2021

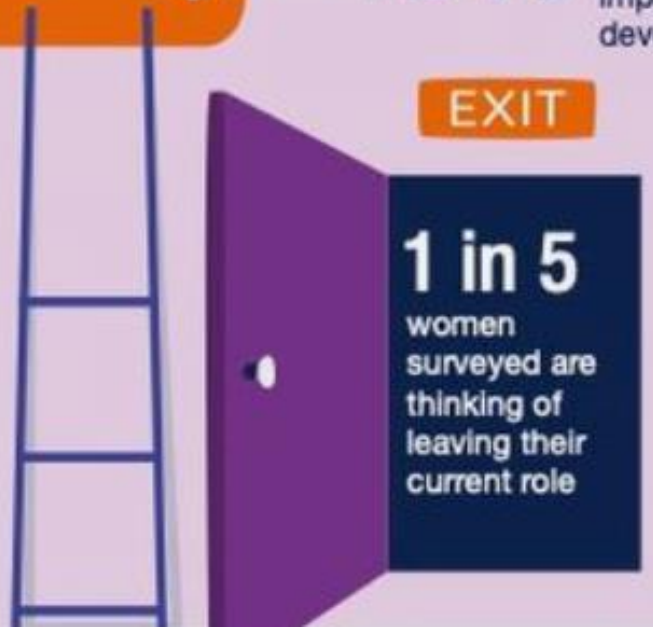
> When I was pregnant, I put myself forward for a high-profile project and was refused the role because of scepticism about my ability to perform, given the change in my circumstances

MENTORING AND SPONSORSHIP

49% of those surveyed are aware of sponsorship and of those who used it, **55%** say it had a huge impact on their career development

52%

of the women who participated in the study feel their gender limited their career in tech



1 in 5 women surveyed are thinking of leaving their current role

67%

think that access to mentoring and/or sponsorship is important in attracting them to an organisation

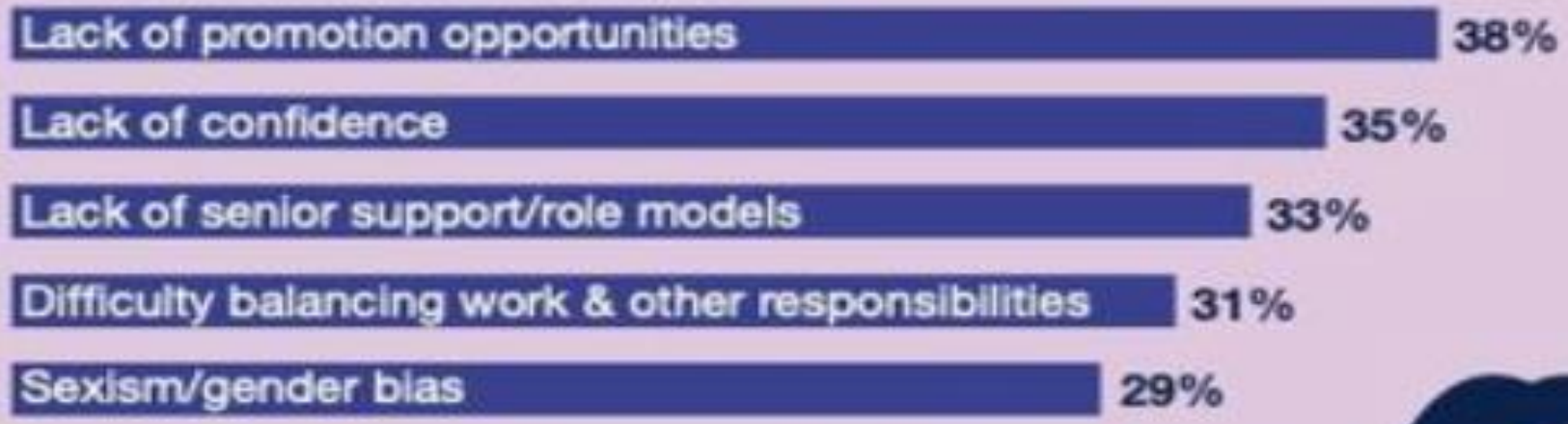
KEY REASONS TO JOIN A TECH ORGANISATION

84%
salary

83%
supportive manager

76%
inclusive culture

Biggest barriers to tech career progression / continuation



48%

say that visible allies within a tech organisation would attract them when looking for a new role

For further information, please contact **Karen Fraser**, Ipsos, karen.fraser@ipsos.com or **We Are The City**, info@wearethecity.com

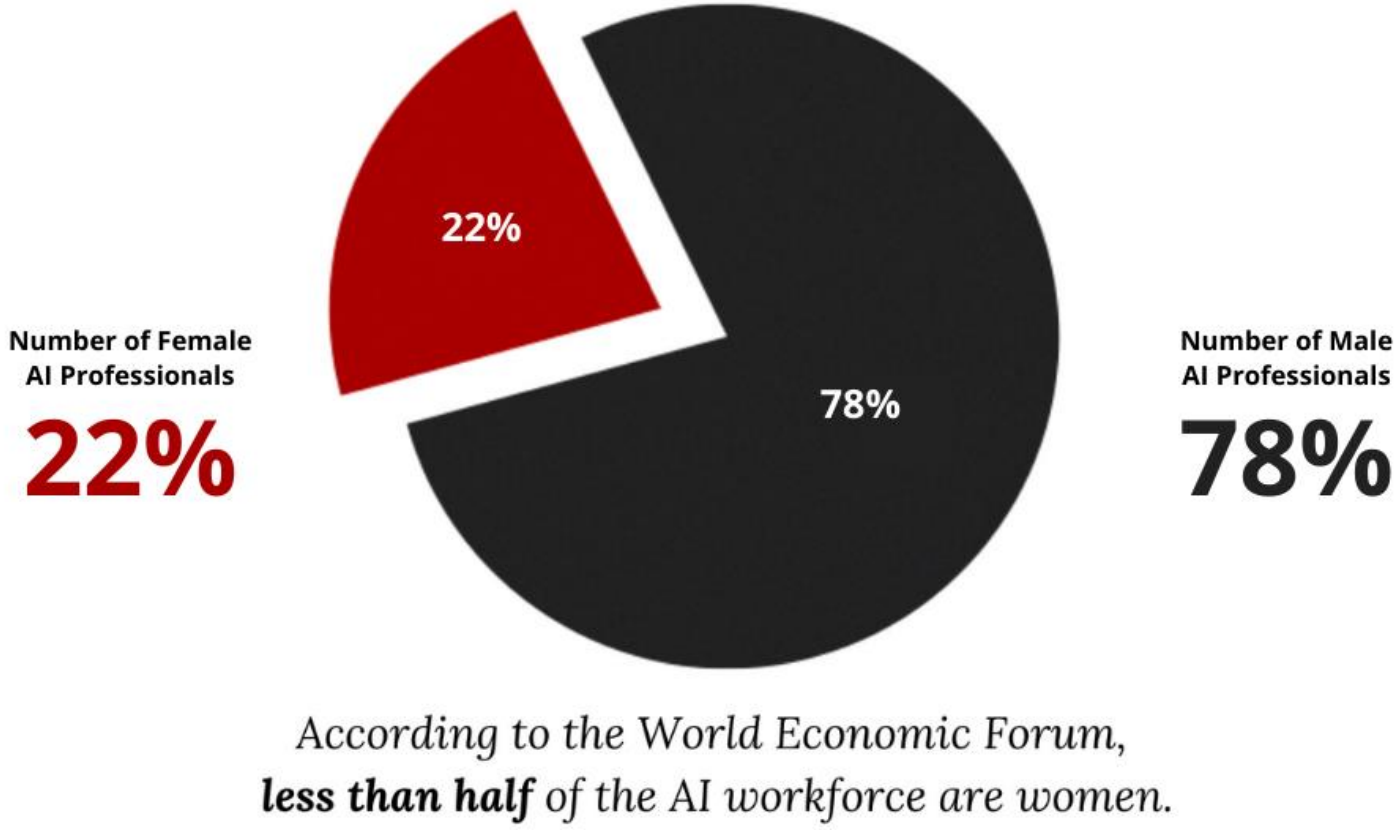
Note: no quota controls or weighting are applied to the data, which reflects only the profile of those who responded to the survey

Women and AI

AI has the potential to mitigate the corporate gender and leadership gaps by **removing bias in recruiting**, evaluation, and promotion decisions; by helping improve retention of women employees; and, potentially, by intervening in the everyday interactions that affect employees' sense of inclusion.

Biased data is a source of risk.

| *“Only 22% of AI Professionals globally are women”, according to a study conducted by the **World Economic Forum**.*



http://aiforwomen.org/

This is just a single statistic. But let's see what this indirectly implies —

1. The number of **women AI experts** is less than or equal to 22%.
2. The number of **women developing new products in AI** is less than or equal to 22%.
3. The number of **women providing services in AI** is less than or equal to 22%.
4. The number of **women involved in AI research** is less than or equal to 22%.
5. The number of **women entrepreneurs in AI** is less than or equal to 22%.
6. The number of **women trainers in AI** is less than or equal to 22%.
7. The number of **women involved in vital AI related decisions** is less than or equal to 22%.
8. The number of **women who can inspire little girls to take up jobs in AI** is less than or equal to 22%.

The problem is, there just aren't enough women who are making a significant impact towards the sector.

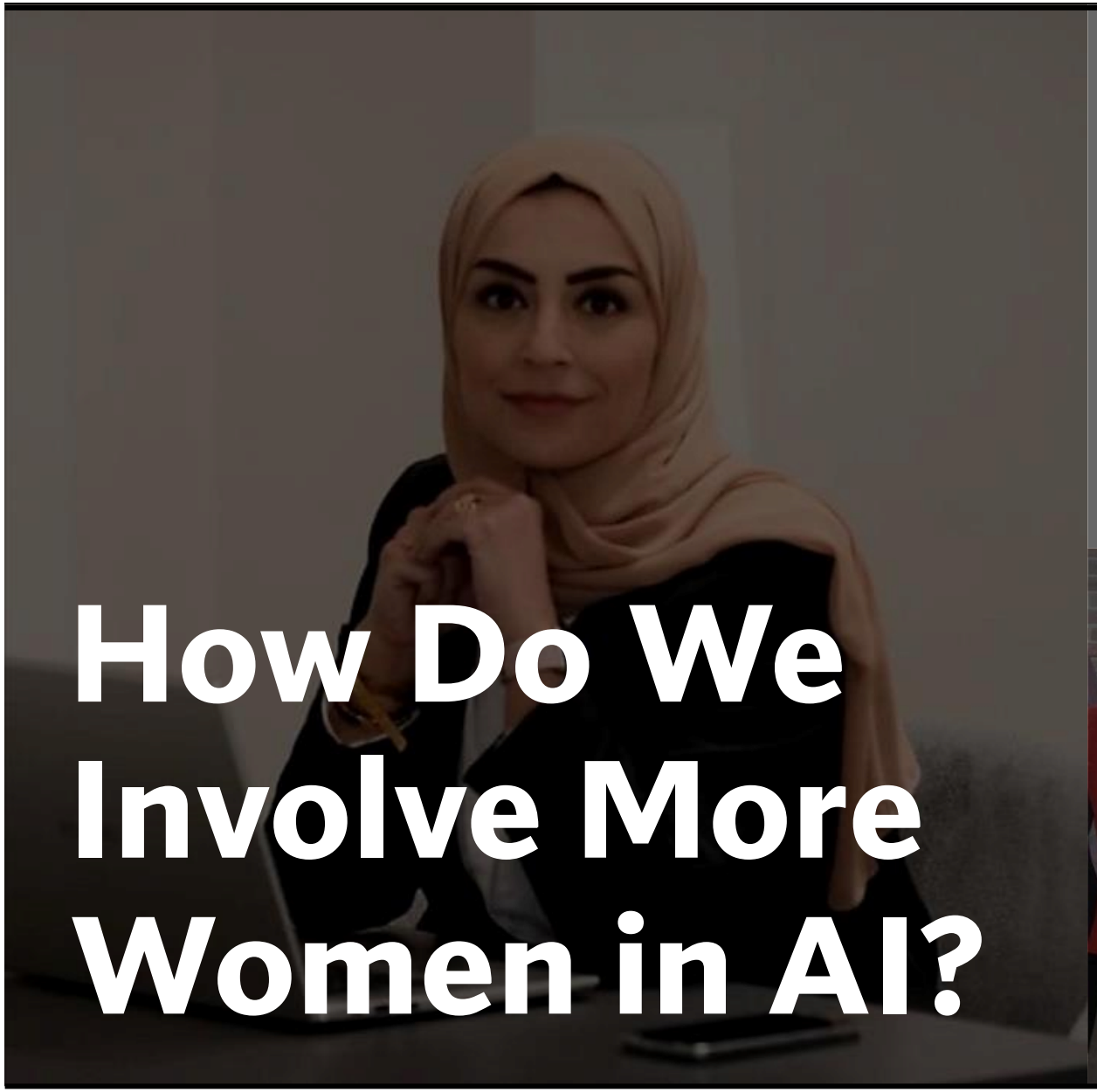
Do We ***WANT*** Women Or ***NEED Women in AI***?

This is something we need to ask ourselves — **Do we *want* women in the field, simply because we want to 'empower' them**? OR do we *need* women in the field, **because the Artificial Intelligence sector requires a woman's expertise and advice in its development**?

Artificial Intelligence Needs ***A Woman's Touch***

Women are ***needed*** in the field.

Women are *needed* in the field. Their opinions, their suggestions, their talents, and their skills, all play a vital role in the positive advancement of AI-related technology. It makes room for **more female representation, better ideas for new and helpful products, and less prejudice.**



How Do We Involve More Women in AI?

Women need to be inspired to be more active in Artificial Intelligence.

They ***need to have more opportunities*** to ***network*** with one another, in order to ***learn*** and ***grow together***.

They need to realize that it’s not as challenging as most people make it appear to be.

https://www.widsworldwide.org/keywords/artificial-intelligence/

Women in Data Science Worldwide

All Events | Conferences | Learn | Join Us | G

WiDS Ambassador in Jordan Empowers Women in her Region Through a Datathon Workshop

Arabian Women in Data Science and AI (AWiDS- AI) aims to ***encourage*** more women to use their individual talents, skills, and femininity as they endeavor to excel in the field of Artificial Intelligence by motivating them to ***connect, learn, and grow together***.

ARABIAN WOMEN IN DATA SCIENCE

Advancing Arabian Women in Data Science

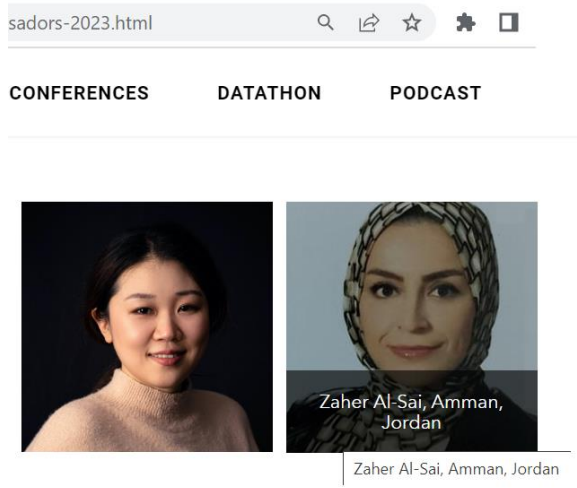
The '***Arabian Women in Data Science and AI***', intention was just that — To provide women with **greater opportunities** to excel in Artificial Intelligence, by **connecting them with Mentors, Trainers, Employers**, and fellow enthusiasts who can **help them build their careers in the field**.

ورشات ومؤتمر نساء في علوم البيانات الأردن

Women in Data Science Worldwide

Women in Data Science Conference and Datathon Jordan 2020-2023

Celebrating Completed WiDS 2021-2023 Events!



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3 WiDS Conferences and Datathons with 16 Full days Workshops and 3 WiDS Regional Events Complete So Far!

مؤسسة عبد الحميد شومان
ABDUL HAMID SHOMAN FOUNDATION

مؤسسة عبد الحميد شومان
ABDUL HAMEED SHOMAN FOUNDATION
منتدى
عبد الحميد شو

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الساعي
مؤتمر نساء في
علوم البيانات
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م. نور
الشلبي
م. لينا
أبو كركي
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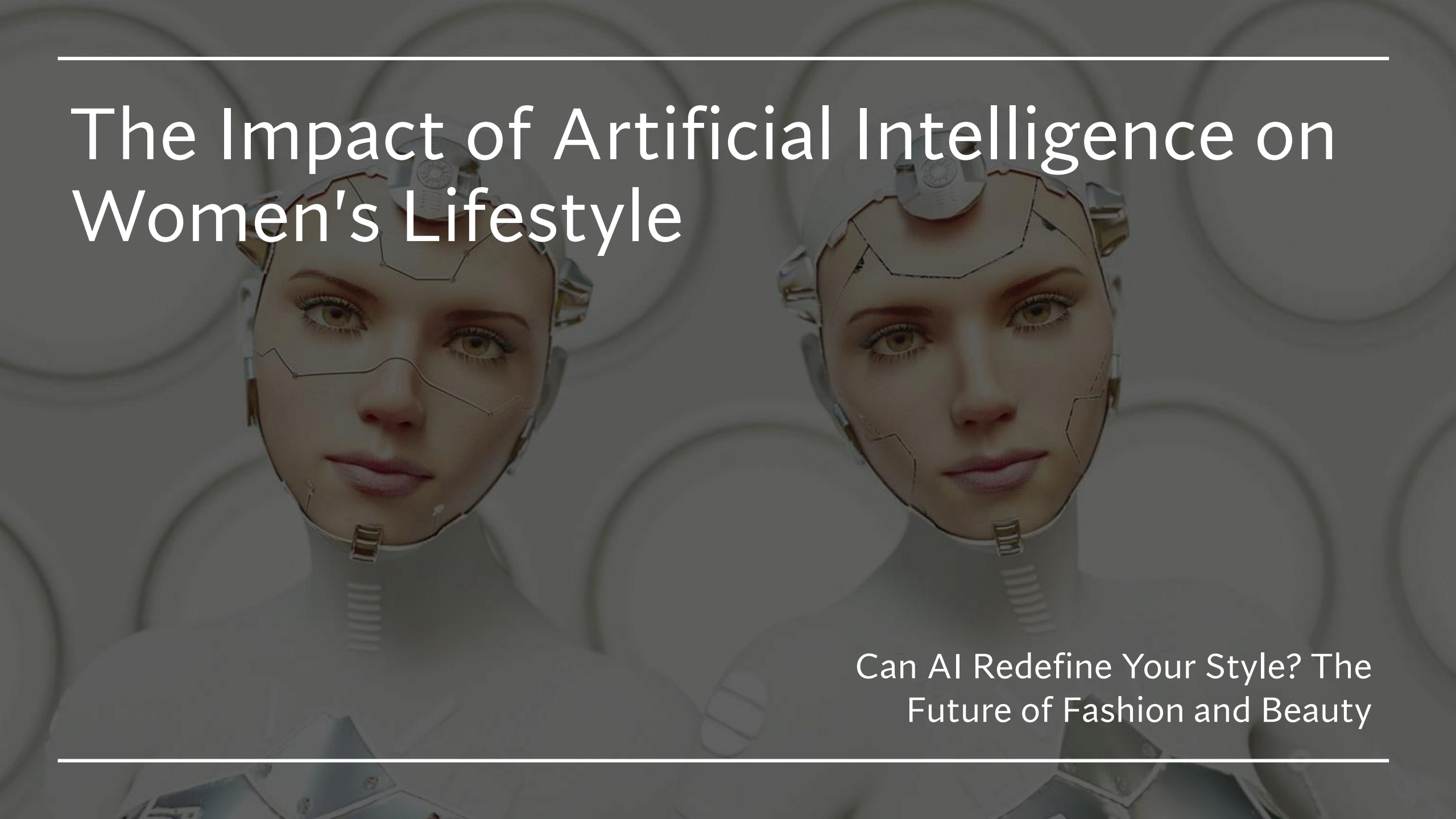


The Impact of Artificial Intelligence on Women's Lifestyle

Can AI Redefine Your Style? The Future of Fashion and Beauty

AI brings to society, innovation, and human progress.

Artificial Intelligence (AI) represents a remarkable source of wealth in today's world, transcending traditional notions of prosperity.

AI brings to society, innovation, and human progress.

The importance of AI

Its importance lies in making our lives easier.

These technologies are a ***great asset to humans*** and are **programmed to reduce human effort as much as possible**.

They tend to possess the capability to work in an automated fashion.

© Jenny Goodall

THE
SNOW WHITE
LEGEND
COMES ALIVE
MIRROR
MIRROR

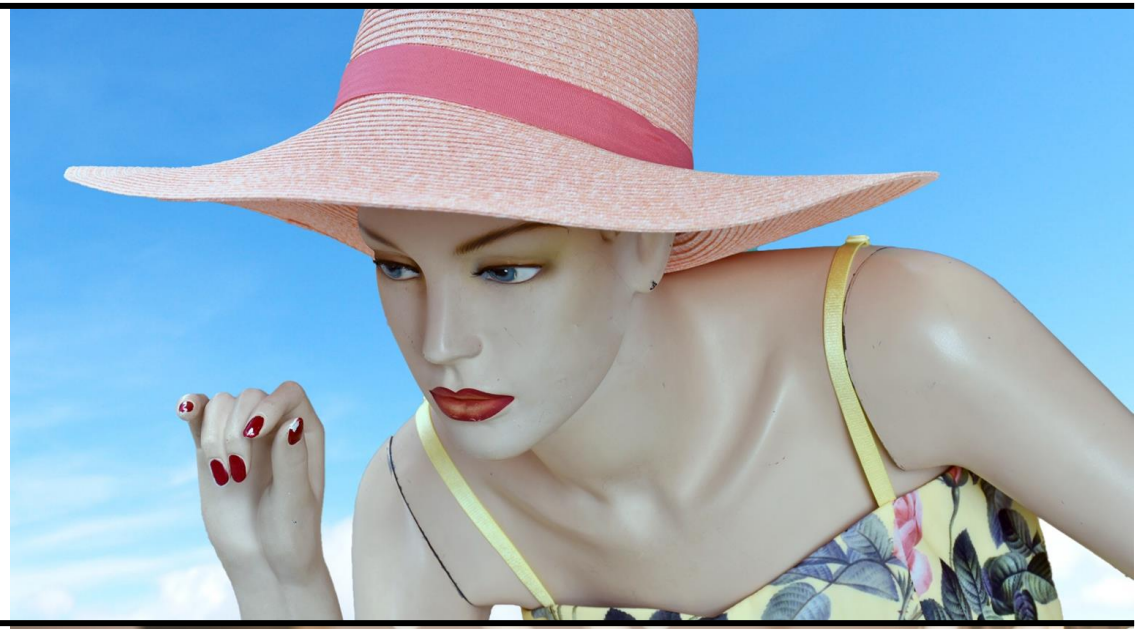
AI For Fashion Industry — Global Trends & Benefits

The global fashion and clothing industry is one of the ***largest industries*** in the world, ***valued at $1.5T in 2021***. However, the sector faces various challenges in the areas of sustainability, production, and technological advancement.

Like every other sector, ***AI is also changing the fashion industry by offering solutions to various challenges***.

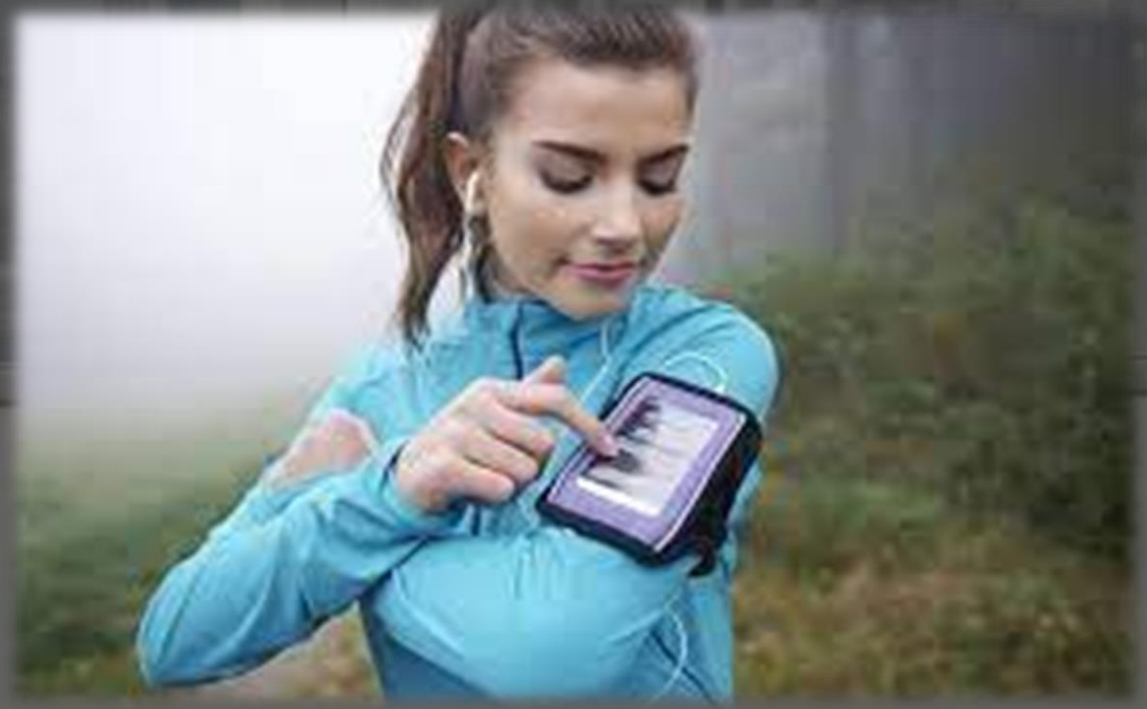
The ***global market for AI*** in the fashion sector was reported at ***$270M in 2018 and is projected to grow to $4.4B by 2027.***

The impact of AI on fashion



One of the most significant impacts of AI in fashion is in the area of supply chain management. With AI models capable of being trained by historical inventory levels and sales performance to predict future sales, businesses can make more informed decisions about what to stock and when. This can help reduce waste, improve customer satisfaction, and increase profits. I personally think this is one of the most significant benefits of AI in fashion, as it has the potential to streamline the entire supply chain process.

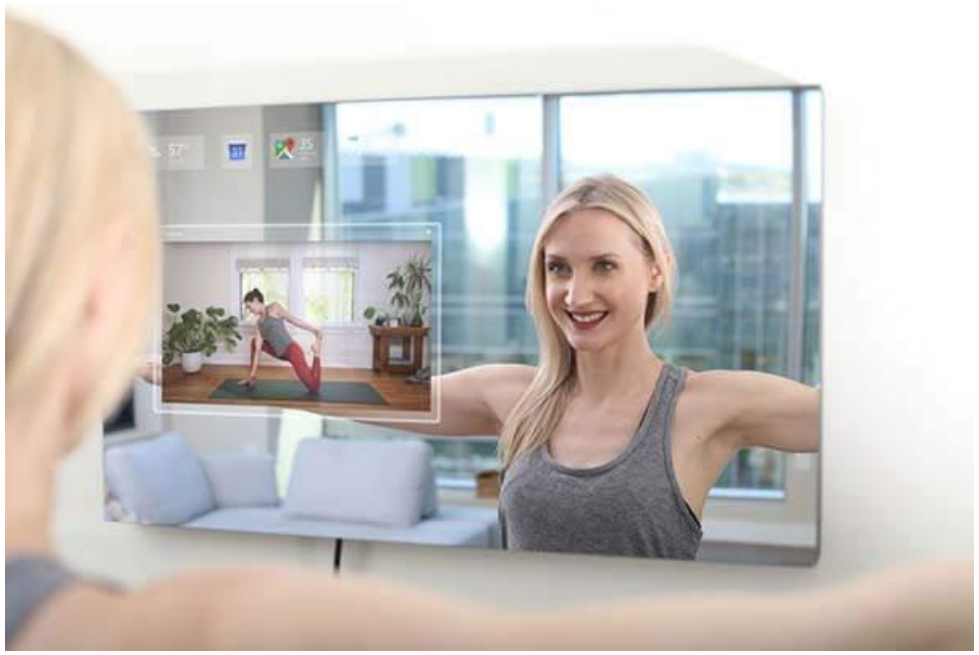
Smart Clothes and Wearables



Fashion items integrate AI technology and IoT sensors to provide real-time health, fitness, and location data, allowing users to monitor their well-being or navigate easily in their environment.

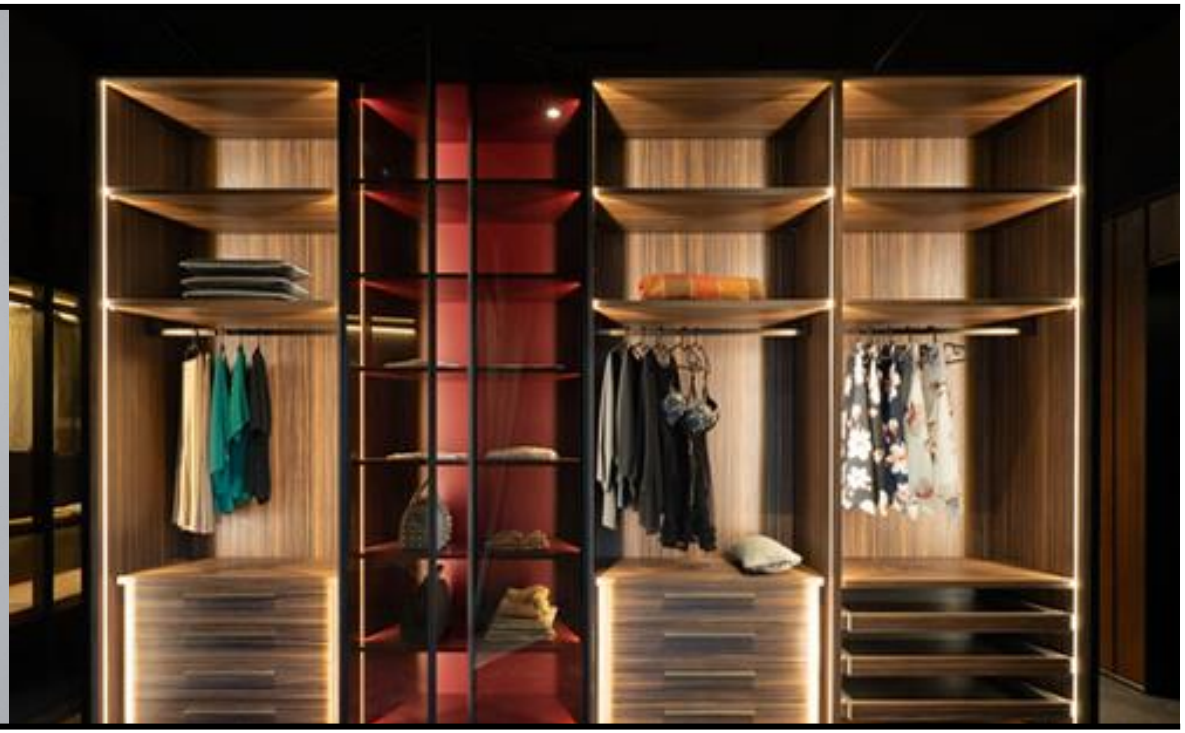
ETHICAL AND SUSTAINABLE FASHION WITH AI

As the fashion industry becomes more aware of its environmental and social impact, generative AI could play a crucial role in promoting ethical and sustainable practices. By optimizing supply chains, reducing waste, and providing insights into conscious consumption patterns, AI can help the industry transition towards a more responsible and eco-friendly future.



AI-Powered Wardrobes

Discover how AI is helping women curate and optimize their wardrobes for every occasion

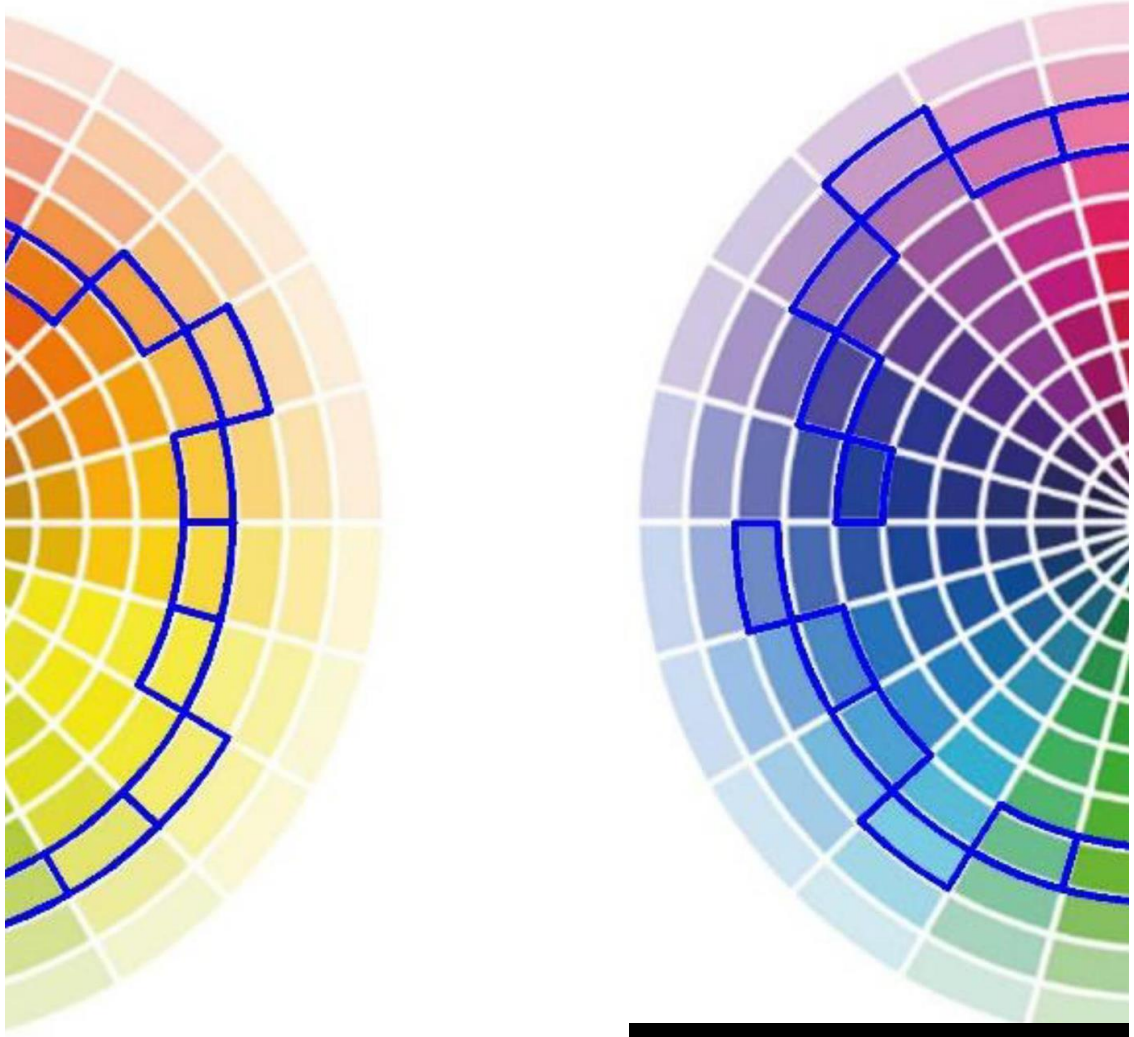


Virtual Wardrobe Management

AI-powered apps and platforms allow users to digitize their wardrobes by uploading photos of their clothing items. These apps then organize the inventory, making it easier to see and access clothing options

Personalized Styling Suggestions

AI algorithms analyze user preferences, body type, color preferences, and past outfit choices to suggest clothing combinations for different occasions. These suggestions consider the user's existing wardrobe, making it easier to create stylish outfits



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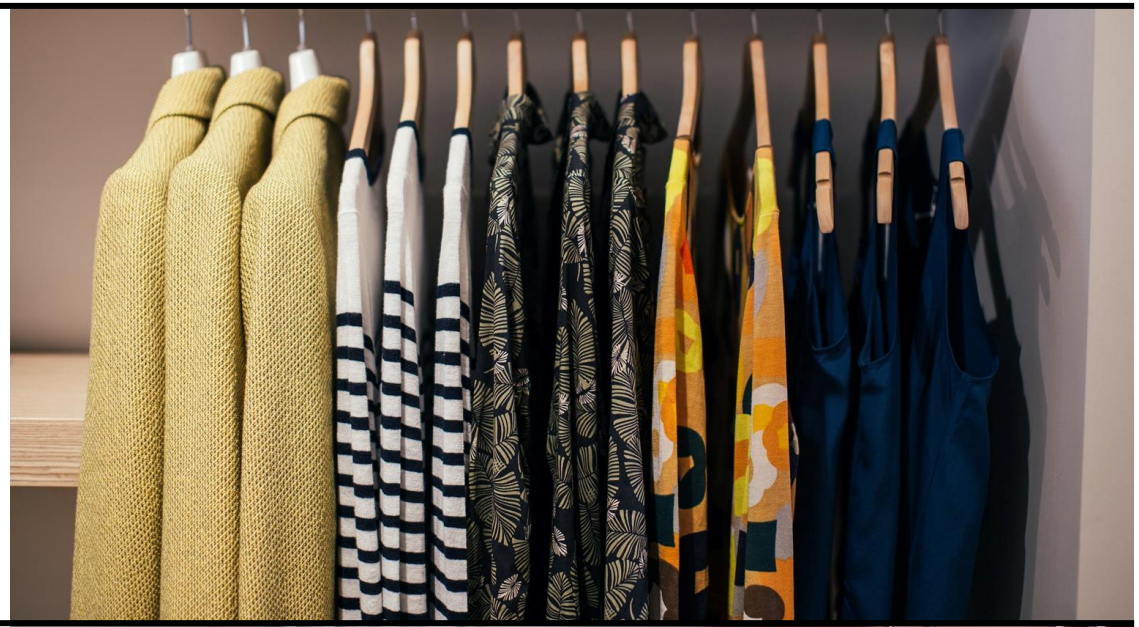
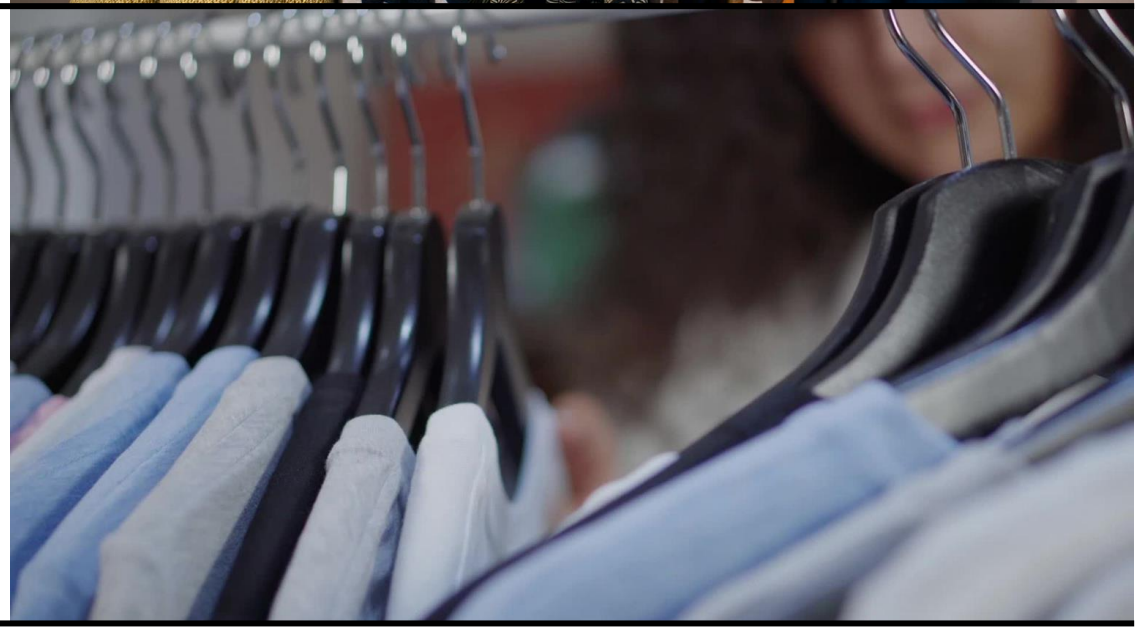
Occasion-Based Outfit Recommendations

AI can provide outfit suggestions tailored to specific occasions, such as work, casual outings, weddings, parties, and more. Users can input details about the event, and AI will recommend suitable attire.

Seasonal Wardrobe Transition



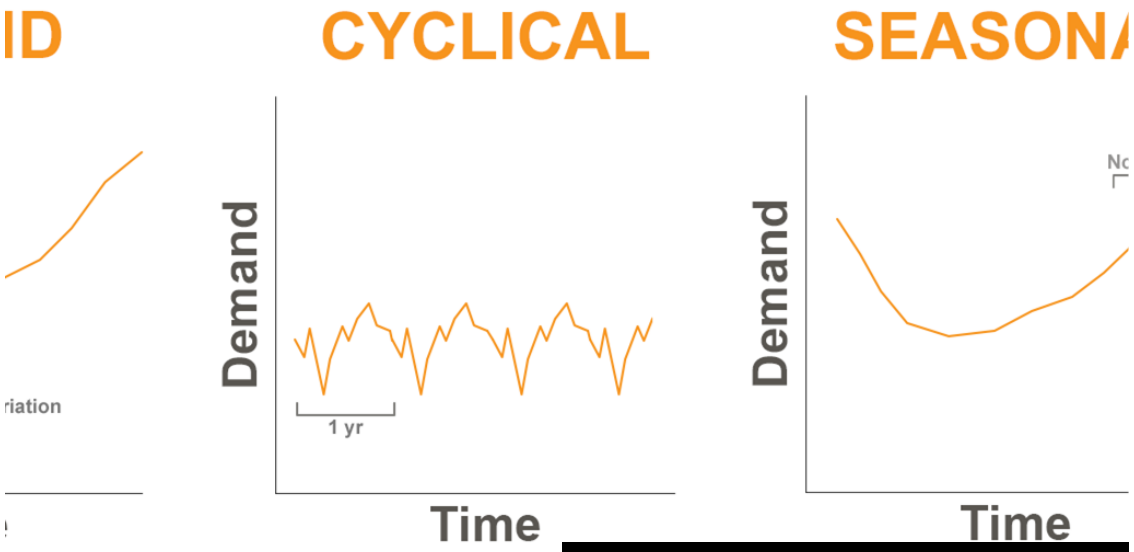


AI can help users transition their wardrobes between seasons by suggesting items to store or retrieve based on the weather forecast and seasonal trends.

Fashion Trend Analysis

This Photo by Unknown author is licensed under CC BY-NC.

AI can track and analyze fashion trends from various sources, including social media, runway shows, and street style. Users receive trend reports and recommendations on incorporating current fashion trends into their wardrobes.



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Clothing Fit and Size Recommendations

AI can provide guidance on clothing fit and size, helping users choose the right sizes when shopping online and reducing the need for returns.

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Outfit Visualization and Try-On

Virtual try-on technology uses AI and augmented reality to allow users to visualize how an outfit will look on them without physically trying it on. This enhances the online shopping experience and minimizes returns.

This Photo by Unknown author is licensed under CC BY-SA-NC.

Mix and Match Accessories

AI can suggest accessories, such as shoes, bags, and jewelry, to complement outfits, helping users complete their looks for various occasions.

Travel Packing Assistance

AI can help users pack for trips by generating packing lists based on the destination, duration, and planned activities. It ensures that users have appropriate clothing for every occasion during their travels.

Time and Decision-Making Efficiency

AI streamlines the outfit selection process, helping users save time and reduce decision fatigue by offering quick and relevant outfit recommendations.

Top AI use cases in the fashion industry

Alibaba

The China-based fashion retail giant, Alibaba have since 2018, adopted technologies that have revolutionized their shopping experience. With the launch of their first FashionAI store, the company introduced in-store features including smart garment tags, intelligent mirrors, along with Bluetooth chips embedded within every product.

L'Oréal

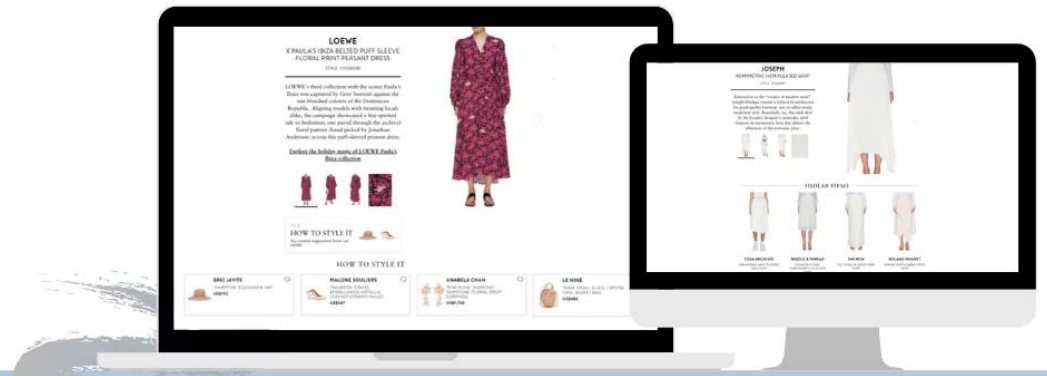
L'Oréal is one of the world's largest beauty and cosmetics companies, known for its innovative approach to beauty products and services.

ModiFace is a Canadian technology company specializing in augmented reality (AR) and AI solutions for the beauty industry.

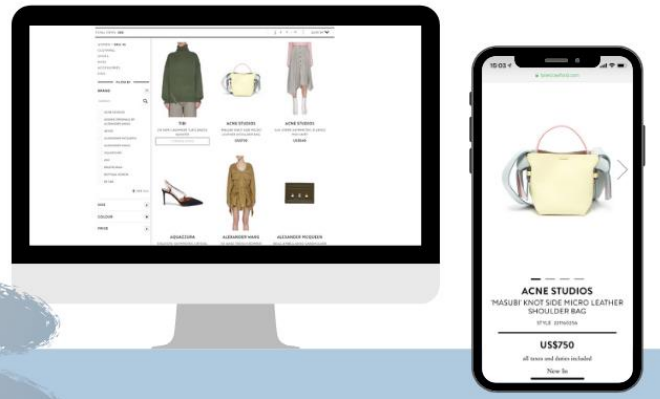
Improved fashion retail

AI-enabled technologies are widely used in fashion retail. The applications include:

- Intelligent automation of repetitive back office tasks such as invoice creation can be automated.
- AI-enabled computer vision systems can enable inventory management automation, retail theft prevention, cashierless automated stores, etc.
- RPA also has various applications in retail, including improved customer relationship management and marketing operations.

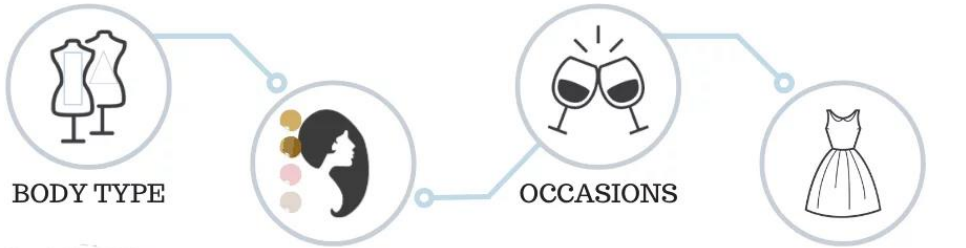


OUTFIT & SIMILARITY RECOMMENDATIONS

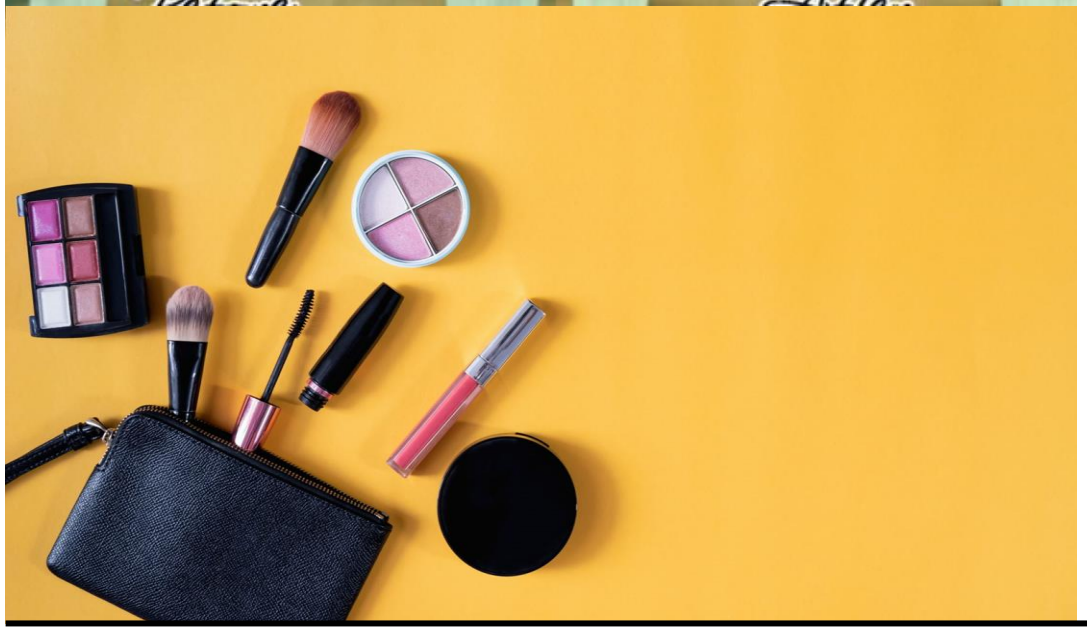


AI in FASHION: E-COMMERCE

VISUAL SEARCH & INSPIRATION



AI PERSONALISATION



AI in Beauty Industry

Virtual Makeup Try-On

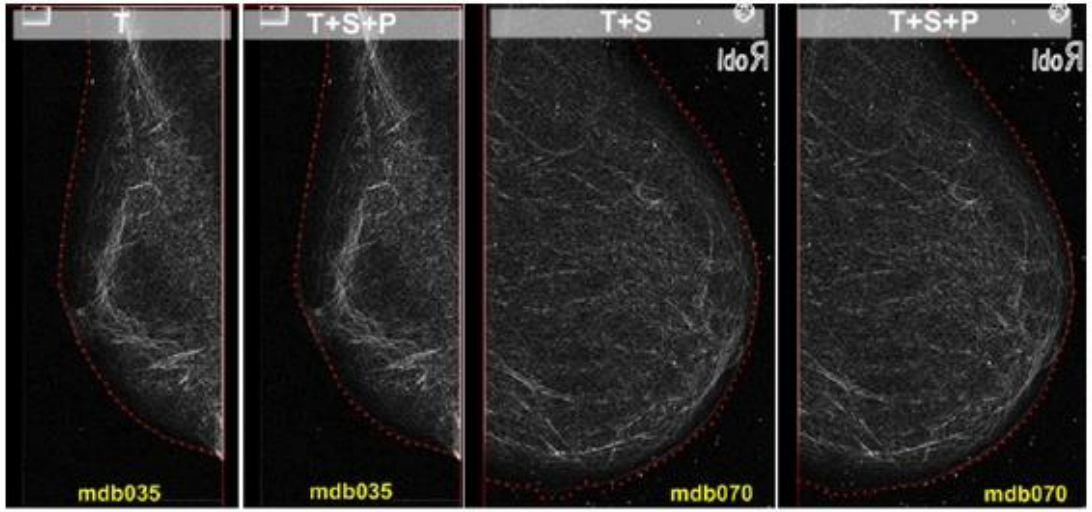
AI-powered virtual makeup try-on apps and tools allow users to virtually apply makeup to their selfies or live camera feeds.

One of the main challenges in AI-driven fashion design is determining ***intellectual property rights*** for AI-generated designs. The current legal framework does not adequately address the issue of whether AI-generated designs can be copyrighted or if the designer using the AI tool should be credited. This presents a complex challenge for designers, brands, and regulators alike.

Empowering Women's Health

Artificial intelligence (AI) has empowered women's health in several ways, contributing to improved healthcare outcomes, personalized treatment options, and greater access to healthcare resources

Early Detection of Breast Cancer



	Accuracy$_{mean}$			Curve		
	Mean	Max.	Min.	Mean	Min.	Max.
T + S + P	2.93	7.85	1.68	1625	6336	337
T + S	5.28	7.57	2.67	1650	7743	394
T	1.68	4.61	1.00	1910	7716	427

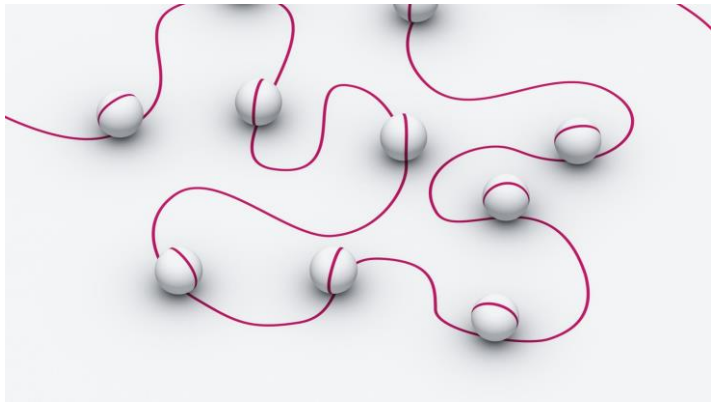
AI-powered mammography and breast imaging algorithms can aid in the early detection of breast cancer. These systems can analyze mammograms for subtle abnormalities and assist radiologists in making more accurate diagnoses.

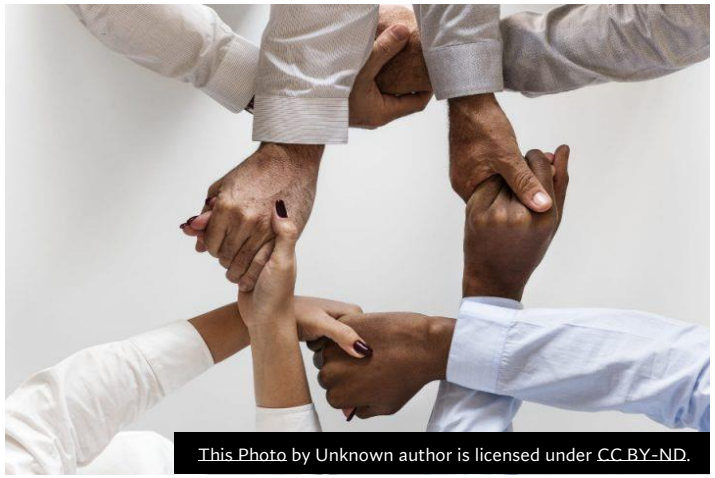
Pregnancy Monitoring

AI-powered wearable devices and mobile apps can monitor the health of pregnant women and their unborn babies, providing real-time insights and alerts about potential complications.

AI-driven mental health apps and chatbots can offer support to women experiencing mental health challenges, providing resources, coping strategies, and crisis intervention when needed.

Mental Health Support





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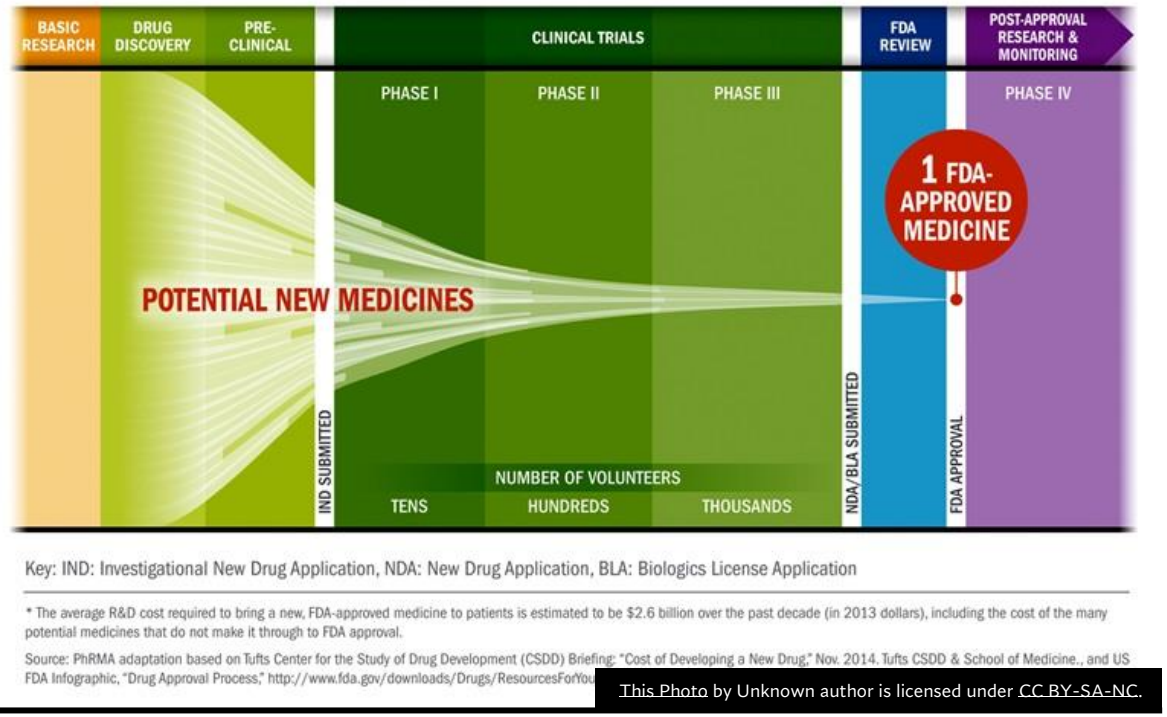
Drug Development and Clinical Trials

AI accelerates drug discovery and development processes, potentially leading to the creation of medications and treatments for conditions disproportionately affecting women.



Key: IND: Investigational New Drug Application, NDA: New Drug Application, BLA: Biologics License Application

* The average R&D cost required to bring a new, FDA-approved medicine to patients is estimated to be $2.6 billion over the past decade (in 2013 dollars), including the cost of the many potential medicines that do not make it through to FDA approval.

Source: PhRMA adaptation based on Tufts Center for the Study of Drug Development (CSDD) Briefing: "Cost of Developing a New Drug," Nov. 2014. Tufts CSDD & School of Medicine., and US FDA Infographic, "Drug Approval Process," http://www.fda.gov/downloads/Drugs/ResourcesForYou

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Trend forecasting

Fashion trend forecasting is the process of predicting possible future fashion trends. Traditionally, fashion trend forecasters combine their fashion knowledge, intuition, and historical data to predict possible fashion trends. However, measuring the accuracy of trend forecasts is difficult, and you can not know how accurate they are.

In the current digital era, AI is being used to accurately predict fashion trends using different types of data. For instance, the fashion tech company Heuritech developed an AI-enabled service to predict fashion trends by analyzing millions of social media imagesTrend prediction can also be used to reduce wastage in the fashion and clothing sector by designing clothes people would actually want to wear. More accurate predictions can lead to leaner production and distribution cycles and less waste.

Thank you...

Q&A