TECH'S GENDER PROBLEM
CMG Talks Women, Education and Opportunity with Two Tech Leaders

Anoush Najarian, software engineering manager at MathWorks and Board Director of Computer Measurement Group (CMG), isn't surprised to find herself working in tech. Growing up with parents involved in STEM fields (her dad built computers as an electrical engineer, while her mom was among the first students of mathematical linguistics) influenced her interest in computer science. She went on to win the National Computer Science Olympiad in her home country of Armenia, and that clinched the deal. "Those were probably my first steps," says Najarian, of the foundational experiences that led her to find a career in tech. "My parents and the encouragement of my teachers to compete in math and science contests set me on the path that led me here."

For some though, the realization that they belong in tech doesn't happen until adulthood. Such was the case for Nalini Elkins, CEO and Founder of Inside Products, a firm dedicated to identifying and troubleshooting computer network problems. "My degree is actually in psychology because when I was going to school in the late 70s, people really didn't have computer science majors," says Elkins. That didn't stop her from taking every computer course her small liberal arts college in Massachusetts offered at the time, which eventually helped her discover her passion for computers. "I found out how networks work, that one computer talks to others over a telephone line, and I couldn't get over it," she said. "I don't know why that really astounded me, but I just fell in love with the process and concept of network, and have really found myself never falling out."

Najarian and Elkins are stand-outs; not just because of their continued professional success in tech, but because they've made careers in a field that is notoriously male-dominated, even today.

The Constant of Inequity

Looking around any meeting of a tech-centric department or company, there's a common observation: men make up the majority of tech workers. You might think that's changing, especially with more women taking highly visible roles at the helm of tech companies and the advent of organizations like GirlsWhoCode, Women in Technology and Geek Girls Camp, all dedicated to increasing girls' and women's involvement in science and technology fields. Consider this: women make up only 18 percent of today's computer science field, compared with 37 percent 30 years ago, despite women representing 50 percent of the total U.S. workforce. Najarian and Elkins agree, fostering an early interest in STEM and empowering women to succeed in a demanding industry are both key to ensuring the continued involvement of women in tech.

Q: *What has inspired you and had an* **impact** *on your career?*

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Start at the Beginning

According to GirlsWhoCode, approximately 74 percent of school-age girls report being interested in STEM fields and computer science. A startling number, considering so few actually go on to pursue education and careers in education. What's stopping girls from continuing in the STEM fields they were so interested in? A better question, one that's easier to answer, might actually be, how can we encourage them to stay?

"It really starts much younger," says Elkins, who notes that the social stigma attached with being fascinated by computers can be a deterrent for some girls. "I think a lot of younger girls start to see computer science as a thing for geeks and say, 'That's not for me.' Having a role model to look up to can show them what we all know now: women are prominent in complex fields; it's not that women can't do science."

The Power of Community

In any industry, collaboration and mentorship prove to be powerful tools to ensuring the continued success of younger workers. Starting out as young women in a growing industry, both Elkins and Najarian credit experiences working with others for helping them get on the path to where they are today.

One of Najarian's most profound learning experiences came in 2002 during a volunteer project teaching children in Spitak, Armenia, the epicenter of a devastating earthquake in 1988.

She learned some key lessons that shaped her career's future. "The value of time, putting every waking moment to use; the value of friendship, seeing friends come from the U.S., France and Russia to visit and collaborate with us in those mountains," she says. While there, she realized her passion for hardware, operating systems and drivers after teaching desktop publishing, video editing and game development. The support she gave and received while volunteering gave her the perspective and drive to forge ahead with a career in tech.

While Najarian found inspiration as the teacher, Elkins found hers as the student. Elkins was

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learning the ropes of the computer department as a new hire at an insurance company in Indianapolis, Indiana. "I was right out of school and didn't really know what I was doing, but I was surrounded by all of these experienced people," she says. "The other people in the department would come in on Saturdays to teach me all these different things related to networks and the computer system. They'd show me how

to read system dumps. Many Saturdays for six months, that's what we did."

Supporting girls' interest in tech fields and guiding them along the way are important parts of ensuring an equitable future for women in tech.

One key way women are finding support is through non-profits and professional associations that provide community and support for people working in the industry. While some are dedicated to education and generating awareness of the industry, organizations like CMG focus on the dual task of promoting education and development while also helping members build networks and make lasting connections that help them navigate their career.

Be Brave

While there's more acceptance of women in traditionally male-dominated fields today than in the past, the novelty of women excelling in tech is still alive and well, as described by Elkins in a defining moment in her career. "I had created this product and was doing a demo at a show. A man approached me with an attitude of 'Oh, that's cute, you're here to show off this product,' assuming that I was a marketing rep or something," she says with a laugh. "I said, 'Why do you think I'm standing here? I created it!'" IBM later OEMed the product, giving Elkins the validation, and industry recognition, that empowered her to continue with her tech ventures.

Najarian has faced her own challenges in gaining colleagues' respect, but deems it all part

of the experiences that led her to success. "It is discouraging to face occasional prejudice, but it sure builds character!" she says.

Elkins stresses that gender has less to do with success than the quality and integrity of your work. "I'm not going to dismiss that discrimination may happen," she says. "However, my experience has been if you do good work and provide excellent service, people will treat you fairly. Have confidence in your ability and the work you do."

Making Choices

Perhaps one of the more delicate topics in discussing women in any career is the choice that so many are faced with when it comes to balancing career and home life. "It's a very nuanced and complex issue," says Elkins, a mother of a 21-year-old daughter. When her daughter was born, Elkins was co-founder, CTO and chief developer of a start-up, and made the decision to work from home until her daughter went to college. "Might I have advanced more quickly in my career if I had made different choices? Maybe, but I have no regrets," she says.

This illustrates an important point that can't be ignored in the fast-paced tech industry: Women who want to aggressively push to the top of the ranks often feel pressure to make a career- and life-defining choice at critical personal and professional times.

Part of making tech more women-friendly, says Elkins, is supporting workers through those choices and accommodating the changing needs of professionals. Fortunately, the tech industry is often forward-thinking and embraces change. Case in point: tech companies statistically offer the most paid parental leave, with some companies offering up

to one year of paid leave. "Tech in particular seems to be friendlier to this than other industries struggling with the same issue," says Elkins. "But there is still work to do."

The Female Perspective

Women bring value to tech beyond pure ability. They aren't just 50 percent of the global population, they're also often key decision makers on major purchases. "Women drive the economy, so employing more of them broadens our understanding of the customer and user base," says Najarian. "Women in this industry are building businesses, buying developer tools and designing products."

Beyond their buying power, women are an essential part of the diversity equation tech companies need to better serve their customers. "The things we're doing in our industry demand diverse innovation and perspective," says Elkins. That diversity enhances not only team performance, but also aids in the development of products more relevant to the diverse audiences they serve. "Diverse teams are better at designing products that serve a wider range of customers because they're better able to consider the customers' perspectives," says Najarian.

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NALINI ELKINS
CEO and Founder, Inside Products, Inc.

EXPERIENCE

1979 — 1985
Network Engineer
Chevron Information Technology
San Ramon, California

1981 — 1983
Peace Corps Volunteer
Togo, West Africa

1990 — 2000
Co-Founder,
Chief Technical Officer
AES
San Francisco, California

2001 — PRESENT
CEO and Founder
Inside Products, Inc.
Carmel Valley, California

In Computer Measurement

When it comes to the niche industry of computer measurement, Elkins has a theory: "I think women tend to be very pattern-oriented," she says, a skill that serves as a core element of the field. Beyond that, women often possess the patience and intuition required to troubleshoot the complex issues that stump others. "Measurement requires an intuitive analysis of systems. Teams may have been troubleshooting an issue for months before they might call us in. I suspect that women would bring a lot to computer measurement teams," says Elkins.

An advantage is the number of women who have paved the way in the field. "There are really inspiring women giants in our field on whose shoulders to stand," says Najarian. "Connie Smith inspired and supported many women in engineering. At CMG, we have a number of women of high standing." Specifically, she cites Denise Kalm, Claire Cates, Amy Spellman and Nell Owens, members of CMG's Board of Directors and influencers in the computer measurement industry. In fact, half of the current CMG board is made up of women.

The key, says Elkins, is making sure that recent graduates just breaking into tech know that computer measurement exists. "All of the news about healthcare.gov, people didn't realize they were having a capacity and performance conversation," says Elkins. "We need to make sure that young women know that this field exists; they might really excel at this if they know it's an option."

The Road Ahead

While there is a lot of conversation centering around the gender issue in tech, it has so far yielded few results. According to GirlsWhoCode,

1.4 million computer science jobs will be available by 2020, but only 3 percent of them will be filled by women. "We need to get to a place where we can say that we have been equitable in the way we teach our students," says Najarian of the need to ensure that STEM education is reaching girls. "I have a daughter who is 11 today and loves math, circuits and robots. Will our work bring change in time for her to see equality?"

There are, however, a few success stories, as evidenced by Carnegie Mellon's 2014 report that their first-year computer science program majors were 40 percent women. The

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university even supports Women@SCS, an organization of the women in the school's computer science program with a mission "to create, encourage and support academic, social and professional opportunities for women in computer science and to promote the breadth of the field and its diverse community."

The effort goes beyond school, with a need to ensure equity in hiring, opportunity, promotions and pay for women in tech. "What is our industry's equivalent of auditions behind a curtain that lead to a close-to-equal representation by women and men?" asks Najarian. "We will know we are successful when our companies and teams look like a representation of our population."

ANOUSH NAJARIAN
Software Engineering Manager at MathWorks

EXPERIENCE

SEPTEMBER 1995 — JULY 2001
Teaching Assistant and Research Assistant
University of Illinois at Urbana-Champaign

JULY 2001 — AUGUST 2002
Software Engineer
Kernel Group; Performance Analyst Stratus Technologies
Maynard, Massachusetts

SEPTEMBER 2002 — JUNE 2003
Guest Lecturer in Computer Networks
Yerevan State University
Yerevan, Armenia

AUGUST 2002 — JULY 2003
Volunteer, Founder
SpiTux Project
Spitak, Armenia

AUGUST 2004 — MARCH 2008
Software Architect, Algorithm Authoring
Houghton Mifflin
New York, New York

MARCH 2008 — PRESENT
Senior Team Lead, MATLAB Performance Team
MathWorks
Natick, Massachusetts