Women of STEM: Meet the Dynamic Minds of Tomorrow, Today

One on One: President Obama’s Top Domestic Policy Advisor Melody Barnes Talks to WOC
ALICIA ABELLA, PH.D.
Executive Director, Innovative Services Research
AT&T Labs

MARY FERNÁNDEZ, PH.D.
Executive Director of Technical Research
AT&T Labs
We encounter challenges every day, but what do you do when life throws you a curve? Do you rise to meet the challenge and find a workable solution, or just wish the problem would go away? In a frank and open conversation, AT&T engineers Alicia Abella, Mary Fernández, and Valerie Torres talk about some of the greatest challenges they have faced, the biggest obstacles they have overcome – and some that they still struggle with today. From start to finish, their voices provide a snapshot of the difficulties of battling through personal challenges while embracing professional dreams. Each of the three women presents us with an opportunity to think about our personal and professional challenges and how we overcame them.
There is sharp contrast between the affluent world Valerie Torres, Ph.D. works in and the South Bronx where she grew up. The gap between the Bronx, one of the poorest counties in the United States, and corporate America, has made Dr. Torres acutely aware of just how much it takes to bridge it. With the support of her mother and her teachers, she conquered technological and educational challenges, which often impact the progress of disadvantaged minorities.

Today, commuting via public transportation from the Bronx to the AT&T Labs in Florham Park, she has been able to observe families, children, adolescents and young adults on their journeys to work, school, and play. That heightened social awareness has not only shaped her study and professional choices, but also guided her community involvement.

In 1998 she received a scholarship from Fordham University to pursue a master’s degree in religious education to better serve those living in “poorer” communities. She is the author of Familias en la Lucha [Families in the Struggle]: The Religious Educational Journey of Hispanic Families in New York City. Dr. Torres also pursued a Ph.D. from the Graduate School of Religion and Religious Education at Fordham University. She received a bachelor’s degree in mathematics with a computer science concentration from Fordham University, and a master’s degree in computer science from the City University of New York.

Says Dr. Torres, “For me, there hasn’t been one greatest challenge. Rather, I have had many challenges, which I see as opportunities to learn and grow. I was born and raised in the South Bronx, in a single-parent household, at a time when my neighborhood was burning down. Going to college was never an option – it was a given. An academic education was everything. As a child I had to overcome many physical challenges. It took me years to figure ways to go down the stairs, jump rope, ride a bike. But I was good at math, so I figured why not pursue such a degree. Even when people around me, including a counselor, thought that math would be too hard, I decided to pursue a degree in mathematics and computer science at Fordham University.

“When I was offered a summer job at AT&T I immediately said ‘Yes’ even though I did not know how to commute to New Jersey. When I was offered the opportunity to pursue a master’s degree and then a doctorate in religious education I said, ‘Yes’ even though it took me a long time to achieve those two dreams. With my mother’s support, teachers’ guidance, and seeing my AT&T colleagues pursue their research with such commitment and passion, I found the courage and strength to continue. These days my major challenge is bridging the academic gap, especially as it pertains to the Latino community. In fact, I think it is my greatest challenge today, and...”
Following completion of a Ph.D. in computer science from Columbia University, Dr. Alicia Abella joined AT&T Bell Labs, where she began work on natural language understanding and dialog management. As the executive director of the Innovative Services Research Lab at AT&T Labs, Dr. Abella manages a group of researchers specializing in data mining, user interfaces, IPTV, mobile services, SIP/ VoIP technology, and environmental sustainability. She is also an advocate of fostering the development of minorities and women in science and engineering.

As executive vice president for Young Science Achievers, an organization she has been actively involved in for eight years, she strives to build interest and excitement in science and engineering among girls and minority students in high school through mentoring and promotion of scientific achievement.

She also chairs the AT&T Labs Fellowship Program and helps to encourage, advise and evaluate candidates for a graduate scholarship from AT&T targeted at women and minorities.

Dr. Abella has been an active participant in the program since she joined AT&T 15 years ago. In 2008, she became a member of the elite group of AT&T Science and Technology Medal award winners, and received the Hispanic Engineers National Achievement Award for Outstanding Technical Achievement. Last year, Dr. Abella was recognized by the Congressional Hispanic Caucus Institute for her contributions in the area of green technology. This recognition was bestowed at the CHCI Annual Awards Conference attended by President Obama and Supreme Court Justice Sonia Sotomayor.

“I have often been asked [about] the biggest challenge I have faced as a woman in a male-dominated industry,” says Dr. Abella. “Or similarly, a challenge I have had to face as a Hispanic in an environment where there are few Hispanics or underrepresented minorities. The truth is I have not had one greatest challenge. I view my life as a continuous challenge. It’s like having to push a boulder up a mountain.

“I pushed the boulder up the mountain in high school to attain my place as a contender for valedictorian. I pushed the boulder up the mountain to graduate from college with a bachelor’s degree in computer science. I pushed the boulder up the mountain to achieve my Ph.D. from an Ivy League University. I pushed the boulder to become the first minority woman executive director at AT&T Labs Research. And I am still pushing the boulder up the mountain. There are people who have had to do that. For me the real challenge is to not lose the determination and strength necessary to take the next step up the mountain.”
Mary Fernández received her bachelor’s and master’s degrees in computer science from Brown University and a Ph.D. in computer science from Princeton University. Her personal research sits at the juncture of database systems and programming languages, focusing on domain-specific languages for data management in centralized and distributed environments. Dr. Fernández has published more than 40 articles in scientific conferences and journals on databases, programming languages, and the Web. She is co-editor of several World Wide Web Consortium (W3C) recommendations on XML technologies that have become industry standards.

“The greatest challenge in my life was growing up in a single-parent home,” Dr. Fernández says. “My parents were separated and subsequently divorced in the 1960s, when it was still very rare and a taboo to be divorced (especially for Catholics). Not having two parents at home was a challenge financially and emotionally, and that forced me to grow up quickly. The upside was that I knew from an early age I had to provide for myself. And if I wanted to live comfortably, I had better get a good education, find a career in a growth area and be successful at it. Another upside of those early challenges was that I started working in my teens. At the time, this did not seem like a plus, but going to work young taught me so much about all the basic skills required in the workplace: Show up on time, be prepared, go the extra mile, respect everyone, be flexible, deliver on time. The result is that I’ve never been unemployed, unless by choice, in the past 30 years. When I tell that to kids in lectures, it gets their attention.”

Dr. Fernández is on the board of directors of the Computing Research Association and on the board of directors of MentorNet, an e-mentoring program for students in STEM fields. She has served as secretary/treasurer of ACM SIGMOD, an organization of database researchers, and as an associate editor of ACM Transactions on Database Systems.