Academic Corner
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In this issue, we interview IEEE SMC member Edmar Candeia Gurjão. Edmar is a professor in the Electrical Engineering (EE) Department at Universidade Federal de Campina Grande and teaches in the Master's Degree Program in Science and Technology in Health at Universidade Estadual da Paraíba. He graduated in EE from Universidade Federal da Paraíba in 1996, earned his master's degree in EE from the same university in 1999, and received his Ph.D. in EE from Universidade Federal de Campina Grande in 2003. In 2012, he was a visiting professor at Notre Dame University, USA. His research interests in cybersecurity, compressed sensing, software-defined radio, and signal processing. He is a Senior Member of IEEE and a member of the Brazilian Society of Telecommunications (SBrT).

(1) Please tell us a bit about yourself and your academic/professional background.
I am professor of Electrical Engineering at Federal University of Campina Grande in northeast Brazil. My hobbies are music, books, and puzzles. My background is in Electrical Engineering with emphasis in telecommunications, where I started working with cellular telephony systems (master's degree), information theory (PhD), software defined radio, and cybersecurity in the last 15 years of my career. As my interests are always related to the fundamentals, I have taught courses from linear algebra, signals and systems, and cybersecurity. I am the co-author of two books, one on Signals and Systems (in Portuguese, 2024) and another on Digital Signal Processing (Momentum Press, 2018).

(2) Please tell us a bit about your research. What inspired you to follow this field?
I am interested in cybersecurity, and my research is in the application of techniques to increase the cyber resilience of critical infrastructures, especially energy and telecommunications. In recent years, I started to research about applications of artificial intelligence in cybersecurity and post-quantum cryptography.

(3) Are there any underexplored opportunities that you find particularly exciting in your field? Where do you see the field going in the next 5–10 years?
With the advances in machine learning and quantum computing, we will experience great changes. Questions, such as: How to best transition from the actual systems to the ones based on these new paradigms? And how to best design and implement these new systems? will emerge. In cybersecurity, we are dealing with the transition from classical to quantum-based systems via post-quantum computing, which will drive research and development for the next several years. For the future, quantum cryptography and quantum computing, especially their utilization for machine learning, will open new cybersecurity questions.

(4) What advice would you give to young researchers entering your field?
Never forget the fundamentals, work hard, especially in the beginning of your careers to form a strong basis of knowledge, since it will prepare you for the technological changes that will come over time. Also, be careful with hypes, always asking yourself is this topic is really important and can help humanity? And finally, pick a research topic that makes you happy to work on.

(5) What role has IEEE and IEEE SMC played in your career?
I have been connected with IEEE for many years, since when I was an undergraduate student. I started by networking and reading excellent material from IEEE journals and conference proceedings. Throughout my professional career, I have had the opportunity to meet interesting people, to learn about new research topics, and continue my networking. The SMC Society has given me the combination of systems and cybernetics that I need to stay informed from the last advances in my area.

(6) Any last words of advice?
The quantity of information and the rate that they are being produced and presented are great, and we need a source of reliable information. IEEE and its many Societies will have to maintain the rigor and quality in their publications. As a community, we need to continue working hard to improve the development of technologies for the good of humanity.