



United Nations
Educational, Scientific and
Cultural Organization

WOMEN IN THE DIGITAL SPACE

8 MARCH INTERNATIONAL WOMEN'S DAY

“
*Mary Allen Wilkes, programmer, with a LINC
at M.I.T. in the early 1960's.*
”

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Division for Gender Equality,
Cabinet of the Director-General

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MESSAGE OF THE DIRECTOR-GENERAL

This year's International Women's Day, we celebrate women's contributions to society – particularly in the digital space – and reflect on how we can ensure women fully enjoy their rights.

Digital technologies are affecting the ways in which we work, learn, teach and live together. Unfortunately, women are not necessarily fully benefitting from this technological revolution. A recent report by the Broadband Commission, co-authored by UNESCO, concluded that the gender digital divide is actually increasing: in 2016, there were over 250 million fewer women online than men that year. Women are not only less connected, but benefit less from digital literacy and skills training, are less likely to be hired by tech companies, and often earn less than their male colleagues.

Even within some of the most cutting-edge fields of science – digital technologies and artificial intelligence – women are at a disadvantage. Only 22 per cent of artificial intelligence professionals are female, for example. This year, UNESCO seeks to redress the balance as we celebrate pioneering women who have pushed back the boundaries of our knowledge in fields such as quantum computing, digital innovation and artificial intelligence. By highlighting the successes of these women, we hope to encourage a new generation of young women in science, technology, engineering and mathematics (STEM) fields, where they remain under-represented. We work to encourage girls and women to take up STEM fields, and particularly to develop digital skills, for example through the recently launched "Girls Can Code" project.

In the cultural field, we also support women's access to digital creation and we are promoting gender equality in the creative industries through the "You Are Next" initiative. In partnership with Sabrina Ho, UNESCO is equipping hundreds of young women from Mexico, Palestine, Senegal, Afghanistan and Tajikistan with the artistic, digital and entrepreneurial skills needed to succeed in the digital environment.

Despite such initiatives and many female role models in the digital sphere, women are increasingly removing themselves from online platforms to protect themselves from cyber-attacks and harassment. One in 10 women in the European Union report having experienced cyber-harassment since the age of 15 – a phenomenon that is particularly common among young women between 18 and 29 years of age. UNESCO – as a United Nations agency dedicated to information and communication – is at the forefront of the fight against gender discrimination,

deconstructing the stereotypes that spread through the media, as well as fighting harassment online.

To contribute to tackling stereotypes, I invite you to join the global #Wiki4Women contributory movement. On Wikipedia pages, only one biography out of six is currently devoted to a woman. By creating or completing biographies on extraordinary women in culture, education and the sciences on Wikipedia, UNESCO aims to give them the digital existence they deserve. Building on last year's successful 'edit-a-thon' at UNESCO Headquarters, UNESCO is once again collaborating with the Wikimedia Foundation, in organizing edit a-thon workshops in Cairo, Delhi, Bangkok, Lima and Almaty, as well as Paris.

UNESCO is committed to making a positive and lasting contribution to women's empowerment and gender equality. Each of us can make a difference, by rejecting bias and discrimination, ensuring that online spaces are safe for all, celebrating women's achievements and fostering women's contribution in the digital sphere, and all spheres of life.

Audrey Azoulay

FOREWORD FROM THE DIRECTOR FOR GENDER EQUALITY

Remarkable but Invisible?

When I think about remarkable women, especially those who have contributed to the world of science, technology, engineering, mathematics, I always remember an obituary in the New York Times, published in March 2013 about Yvonne Brill. The obituary honoured her with the title “world’s best mom” who “followed her husband from job to job and took eight years off from work to raise three children.” By the way, she also made a mean beef stroganoff – according to the same obituary.

It was curious that the NY Times would publish an obituary for a woman who sounds like a well-appreciated wife and mother. It is only in the second paragraph that we learn the reason for the obituary. Yvonne Brill was also a brilliant rocket scientist who invented a propulsion system to keep communications satellites in orbit – a technology we use widely and globally today without ever wondering about who invented it.

There are hundreds, if not thousands of women scientists whose work benefits us all today, but whose names are not even mentioned in the scientific journals. The unconscious bias and gender stereotypes keep us believing in the myth that women are not good enough, or interested, in science.

Jenny Rohn, a biologist exploring the reason for the dearth of women at the top of her field (despite gender parity in the number of PhDs achieved in biology) points to the role prejudices play: *“Picture a scientist in your head: the image is likely to be male. We’re just wired that way.”*

But this picture in our heads of eccentric, absent-minded men as the only noteworthy scientists does not reflect reality. It is a myth.

What is *not* a myth is that women are typically under-represented in STEM: less than a third of women work in scientific research and development globally, and despite the growing importance of STEM knowledge and digital skills, the percentage of women in these fields is growing at a painfully slow pace – by only 4% from 2008 to 2016.

UNESCO advocates and works proactively to contribute to the representation and advancement of girls and women in STEM education and careers. To celebrate International Women’s Day in 2019, we are shedding a spotlight on new technologies and the digital world. Through the organization of a debate on *Women Online: Challenges for Gender Equality in the Digital Space*, we will

highlight the experiences of distinguished speakers who are committed to advancing women's empowerment in the digital space. Through the second edition of our *Wiki4Women* campaign, organized in collaboration with the Wikimedia Foundation, we will continue to promote and produce data on women on the Internet. Last but not least, we have designed a travelling exhibition entitled *Remarkable Women in Technology* that will put a woman's face on some of the most interesting work in fields such as quantum physics and artificial intelligence.

Join us at UNESCO to make remarkable women visible, and provide an inspiration to all girls and women to take the leap and pursue education and careers in STEM.

Saniye Gülser Corat

DEBATE

“Women Online: Challenges for Gender Equality in the Digital Space”

The Internet and new technologies are rapidly expanding people’s possibilities to communicate, work and study beyond physical boundaries, yet this digital revolution can foster new forms of inequalities and violence that disproportionately affect women and girls worldwide.

This debate entitled “Women online: challenges for gender equality in the digital space” will feature distinguished speakers who are dedicating their lives to the advancement of women’s empowerment in and through the media. The panellists will present their own experiences and vision of challenges online, and will open up a discussion on emerging solutions for women to succeed in the digital space.

Musical performance: H.E. Mr José Antonio Rodriguez, Ambassador of the Dominican Republic to UNESCO

UNESCO opening remarks



Saniye Gülser Corat,
Director for Gender Equality

Moderator



Christine Kelly,
Journalist

Panellists



Christelle
Delarue,
Founder of
Mad&Women



Mélanie Wanga,
Journalist



Céline Bardet
Jurist and
Founder of
We Are Not
Weapons of War

8 March 2019, Room IV, 11.30am to 1.00 pm

Credits:

Photo Christine Kelly © Ch. Lartige/CL2P

Photo Mélanie Wanga © Alek Szymtko

LAUNCH OF EQUALS POLICY PAPER

*"I'D BLUSH IF I COULD:
Closing gender divides in digital skills through education"*

Digital skills are essential and will become indispensable. Nevertheless, the record on digital skills education is grim: women and girls are being left behind. Today, women and girls are 25% less likely than men to know how to leverage digital technology for basic purposes, 4 times less likely to know how to programme computers and 13 times less likely to file for an ICT patent. At a moment when every sector is becoming a technology sector and digital technologies are reshaping day-to-day life, these gaps should make policy-makers, educators and everyday citizens 'blush' in alarm.

In response to this, UNESCO is launching the EQUALS Policy Paper* entitled *I'D BLUSH IF I COULD: Closing gender divides in digital skills through education*. This publication aims at exposing biases and putting forward ideas to close a digital skills gender gap that is, in most parts of the world, wide and growing. It also explains the role gender-responsive education and training can play to help reset gendered views of technology and ensure equality for women and girls.

*This publication was prepared by UNESCO for the EQUALS Skills Coalition, one of three Coalitions that comprise the EQUALS partnership. EQUALS is a global partnership of governments and organizations dedicated to promoting gender balance in the technology sector by championing equality of access, skills and leadership for women and men alike.



8 March 2019, *Salle des Pas Perdus*, 1.00 to 2.00 pm

#WIKI4WOMEN

UNESCO, in partnership with Wikimedia, invites volunteers to create, enrich or translate, in as many languages as possible, Wikipedia profiles of women committed in the fields of education, science, culture, social and human sciences, or communication and information.

Wikimedia team will offer an initial training of 30 to 40 minutes to new editors to ensure the quality and durability of new articles. This same team will accompany the participants throughout the afternoon to work in groups on the profiles of women identified in relation to the UNESCO mandate.

The event is an opportunity to promote and produce data on women on the Internet, particularly in areas where women are underrepresented. It is co-organized in partnership with Wikimedia, with the support of Canada, Iceland, Republic of Korea, Chanel Fondation, ENGIE, The New York Times, *France Médias Monde* and *Journée de la femme digitale*.

In addition to the event taking place at Headquarters, satellite events will be organized in UNESCO Offices in Almaty, Bangkok, Buenos Aires, Cairo, Lima and New Delhi. Participants all around the world are also invited to join the movement online.

8 March 2019, Segur Hall, 2.00 to 5.30 pm

EXHIBITION

“Remarkable Women in Technology”

On the occasion of International Women’s Day 2019, UNESCO is organizing an exhibition on “Remarkable Women in Technology”.

From quantum physicists to artificial intelligence experts, this exhibition celebrates women in a wide range of technological fields. It presents 23 portraits of women divided into three groups: pioneers (■), leaders (■) and influencers (■). All of them have made significant contributions to one of the most impactful sectors of our time and made their mark in a field in which women are typically under-represented. Their career paths are an inspiration to women and girls all over the world to take the leap into impactful technology careers and use their skills for sustainable development. The exhibition is on display at UNESCO Headquarters in Paris from 1 to 31 March, It can also be viewed online.

Participants:

- Ruzena Bajcsy
- Céline Bardet
- Joanna Bryson
- Elizabeth Chee
- Sarah-Diane Eck
- Nazek El-Atab
- Rana El Kaliouby
- Elena Fersman
- Jane Frankland
- Shohini Ghose
- Joséphine Goube
- The Honourable Shirley Ann Jackson
- Fei Fei Li
- Angelica Lim
- Terah Lyons
- Roya Mahboob
- Christelle N’Cho Assirou
- Pooja Rao
- "The Restorers" - Stacy Owino, Purity Achieng, Ivy Akinyi, Synthia Otieno, Macrine Atieno
- Dame Stephanie Shirley CH
- Michelle Simmons
- Roxanne Varza
- Ariela Vergara-Jaque

Participants

The Honourable Shirley Ann Jackson

Nuclear Physicist. Philanthropist. Trailblazer.



When The Honourable Shirley Ann Jackson earned a doctorate in physics in 1973, she became the first African-American woman to earn a Ph.D. from MIT. She specializes in promoting science-based public policies and particle physics research, for which she was awarded the National Medal of Science in 2014. She has held senior leadership positions in academia, government, industry, and research including leading

President Barack Obama’s Intelligence Advisory Board. Since 1999 she has served as the president of Rensselaer Polytechnic Institute.

Fei Fei Li

Advocate for inclusion and diversity

Fei-Fei Li is a computer scientist and world-renowned AI researcher. She now co-directs the Human-Centered AI Institute at Stanford University, where she is also a Professor. Her work has significantly contributed to the recent revolution of artificial intelligence and deep learning. She is a tireless advocate for inclusion and diversity in AI and STEM education. She co-founded and is chairperson of the board of the non-profit organization AI4ALL, dedicated to educating the next generation of women and men in AI technology, innovative thinking, and leadership.



Christelle N'cho Assirou

Researcher. Leader. Feminist.

Christelle N’Cho Assirou is putting women at the forefront of West Africa’s tech scene. She believes that the digital economy is an empowerment opportunity for African women. As CEO of tech booster ICTINA, and through her advocacy with various NGOs, she has been pushing for diversity and inclusion in the industry for more than 12 years.

Dame Stephanie Shirley CH

Entrepreneur. Philanthropist. Refugee.

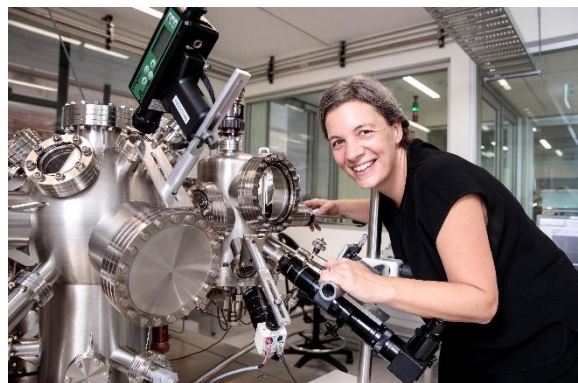


Dame Stephanie Shirley CH escaped Nazi Germany at age five and has since dedicated her life to improving the lives of others through science. In 1962, she set up Freelance Programmers – the first high-tech company of and for women. In her early career, she called herself Steve to be taken seriously in a male-dominated field. She studied the social, economic, legal and ethical aspects of the digital world through the Oxford Internet Institute, which she co-founded. Now retired, she is committed to assistive technology and other projects for people with autism, in honour of her late son Giles.

Michelle Simmons

Quantum physicist. Trailblazer. Innovator.

“I think every individual has to explore the boundaries of who they are, and I think every time you step outside the comfort zone of what your life has been, you will find something phenomenally rewarding.” Michelle Simmons believes that the future of science is in quantum physics, and she is working hard to lay a foundation for the first quantum computer in silicon worldwide. She was named “2018 Australian of the Year” for her research.



Ruzena Bajcsy

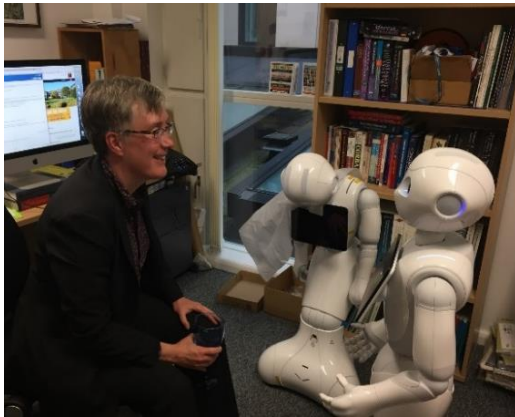
Electrical Engineer. Robotics trailblazer. Holocaust Survivor.

Orphaned after her parents were killed in Nazi-occupied Czechoslovakia, Ruzena Bajcsy went on to become the first woman in the country to earn a Ph.D. in electrical engineering in 1967. She founded and led a General Robotics Active Perception Laboratory for 20 years at the University of Pennsylvania, and she then founded the University of California Berkeley’s Center for Information Technology Research in the Interest of Society (CITRIS) to facilitate the real-world application of technological research. Her research now focuses on artificial intelligence, human-computer interaction and robotics.



Joanna Bryson

AI Researcher. Psychologist. Robot Ethicist.



© Rachel Sheer

Joanna Bryson is an expert in AI. She began by studying behavioural science, then developed ways to use AI to study human and animal intelligence. She now uses these skills to work on important problems, like improving the transparency of AI in smart home technology, and developing scientific models of the impact of AI on society. Before she became a professor she worked as a professional programmer, first in the financial industry, then in the toy industry researching ways to help children design and build robot intelligence. She is a professor of computer science at the University of Bath, in the United Kingdom.

Nazek El-Atab

Interdisciplinary Engineer. Innovator.

When it comes to science, Nazek El-Atab thinks small is beautiful. Her research at the Masdar Institute of Science and Technology in Abu Dhabi is leading to the development of tiny memory devices that will increase the speed of cell phones, laptops and medical equipment. When she began learning about nanotechnology early in her education, she said it sounded “like magic” and inspired her to pursue a career in research.



Rana El Kaliouby

Human Perception AI Innovator. Diversity Advocate.



“You need diversity in the data, and more important, in the team that’s designing the algorithm” says Rana El Kaliouby. “If you’re a 30-year-old white guy who’s programming this algorithm, you might not think about, ‘Oh, does this data set include a woman wearing a hijab?’”. She is the CEO and co-founder of Affectiva, the category-creating company behind Emotion AI and the pioneer of Human Perception AI. The software she developed to understand all things human has been crucial in transforming human-computer interaction and human-human communication for people with disabilities.

Elena Fersman

Educator. Author. Researcher

Elena Fersman has spent her career studying the way technology impacts business and people. Both her research and her time in front of the classroom are focused on the role of artificial intelligence in the developing world. She has coauthored more than 20 scientific publications. Although she is an expert in her field, she says she still has a lot to learn.



Jane Frankland

Cybersecurity Specialist. Entrepreneur. Writer.



Jane Frankland is working to better the world by training and educating businesses on cybersecurity. She focuses specifically on gender inclusion in science through the IN Security Movement, which she founded to connect, inspire and empower cybersecurity professionals. She believes “a more gender balanced workforce will enable greater security, innovations and all-round happiness.”

Shohini Ghose

Quantum Physicist. Educator. Visionary.



“When I was a little girl in India, I wanted to be a superhero” says Shohini Ghose. “But I couldn’t decide what my superpower would be... until I eventually grew up and I became a quantum physicist.” She is the founding director of the Laurier Centre for Women in Science. She focuses on how the laws of quantum physics can be manipulated to develop novel tasks such as quantum teleportation – a novel method for secure communication.

Angelica Lim

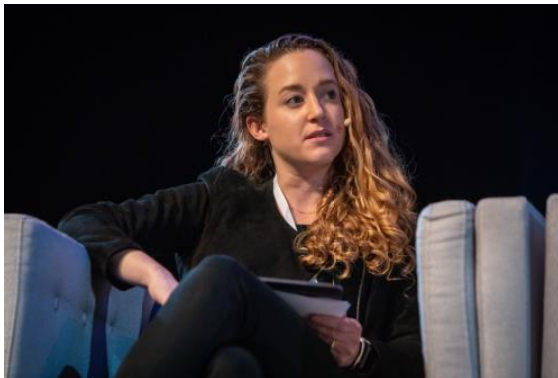
Robotist. Programmer. Innovator.

Ever since Angelica Lim was a child, she imagined robots as compassionate and kind creatures. She used to wonder, “Could a robot have feelings?” Now, she builds robots that have the capacity for social intelligence and empathy through the ROSIE Lab, which she leads. In 2017 Forbes named her one of 20 Leading Women in AI.



Terah Lyons

Champion of inclusive AI. Policy Advisor.



“Unless we proactively intervene, there’s a real danger of us creating a world that none of us really want,” says Terah Lyons, the founding Executive Director of the Partnership on AI. Her NGO is focused on providing a platform for open collaboration between all those involved in and affected by artificial intelligence. She served as a science and technology advisor to the White House under the Obama administration.

Roya Mahboob

Digital Literacy Advocate. Business Leader. Refugee.

“For female tech CEOs anywhere in the world, there are going to be some obstacles and challenges. But in Afghanistan, a place where women are not supposed to even work outside some businesses like handicrafts or agriculture, the challenges are never-ending,” says Roya Mahboob. She took refuge in Iran as a child but returned to Afghanistan in 2003, where she became one of the country’s first female chief executives at age 23. Her work in New York now focuses on unlocking digital literacy for women and children in developing countries. TIME named her one of the 100 Most Influential People in 2016.



Roxanne Varza

Entrepreneurial Facilitator. Editor.



© Pascal-Othlingaus

Roxanne Varza is the director of Paris' Station F, the world's largest start-up incubator that aims to empower young people to develop innovative technologies. Her experience working on similar projects with the French government and Microsoft will be essential to the success of Station F. The Silicon Valley native was also an editor at TechCrunch France and was recently named one of the 30 Most Important Women Under 30 In Tech by Business Insider.

Ariela Vergara-Jaque

Bioinformatics Researcher. Structural Biologist.

Ariela Vergara-Jaque uses sophisticated computational tools to study proteins, which work like tiny machines in the human body to keep us alive. Through computer simulations she can observe the protein structures, see their movements in three dimensions and manipulate them according to various hypothetical scenarios to observe how they might behave. Her ultimate goal is to identify parts of the proteins to be targeted by drugs in order to combat diseases.



Céline Bardet

Jurist. Investigator. Advocate against rape in war.



© Cinétévé

“Sexual violence used as a weapon of war has always been present in conflict, as silent as its victims seem invisible,” says Céline Bardet, who has spent most of her professional career advocating for victims of war. Together with the organization she founded, We Are Not Weapons of War, she developed a secure app to enable the identification of sexual violence survivors, and to facilitate their access to essential services. It also provides a secure system that allows users to transfer documents and evidence, which can then be authenticated and analyzed, to accelerate the justice process and fight impunity.

Elizabeth Chee

Technopreneur. Digital Health Specialist. Philanthropist.

Elizabeth Chee believes patient empowerment is key to sustainable value-based care. Her work is primarily focused on securing true patient consent and facilitating shareable health-related information across the Healthcare ecosystem, and she co-founded the HIT Foundation to tackle this challenge. She calls for transparency in data processing and believes that blockchain could be one of the emerging technologies in securing digital health record access and information exchange.



Sarah-Diane Eck

Entrepreneur in new technologies.



Sarah-Diane Eck is the CEO and founder of Sandblock, a French start-up working on blockchain technologies and cryptography. She is involved in the development of the French entrepreneurial ecosystem as Vice President of France Digitale. She works actively with cryptocommunities to develop encryption techniques used to regulate units of currency. She has a triple Masters in business, engineering and law, and is fuelled by her passion for new technologies and innovation.

Joséphine Goube

Social Entrepreneur. Refugee Advocate. Digital Innovator.

“Mobile phones are a more powerful tool than the technology that helped put humans on the moon. They are a lifeline. They take borders down. Together, we can make them a huge catalyst of inclusion for displaced people in host societies.” Joséphine Goube is the CEO of Techfugees, a non-profit organization that coordinates the international tech community’s response to the needs of refugees, asylum seekers and displaced people. Nominated as one of the top 30 under 30 Social Entrepreneurs by Forbes in 2016, 2017 and 2018, she was honoured as “2017 Digital Woman” of the year by the Margaret Foundation in France.



Pooja Rao

Digital Healthcare Advocate. AI Developer. Neuroscientist.

Pooja Rao is working to advance healthcare diagnostic tools by applying machine and deep learning to x-ray imaging. She co-founded Qure.ai, a company that focuses on AI for radiology. This technology helps screen for abnormal X-rays and provides heatmap indicators that highlight the abnormal areas. Pooja Rao heads the research and development team for this forward-thinking company.



The Restorers - Stacy Owino, Purity Achieng, Ivy Akinyi, Synthia Otieno, Macrine Atieno
Advocates. Feminists. Teenagers.



These 5 Kenyan teens call themselves “The Restorers” because they are working to restore hope to the victims of female genital mutilation. Although the practice became illegal in Kenya in 2011, UNICEF estimates that it still happens to 1 in 5 Kenyan girls. Their app is meant to support the 200 million+ living victims worldwide by connecting them with physical and mental health resources. It also features a panic button that alerts authorities to dangerous situations.