

Dr. Bhavani Thuraisingham's Answers to the D CEO (part of D Magazine) Dallas 500 Questions – Named one of the 500 most Influential Business Leaders in North Texas in 2022

Name, Title, and Company

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Colombo, Sri-Lanka

1. What piece of advice has had the greatest impact on your career?

I was fortunate to work with Prof. Marian Pour-El at the University of Minnesota in the early 1980s. At that time I was in my mid-20s struggling to cope between taking care of my toddler son and my work. Marian had a similar experience she said some 25 year ago. She is the person who stressed that I can be a mother and a career woman and for that I need to build a strong support system. This is what she did. I still follow her advice and give the same advice to my son as he is now a father. Other than Marion's advice, I would say my mentor Henry Bayard at the MITRE Corporation always said "You can do it" when I was not sure whether to take on challenges. That was in the early 1990s when I was in my mid-30s. I have followed his advice and have taken on challenges since then and my career has gone from strength to strength. I have built a network of women professionals and we support each other in our careers. I am also a strong mentor to junior researchers. On a personal level my mother has been my greatest inspiration. She always encouraged and motivated me regardless of whether I was first in class or tenth in class. I would also like to add that my mother advised me not to worry about matters outside of my control and to take advantage of all the career opportunities in front of me.

2. What have been some company or organization highlights in the past year or so?

I head the Cyber Security Institute and also work a lot in AI and Data Science. The most significant success for our Institute is the members, especially the junior faculty, getting prestigious awards and thriving in their careers. Another success is our students getting top jobs in companies such as Facebook, Amazon, Google, Apple, Microsoft and IBM, among others. We have also been successful in recruiting female and underrepresented minority students into our cyber security program due to the teamwork of all the members. We worked on some challenging research problems such as applying Artificial Intelligence for Malware Analysis and handling cyber-attacks on the Artificial Intelligence systems. We have made quite a name for ourselves in this area over the past two years. We also transfer the technology to commercial products by having start-ups as, obtaining patents, as well as working with companies. For me personally getting into the D CEO's Dallas 500 list last year was a highlight of my career. Also, the success of the members of my institute has been my biggest achievement.

3. What is the biggest challenge facing cybersecurity defenders, and how have you seen demand for your company's services evolve?

We have numerous challenges and we are trying our best to provide effective defenses to the security violations. However, one problem is extremely difficult to solve and that is ransomware. Most of the cyber security researchers and practitioners are trying their best to solve this problem. The point is, the adversary gets into the system and then it encrypts all the data and files and demands a ransom in order to give us the key to decrypt. The adversary is using strong encryption that we would typically use to encrypt our data to ensure confidentiality. These encryption schemes are impossible to break at present (e.g., AES 256). Therefore what we are doing now is develop defenses to prevent the adversary from entering our system or network. This also means practicing proper cyber hygiene such as making backups of our data and processes. Perhaps in the future with the development of quantum computing we may be able to carry out decryption but then it works both ways. An adversary will also be able to decrypt our encrypted data and as a result we will lose confidentiality. I believe that this is going to be the biggest challenges for many years to come. Members of our cyber security team have expanded the courses and research to include such challenging problems and have appeared on DFW television frequently during this past year to explain the various concepts, especially ransomware, to the general public.

4. What are some of your favorite destinations/ places to visit?

I have done extensive travel starting around 1995 until early 2020 (before the COVID-19 crisis) to give keynote addresses and other talks at major conferences around the world. Every place is special. But two cities that I really enjoyed visiting are Auckland, New Zealand and Nice, France. It's hard to explain why – maybe it's because the cities were surrounded by water and had a calming effect on me. But if you ask me the most special destination I would have to say Cape Town, South Africa in December 1999 to attend the conference. I was so inspired visiting Robben Island seeing Nelson Mandela's prison cell. That's when I felt very strongly that I have to do more for women and under-represented groups in Computer Science.

5. As you enter your office, what would you choose to be your walk-up/theme song, and why?

Since I took classical piano for 10 years and also played the violin for two years when I was growing up in Sri-Lanka attending a boarding school run by Irish nuns, I find classical music very relaxing. But it's something I listen to before I get to bed. When I walk into my office or before I start work at home (during the pandemic), I want to become alive and that means listen to lively music. I enjoy the works of a variety of artists and my favorite song/tune varies from time to time. At present I really love to listen to the tune "Man of Mystery" by the Shadows. I get the urge to jump up from my chair and work out when listen to it. So that's what I would like to hear when I walk into my office as it will cheer me up. Another song I really like is "I saw her standing there" by the Beatles. I have been a fan of the Beatles since I was 9 years old.

6. If you could drive any car for a day, what would it be and why?

I have always driven less expensive cars like the Chevy Impala and Kia as I don't like spending money on cars as long as it takes me from A to B safely. But my dream car would be James Bond's Aston Martin. I have watched all the Bond movies since I was around 10 and fell in love with the car. The past several years I travelled to England quite often as I have a Senior Research Fellow position at Kings College, University of London. I go shopping at Selfridges (mostly window shopping) while in London. On the way I pass a luxury car dealership with very

expensive cars including Aston Martins displayed in the showcase. Just looking at them is a treat for me. But I cannot afford such a car and even if I could in the future I don't think I would buy one.

7. Do you have a second home? If so, where is it and why did you choose that location?

Before I moved to Dallas in Fall 2004 after a three year stint working for the National Science Foundation in Washington DC on assignment, my home was in Boston. My husband was at MIT for many years and I worked for the MITRE Corporation, a federal research center. My husband's home is still Boston and we were commuting until February 2020. Fortunately my husband came to Dallas in late February 2020 and has stayed on due to the pandemic. Nevertheless I consider Boston as my second home as I also used to travel to Boston a few times a year. What I really love about Dallas and Boston is that they are both so different and the diverse experiences really enrich me. So I have been very fortunate to have homes in Dallas and Boston. But if you ask me to choose one city it would definitely be Dallas as I really like the warm weather.

8. What do you do for fun? Any passions or hobbies?

I have many hobbies. I took 10 years of classical piano lessons and took exams from the Trinity College and Royal Academy of Music in London. Examiners from London used to visit the Commonwealth countries to conduct exams. I still enjoy playing the piano, but unfortunately I do not have a piano at home as we live in a small two BR/two BA condo, but I listen to music on YouTube. I also enjoy watching professional Tennis on TV especially the Grand Slams and almost all other events. Fortunately I do not subscribe to the Tennis channel; otherwise I will not get any work done. I also meditate almost every day since 1991 as I need it to handle stress and over the years I have begun to really enjoy it. During the pandemic I have mostly migrated to a plant-based diet with lot of fruits and vegetables and now drink coconut milk which is lactose free. I treat it as a hobby as it keeps me really motivated.

9. What is your favorite DFW-area restaurant, and what do you order?

One of the benefits of living in DFW is the variety of restaurants it offers, unlike any other city I have lived in. You can get any type of food here. I really like seafood. Therefore, my favorite restaurant in DFW is the Chamberlain's Fish Market Grill in Addison. They serve delicious food and my favorite is their Salmon dish with vegetables. I also like their Red Snapper as well as the Shrimp dishes (e.g., Shrimp and Grits). I start with their baby spinach starter salad and end with their Crème Brulee which is divine. Although I have not gone there since the pandemic, I have to forget about my new plant based dairy free diet when I go there next.

10. What has you most excited about the future?

I am most excited about technology especially the developments in Artificial Intelligence and Data Science. This is really changing the world. Imagine if we did not have technology what could have happened with COVID-19? Still, there is so much more work to do such as developing technologies to improve our quality of life. Also, as we develop more technologies there are many more cyber security challenges. So, I am not only passionate about developing new technologies with AI and Data Science, but also much focused on addressing the cyber security challenges that result due to the technological advances. I have had a very rewarding 40

year career and health permitting would like to work 20 more years as there is so much to be done to develop novel technologies. But like I did 40 years ago, I still try to find a balance between my work and being a mother and now a grandmother.

11. Who else would you like to see in the *Dallas 500*?

Dallas 500 has included people from a variety of backgrounds and professions in the past and it is great. For the upcoming issue, I would like the inclusion of our heroes during COVID-19 and they are our healthcare workers.