





CLASS ACT
Saujani with
teenagers from a
New York City
chapter of Girls
Who Code.

TECHNOLOGY INNOVATOR

RESHMA SAUJANI

2014

The founder of Girls Who Code is galvanizing a tech industry facing a stark gender imbalance with her ambitious plan to teach one million young women to program by 2020.

BY CHRISTOPHER ROSS PHOTOGRAPHY BY PAMELA HANSON

RESHMA SAUJANI'S motivation to found Girls Who Code, the nation's preeminent nonprofit dedicated to closing the tech gender gap, traces back to her last day of eighth grade. As the daughter of Indian parents who had fled Idi Amin's dictatorship in Uganda for suburban Illinois in the 1970s, she was constantly reminded she was different by the color of her skin and her parents' thick accents. When she went grocery shopping with her family at the local Dominick's, she'd check the racks of key chains personalized with names—*Jennifer, Tom, Charlotte, Michael*—her hopes of finding *Reshma* perpetually dashed. Then, the day before summer vacation started, a classmate called her a *hajji*, a slur against people of Middle Eastern and Indian descent, and she decided to fight back. But when they met after school, she found herself facing off with two girls—one swinging a tennis racket, the other spraying whipped cream—and after being battered and knocked down, Saujani trudged a mile home to her mother, who found her daughter bloody and bedraggled.

But if her tormentors intended to cow her, they had the opposite effect. "It was an identity-awakening moment for me," says Saujani, now 38. When she started high school that fall, she formed a diversity

club to educate her fellow students about other cultures. It was the first step on a path that led to an Ivy League education, into the fields of law and politics and, ultimately, to starting Girls Who Code in 2012. The organization provides intensive education in computer science to high school sophomores and juniors via summer programs in nine cities across the country. Girls learn the nuts and bolts of coding, website and app development, and robotics. They also have the chance to meet with industry leaders like Amazon's Jeff Bezos and Facebook's Sheryl Sandberg. In just two years, Girls Who Code has been explosively successful, winning sponsorship from tech companies including Twitter, Google and GE and expanding from one program in its first year to an estimated 40 in 2015.

The goals of Girls Who Code are not just about leveling the playing field—they are aimed at addressing an urgent concern of the U.S. tech industry. There will be 1.4 million computing jobs in the United States by 2020, and if current patterns continue, college graduates will be able to fill just a third of those positions. And while American women graduate with 57 percent of all bachelor degrees, they make up only 14 percent of computer science graduates. Despite the visibility of Silicon Valley luminaries like Yahoo's Marissa Mayer and Pixar's Danielle Feinberg, women hold

only about a quarter of STEM (Science, Technology, Engineering and Math) jobs.

Saujani and others who study the field's gender disparity have found that the root of the problem often lies in the social pressures of being a teenager. Talk to students in the Girls Who Code program and you'll hear the same stories again and again: walking into a coding class or robotics club only to discover you're the sole girl, or being told that computer science is for boys, that it's too hard.

Saujani tries to counter this trend not only by fostering an inclusive sisterhood, but by imbuing the girls with some of the fighting spirit she showed after her schoolyard scuffle. Her language is often shaded with almost

revolutionary overtones: It's not an organization but a "movement" composed of "foot soldiers" and "true believers." "This is what I try to teach the girls," says Saujani. "There were people who said no to me, who said, 'It's not going to work.' But you have nothing to lose." Her stated aim is to reach one million girls in the next six years.

IN MID-AUGUST in New York City, 20 of Saujani's foot soldiers are working frantically to finish their final projects as graduation looms at the end of the week. In an airy, converted basketball court inside the headquarters of the ad tech giant AppNexus, they gather in knots around computers at long tables, their excited chatter broken by an occasional burst of laughter. For the past few days, mostly collaborating in groups, they've been drawing on the coding skills they've acquired this summer—classes run five days a week, from 9 a.m. to 4 p.m.—to build an original, functional app or website they'll present to their peers, parents, and counselors and executives from host companies at the graduation ceremony. The program's 375 students nationwide are doing the same thing at three other Girls Who Code locations in New York (at Goldman Sachs, AT&T and Barry Diller's InterActiveCorp), at eight locations in California (including Facebook and

Twitter campuses and Intel's center at Stanford) and at spots in Boston, Miami and Seattle (where Microsoft, Google and Amazon host programs).

Alex Kukoff, 16, is putting the finishing touches on an app called Breadwinner that lets you rate and look up the quality of free bread at restaurants like Olive Garden and The Cheesecake Factory. She squints at

the screen as her fingers dash across the keyboard. "I haven't embedded search links yet," she murmurs. At the other end of the room, Franchesca Arcy, 17, Rose Archer, 15, and Clare Lohrmann, 17, are huddled around a laptop, working on an app that uses an algorithm based on the one employed by OkCupid to match voters with local candidates who champion the issues

most important to them. They call it OkPoli. "The idea is to make the political process more user-friendly," says Lohrmann, grinning shyly. On another nearby screen, images of dresses and pants scroll by—a demo for an app, inspired by the movie *Clueless*, that allows users to inventory their wardrobe on their phone.

The students hardly call to mind the stereotype of the coder as an antisocial quant tucked away in a dark basement. After six weeks together, the girls—who hail from all over the country, from Thousand Oaks, California, to Newark, New Jersey—feed off one another's energy and enthusiasm. They pitch their projects with the bright-eyed earnestness of prospecting Silicon Valley entrepreneurs. This pluck is one of the main attributes that Girls Who Code seeks: It wants influencers, young women who will recruit freshmen and start local coding clubs. Saujani knows that in order to effect real change, they'll need to create a cultural groundswell, one that relies on each female coder to convert others to the crusade.

"It's a supply issue. And Girls Who Code is really increasing the pool," says Jack Dorsey, co-founder of Twitter and CEO of mobile-payment company Square, who personally cut a check to Girls Who Code in its first year. "We look for passion and competence for problem solving. The girls in this program definitely have that passion. And within the first two weeks, they're writing programs to control robots."

Others in the industry have begun to take notice and ratchet up their response. In June, after revealing that only 17 percent of its tech employees were women, Google launched Made With Code, a \$50 million initiative partnered with Girls Who Code to teach young women the fundamentals of coding. The web-search giant created a site that connects interested young women with mentors and professionals in fields that involve coding, a national database of coding clubs across the country and more than a dozen coding projects that beginners can try their hand at.

"We need to act early in girls' education if we're going to address the stereotypes about women and minorities in math and science," emails Sheryl

Sandberg, the COO of Facebook and an early supporter of Girls Who Code. "Programs that focus explicitly on getting girls to code are crucial, and Reshma's work through Girls Who Code is doing this by giving more girls role models in the field and the confidence and hands-on experience to excel in STEM. In order to move numbers, we have to increase the numbers going into the funnel."

Saujani herself shied away from number crunching as a kid, although she's since begun teaching herself to code alongside the girls. She was the first in her family to become a lawyer—both her parents were trained as engineers, and her sister is a doctor. But she believes the experience of this avoidance has helped her to understand the mind-set of girls who might have a talent for or interest in computer science but end up getting pushed away. "I was that girl who was terrified of math and science growing up," she says. "It made me feel inadequate in every single job."

After graduating from the University of Illinois at Urbana-Champaign with a double major in political science and speech communications, Saujani burnished her academic record with advanced degrees from Harvard's John F. Kennedy School of Government and Yale Law. While working as a counsel for Wall Street firms in the mid-2000s, she began raising money for Democratic candidates, and in 2010, she challenged New York's Carolyn Maloney for a House seat in the Democratic primary. Her campaign was handsomely funded and tech-savvy, employing Square and the online organizational service NationBuilder and counting Dorsey and Facebook co-founder Chris Hughes as endorsers. She ended up losing the race, but once again, the setback



NEW SCHOOL The young coders were all smiles at their graduation, held in AT&T's Tribeca offices.



SELF MADE "The thing that Girls Who Code teaches most is confidence," says donor Jack Dorsey.



APP-Y TOGETHER The team behind Kindred, a dashboard that collates social media streams.

contained the seeds of her next leap forward. While campaigning, she had spent plenty of time in schools and was struck by the lack of computer science education, especially for teenage girls. "When I lost, I felt like I let a lot of people down," says Saujani, who married mobile entrepreneur Nihal Mehta in 2012. "I said, 'Now I have an opportunity to be an advocate for an issue which has no advocacy.' And that's how Girls Who Code came to me."

Applying the influential social network and organizational acumen she had acquired as a political candidate, Saujani threw herself into getting the nonprofit off the ground. She wrote a business plan, created a team to start forming a curriculum, met with educators and principals and began buttering up potential funders. For the first year, "it was



SAY “JAVASCRIPT”
 Saujani’s organization
 runs 19 summer camps
 across the country.

really bootstrapped,” she says. “I had no money.” She financed the effort on her personal credit cards and called in favors to use conference rooms at a friend’s company. When a big piece of press she’d lined up fell through, she was crestfallen—in spite of all her work, it looked as though the project would barely alert the public to the issue. All they had was a promise from Twitter to publish a blog post on it on June 26, 2012. But as soon as the post went up, the news of Girls Who Code went viral. “At six o’clock, Sheryl Sandberg emailed me—I don’t even know how she got my email address—being like, ‘This is awesome; how can I help you?’” she recalls. “I was going to bed that night, and my husband said, ‘How can you sleep? We’re trending in Korea!’” Between graduates of the program and the grass-roots code clubs they’ve created, Saujani estimates Girls Who Code has already helped introduce nearly 4,000 girls to coding. Ninety-five percent of the Girls Who Code participants plan to major or minor in computer science. “Year by year, we’re actually moving the numbers really quickly,” says Saujani.

OVER 100 PEOPLE are expected at the August 21 graduation ceremony for the 20 girls stationed at the Girls Who Code location in AT&T’s Tribeca office. An hour before the crowd is set to arrive, the girls are nervous

and excited as they set up their project boards and practice their speeches. One girl squeals as she accidentally knocks her board over. “I can’t find my JavaScript!” another shouts as she races down a hall. Yet for the most part, the graduates, smartly attired in dresses and heels, seem poised on the brink of adulthood. One girl approaches Saujani and asks if they can take a selfie together later. In the words of Dorsey: “The thing that Girls Who Code teaches most is confidence.”

At times, the Girls Who Code program mentors and directors appear to be at the mercy of the young go-getters they’ve created, many of whom already have LinkedIn accounts. As Marissa Shorenstein, president of AT&T’s New York office, recounts in her speech, after she shared her email address with the girls, she found herself inundated with requests for references and résumé reviews. Saujani laughs. “We taught them that,” she says. “That’s how the boys are. We teach them how to hustle.”

At the end of the ceremony, the girls take the stage in groups to pitch their six different projects. Their presentations are well rehearsed: The young coders

trade off portions of the speech and fluently use words like “monetize” and “incentivize.” One project provides a dashboard to collate all your social media feeds while another helps users navigate disparities in clothing sizes at different retail chains.

Afterward, Tenzin Ukyab, 15, a student at the Bronx High School of Science, pulls her father over to look at her group’s project, Alphabuddy. Ukyab’s family is Tibetan, and she wanted to create an iPad app that would teach her twin baby sisters the Tibetan alphabet; the final product also instructs users in the Hebrew and English alphabets. With his hands in his pockets, her father listens patiently as his daughter reels off a rapid-fire explanation

of how they coded the program. His face crinkles into a smile as her finger traces a guided pattern for the Tibetan letter *kha* onto the iPad interface, triggering the device to play a sound clip of Ukyab pronouncing the letter. “Learning code is even more powerful than learning a foreign language,” Ukyab says, looking up from the screen. “With code, you can change the world.” ●

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—SHERYL SANDBERG

