**UT DALLAS**

# CSI
## Cyber Security Research and Education Institute
Erik Jonsson School of Engineering and Computer Science at The University of Texas at Dallas

## *Thuraisingham recognized by the SC Magazine for her nearly twenty years of Advocacy for Women in Cyber Security and Computing*

Dr. Bhavani Thuraisingham, the Louis Beecherl Jr. Distinguished Professor of Computer Science and the Executive Director of the Cyber Security Research and Education Institute (CSI) at The University of Texas at Dallas (UT Dallas) was honored by the July 2017 issue of the SC Magazine as one of the leading four Women in Academia in IT Security. Thuraisingham received this distinction not only for her research contributions and technical awards but also for being a strong advocate for Women in Cyber Security and Computing.



*Dr. Bhavani Thuraisingham*

Thuraisingham's advocacy for Women in Computing started around August 1997 soon after she received her first major technical award, the IEEE Computer Society's prestigious Technical Achievement Award, for her research in secure distributed data management. She noted that she was the first woman to receive this honor since it was first awarded in 1985 to Stanford University Professor Edward McCluskey. Therefore, she decided to motivate and encourage women in computing so that they can achieve their full potential. Since then around 10 highly qualified women have received this prestigious award over the past 20 years, many due to the efforts of Thuraisingham to get them nominated.

Since then, Thuraisingham has been a passionate advocate for women in computing by organizing special conferences and workshops as well as giving motivational addresses. During the late 1990s, while working at the MITRE Corporation, she gave talks at various events including those hosted by Women in Technology International (WITI) as well as to female students including those at Smith College in data mining. In addition, while she was a department head during that time she recruited and mentored qualified women in data management. She also made every effort to include women in the work on her projects in both cyber security and data management over the years and has published joint papers with them.

When she joined NSF in 2001 as an IPA for three years, she visited EPSCoR states (Established Program to Stimulate Competitive Research) such as Arkansas, Oklahoma and Louisiana, some multiple times, to motivate the faculty, especially women, to apply for NSF grants and she gave them several suggestions to write successful proposals. She also supported the Women in Cyber Security panels organized by the Secure Knowledge Management Workshops hosted by SUNY Buffalo. In addition, she gave featured addresses and participated in panels for early career scientists at events such as the conferences and workshops hosted by SWE (Society for Women Engineers) as well as CRA-W.

While she had accomplished a great deal in supporting women since 1997, it was only at UT Dallas that she had the opportunity to influence women's education and research by recruiting and subsequently graduating several female PhD students. Out of the 13 students she has graduated to

date since 2008, five are women and one is of African American origin. In addition, two of her current four PhD students are women. She has also introduced several minority students including those from the Hispanic and African American communities to her cyber security team at UTD, and some of them have graduated with a PhD in Computer Science since then. Her female and minority community students as well as those of her team have obtained positions in academia as well as in companies such as IBM TJ Watson Research Center, AT&T, Blue Cross Blue Shield, Intel and eBay. While advising and mentoring students, she has also continued to give talks at the university and DFW chapters of SWE as well as at DFW ATW (Alliance of Technology and Women) events.

In 2015 Thuraisingham kicked off the Grace lecture series at UT Dallas by delivering the inaugural lecture discussing how she balanced her education and career with family life and subsequently developed a career starting in industry followed by government and finally in academia. She also served as a CRA-W distinguished lecturer during that time. In addition, she gave a featured address at the London Hopper conference (honoring Adm. Grace Hopper) organized by the British Computer Society. She then started supporting Prof. Ambareen Siraj of Tennessee Tech on the Women in Cyber Security (WiCyS) conference series and hosted the event in Dallas in 2016 which had around 800 participants. Subsequently she worked with her colleague Dr. Janell Straach at UT Dallas to establish the Center for Engaging Women in Cyber Security as part of the CSI. Dr. Straach, who directs this center, is now a permanent co-chair of the WiCyS conference. Thuraisingham and Straach have also worked as a team to recruit female students into UT Dallas' NSF SFS (Scholarship for Service) program in cyber security. Thuraisingham also serves as a reviewer for the SWSIS (Scholarship for Women Studying Information Security) program since 2015 that offers scholarships to female students to support their education in cyber security.



*Some members from the UT Dallas team at the Women in Cyber Security Conference (WiCyS) in Tucson, AZ on March 31, 2017*

After ensuring that UT Dallas was making an impact on recruiting and graduating women in cyber security as well as motivating women in the field through WiCyS events, she then turned her attention to two other highly lucrative areas in computing and they are data science and services computing (which includes web services and cloud computing). She felt that both areas lacked female participation and therefore established workshops in these areas for women. In April 2017 she worked with Ms. Christine Kirkpatrick from UCSD Super Computing Center to establish the Inaugural Women in Data Science and Engineering workshop as part of ICDE in San Diego and in June 2017 she worked with Prof. Jia Zhang from CMU Silicon Valley to host the Women in Services Computing Workshop as part of the Services Computing Federation in Honolulu. Both

events were extremely successful in bringing women together and Thuraisingham says that she hopes to continue with her efforts in these areas. Thuraisingham says that since her own research is at the intersection of cyber security, data science and services computing, she is in a strong position to ensure that younger women are given the right advice and opportunities to pursue careers in these lucrative fields.



*Some participants at the Women in Data Science and Engineering Workshop co-located with the IEEE Data Engineering Conference in San Diego, CA on April 22, 2017*

Many of her peers and colleague have stated that Thuraisingham has been a strong role model for so many women over the past 20 years. "I did my MS in Computer Science with Dr. Bhavani in Biometrics and then went on to work for Texas Instruments" says Dr. Parveen Pallabi. "Dr. Bhavani persisted and motivated me to pursue a PhD which I eventually did on integrating Data Science and Cyber Security. I am now reaping the benefits" added Dr. Pallabi who is now a Principal Data Science Engineer with AT&T. "Bhavani has been a role model for me since I was a PhD student in the 1990s" says Dr. Ling Liu, a Professor of Computer Science at Georgia Tech. "Not only is Bhavani an outstanding researcher and has been an inspiration for women in cyber security, data science and services computing, she also debunks the myth that one has to be a nerd to have a highly successful career in Computer Science." added Dr. Liu. "Bhavani has been my mentor since I was a graduate student at the University of Milan" says Dr. Barbara Carminati, an associate professor of Computer Science at the University of Insubria, Italy. "Bhavani has been there to support and advise me as well as introduce me to key people throughout my career" added Dr. Carminati.

Thuraisingham's advocacy for women in cyber security has not gone unnoticed by the cyber security community. In addition to being honored by the SC Magazine as one of the leading four women in IT Security, she was also named as one of the leading five women shaping the future of cyber security in 2016 by Careersincybersecurity.com. https://careersincybersecurity.com/cyber-security-leading-women/ Thuraisingham says that "for a woman to be a successful role model in computing, she has to have excellent technical credentials in addition to being an advocate for the advancement of women." Since Thuraisingham received the first major technical award in 1997, she has received several prestigious awards from organizations such as IEEE and ACM. These include the 2010 ACM SIGSAC Outstanding Contributions Award (first woman), 2017 Inaugural IEEE Computer Society Services Computing Technical Committee's Research Innovation Award, the 2017 Inaugural ACM CODASPY Research Award (for lasting research), and the SDPS transformative Achievement Gold Medal (first woman). She is a 2003 Fellow of both the IEEE and AAAS, a 2005 Fellow of the British Computer Society, and was named by Silicon India as one of seven leading technology innovators of South Asian origin (and the only woman) in 2002.

Thuraisingham says that she is proud of the Career Communication Inc.'s Woman of Color Research Leadership Award that she received in 2001. She was so impressed by the great achievements of so many women of color that she observed during the award ceremony in Atlanta, GA in October 2001.

Thuraisingham says that she would not have had the career she has now if not for the support of several women who have come before her as well as her peers who have supported her throughout her career. But her most important supporter was her mother. "When I was growing up my mother always told me - you are the best and you can do anything if you put your mind to it and work hard.



*Some participants at the Women in Services Computing Workshop co-located with IEEE Services Computing Federation in Honolulu, HI on June 26, 2017.*

Also even during the times when I did not get good grades she would say – clever girl, work hard and you will do better next time. That gave me enormous confidence and the strength and motivation to pursue my undergraduate education in Mathematics and Physics and then my graduate education in Theoretical Computer Science" Thuraisingham says. She believes that we owe it to the younger women to support them, motivate them, and help them overcome the challenges that they may face in advancing their careers in computing. She is also very thankful to the UT Dallas Computer Science Department, especially the department head Prof. Gopal Gupta, for providing her with the opportunities to support women in cyber security and computing. She says she also owes a lot to her team at the UT Dallas Cyber Security Institute. "Behind every successful woman is a strong and supportive team" says Thuraisingham. Most of all, she is very grateful to the National Science Foundation, especially Dr. Victor Piotrowski at NSF, for supporting the team's work on WiCyS and cyber security education.

Details of the SC Magazine Articles can be found at:

https://www.scmagazine.com/priming-the-pipeline-education/article/668919/ and

https://www.scmagazine.com/women-in-it-security-academics-and-voting/article/669039/