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Women on the Web: Challenges, persistence, and resilience

This special issue is focused on “being a woman on the web.”

We know women face difficulties because of gender discrimination within the technology industry, when on the web, and even just gaining access to the web. On too many occasions women are not accorded the recognition they deserve for the work they do, are too often overlooked for promotion and career development, and still lag in web-based entrepreneurship because of all kinds of discriminatory factors.

For example, women often earn less than their male counterparts for the same work, and for trans, Black, and Latinx women in the U.S. that number is even lower. Gender bias, racism, and transphobia account for who is more likely to be exposed to negative experiences like active harassment in online forums. We also know gender, sexuality, and race play a part in biases in areas such as online lending, advertising, and job applications. Indeed, simply getting access to the web is hard as a result of gender-based discriminatory gating factors. We also know biases exist within academia and that girls and women experience feelings of isolation in

Nova Ahmed

many educational forums in the world of engineering and computing sciences. Baldly, the endemic gender biases that are threaded throughout our societies, which pervade our business practices and the world of technology, are inscribed into the performance of and drive many web-based experiences.

This issue of *XRDS* is about recognizing these issues, but it is also a celebration. These factors do not stop women from being highly successful on the web and in the fields of computing and engineering sciences. While challenges exist, for many being online is liberating, allowing us to look beyond pre-defined boundaries. In

Elizabeth Churchill

this special issue we invited several women we know who have been and are still successful within the world of the web. We want to celebrate their successes as well as raise issues that still need to be addressed in seeking parity of opportunity and experience. The features in this special issue touch on personal stories of womanhood, geography, culture, and decolonialism. Although none of the articles featured address sexuality, race, or being trans head on, there is much to say and much work to be done. We hope these issues will be centered in a future special issue.

So, it is our great pleasure to introduce 10 amazing women who have been

working in various capacities with web technologies and/or in the computing sciences for most of their careers. Some of these women have been formally trained to the highest level within academia and are our leaders in the field of the computing sciences. Our own ACM President, Gabriele Kotsis, played with Barbie dolls growing up so she could make houses for them—redefining society imposed gendered activities in her own terms. It later allowed her to explore design aspects in her career. Lisa Long and Deborah Schultz describe their entrepreneurial endeavors; both have achieved the highest level of executive leadership in the technol-

20.4% of women over the age of 35 remain in junior level tech positions, in contrast to just 5.9% of men over 35, according to a 2019 HackerRank report.

ogy industry. Many of the contributors to this special issue started in different disciplines and moved into the technology world, and many, like Lisa Long, share their personal lessons where going out of their comfort zone, learning from negative experiences, and enjoying social connections were key elements to their growth and successes. Jeni Paay describes her fascination of being connected through the very first Mozilla web browser and how she remains on the lookout for great ideas. Judith Donath shares her experiences of being at the very forefront of the development of the kinds of social technology that are now commonplace. She continues to research and lay out opportunities for growth in positive directions, basing recommendations in an understanding of human communication traits.

Lest we get complacent, however, challenges do still exist for women in the world of web technology. Henriette Cramer and Avriel Epps-Darling share some perspectives on current challenges women in the streaming music industry face, and reflect on how their research in this space has led to a rethinking of how to engage with career and operating in the technology industry. We also hear stories from Shaimaa Lazem, Maryam Mustafa, and Jimena Luna about women who are often digitally disconnected because of their remote locations,

social cultural barriers, or simply for being women.

We both have our own stories to share with you, and hopefully words of encouragement to let you know the fields that fall within the purview of the computing sciences are the best foundation for building careers, giving you all the skills you need to work with others in our own discipline as well as other disciplines to create new ways of being on the web.

Nova: It's me, Nova, writing from Bangladesh. As one of the guest editors, I want to tell you a story of hope. As a Ph.D. student at Georgia Institute of Technology, I played with sensors. When I returned home to Bangladesh, I wanted to use sensors to fight societal problems like sexual harassment. It was a non-traditional path. I am sad to say the problem of sexual harassment still remains,

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but through my work I was able to reach out to many who wanted to change the way things are in many different ways. Here I am now, reaching out to you all, with a group of amazing “women on the web” beside me. I am sure we can make a difference—collectively.

Elizabeth: As someone who started off in experimental psychology, it was not long before I learned computers were absolutely integral to the work I did. From micro-sensors monitoring brain activity to statistics packages, I realized computers were always going to be part of my life and my everyday work practice. It was later when powerful personal computers in our homes and mobile phones came along, and when the internet made software downloading possible, a vast landscape of creative possibilities opened up. I have also directly experienced how much difference an environment makes to building up confidence—or breaking it down. I've experienced negativity, discrimination, and harassment. But all the positive experiences have far outweighed the bad. Connection to information, media, and most importantly to people; arenas for creative exploration; and opportunities for education are just a few reasons why I have continued to work in the world of technology and in understanding how to make the web a better place for all.

To close, we want to say every article in this spe-

cial issue has one common thread: Even when the environment is not inclusive, women persist and succeed. We do so if we work together as women and with our allies who believe in taking their part in addressing inequitable access.

—Nova Ahmed and
Elizabeth Churchill,
Guest Editors

Biographies

Nova Ahmed works with systems, humans, and the work that lies in between to connect humans with computing. She received her Ph.D. from Georgia Institute of Technology [USA] and returned to Bangladesh to serve her home country. She tries to develop solutions to the problems facing Bangladesh that require very special attention. She has a particular interest in involving women and children in computing, and has been working actively in that area in her time dedicated as a volunteer. In her free time, she is busy with her two daughters and fun partner. Ahmed is an Associate Professor at North South University. A founder and EC of National Young Academy Bangladesh, EC of Global Young Academy, Fellow of Sangat, the feminist network in South Asia, and founding board member of Kaan Pete Roi. She is also an active volunteer of the Bangladesh Mathematical Olympiad, Children's Science Congress, and the Missing Daughter's Initiative. She is the Chair of SIGCHI, Dhaka Chapter in Bangladesh.

Elizabeth Churchill has a background in psychology, artificial intelligence, and cognitive science. Drawing on social, computer, engineering, and data sciences she has worked on the creation of innovative end-user applications and services. She has built research teams at Google, eBay, Yahoo, PARC, and FujiXerox. Her current focus is on the design of effective designer and developer tooling. She holds a Ph.D. from the University of Cambridge and honorary doctorates from the University of Sussex and the University of Stockholm. She is a member of the Association for Computer Machinery's [ACM] CHI Academy, is an ACM Fellow, Distinguished Scientist, and an ACM Distinguished Speaker. She served as the ACM's Vice President for two years, from 2018–2020. In 2016 she received a Citris-Banatao Institute Award Athena Award for Women in Technology for her executive leadership. She has been named one of the top women leaders in UX over the last several years.

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