SMC eNewsletter's Student Corner Column (September 2025 Issue)

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In this issue of the Student Corner Column, we interview Vincenzo Barbuto, a Ph.D. student in Information and Communication Technologies at the Department of Computer Engineering, Modeling, Electronics, and Systems, at the University of Calabria, Italy. He earned his bachelor's degree in computer engineering at the University of Calabria and later completed a dual master's degree in computer engineering for the Internet of Things, jointly offered with Télécom SudParis, France. Since November 2022, he has been a member of the Smart, Pervasive, and Mobile Systems Engineering Lab. As part of his doctoral research, he spent a research period at the University of California, Berkeley, where he collaborated on projects involving coordination languages and Edge AI. Beyond his academic work, he currently serves as Chair of the IEEE Student Branch at the University of Calabria and is an active member of the IEEE SMC Society. His research interests focus on the integration of AI techniques for real-time decision-making at the network edge, leveraging sensors and IoT devices to build adaptive, intelligent, and responsive systems.

1. Please tell us about your academic journey and how you arrived at your current research topic?

My academic journey began with a strong interest in computer engineering and the idea of programming machines to perform tasks. At that time, I saw computer engineering, and its ability to automate processes, as the closest thing to magic. After completing my bachelor's degree at the University of Calabria, I pursued a master's in computer engineering for the Internet of Things, driven by the realization that increasingly smart objects were surrounding us and reshaping the way we live. I wanted to be part of this transformation and contribute to the technologies behind it. During my dual-degree master's program, I spent one year at Télécom SudParis in France, where my perspective broadened. There, I became fascinated not only by enabling smart objects to communicate but also by empowering them to think. It was during this time that I first encountered the concepts of Edge AI, which offered a new way to bring intelligence closer to data sources. This experience motivated me to pursue a PhD, where my focus is on developing methods and frameworks to enable intelligence at the edge of the network. Today, my research explores how Edge AI can be combined with emerging paradigms such as Digital Twins to build adaptive, reliable, and resilient IoT systems, with the ultimate goal of making smart city infrastructures more efficient and responsive.

2. What inspired you to pursue research in your chosen field? How do you see it impacting society and humanity?

My passion for research in this field stems from both personal and academic experiences. Growing up with diabetes, I became reliant on devices that monitored my glucose levels and automatically delivered insulin. These technologies became integral to my daily routine, demonstrating the potential of intelligent systems when designed for reliability and adaptability. This personal experience ignited my curiosity about how machines could transcend mere task execution and genuinely support people in their daily lives. Academically, this curiosity led me to explore various technologies related to smart devices, such as sensors, actuators, and controllers. These technologies enable us to exploit intelligence closer to the data generation point, making it more accessible. What excites me most is their potential to create systems that not only enhance efficiency but also have a tangible and meaningful impact on people's daily lives. I envision their influence on society in diverse ways, from smart cities that optimize traffic and reduce emergency response times to healthcare that improves continuous monitoring and personalized treatment. Ultimately, my aspiration is to contribute to a future where the digital and physical worlds coexist harmoniously, fostering resilience and elevating the quality of life for individuals and communities alike.

3. What motivated you to join the IEEE and the SMC Society?

What motivated me to join IEEE was the opportunity to be part of a global community of researchers, engineers, and professionals who share the same passion for advancing technology. As a student, I saw IEEE not only as a place to access cutting-edge knowledge, but also as a network where I could learn, contribute, and grow. I was particularly drawn to the Systems, Man, and Cybernetics (SMC) Society because of its interdisciplinary vision. SMC connects systems science, human factors, and intelligent technologies, areas that are very close to my own research. Being part of this society allows me to engage with people working on both the theoretical and applied aspects of intelligent systems, and to contribute to discussions that aim to shape technologies with a real societal impact. On a more personal level, joining IEEE and SMC has given me the chance to take on leadership roles, such as serving as Chair of the IEEE Student Branch at the University of Calabria, where I can help build a local community, organize events, and inspire other students to actively take part in this global network.

4. How has being a member impacted your academic or professional journey?

Being an IEEE member has had a major impact on both my academic and professional journey. Academically, it gave me access to high-quality resources, conferences, and journals that helped me stay connected to the latest research in my field. Professionally, it opened doors to a global network of researchers and practitioners, allowing me to exchange ideas and even start collaborations that enriched my PhD experience. Equally important has been the community aspect. Serving as Chair of the IEEE Student Branch at the University of Calabria gave me the chance to develop leadership and organizational skills, from coordinating events to engaging students and faculty. These experiences not only strengthened my confidence but also taught me how to build bridges between research and people, which is something I value deeply. Overall, IEEE has been more than just a professional society for me, it has been a platform for growth, networking, and inspiration throughout my academic journey.

5. Where do you see yourself in the next 5-10 years?

In the next 5 to 10 years, I still see myself deeply engaged in research. What drives me is the possibility of using technology to make a positive difference, so my goal is to continue working on projects that have a real impact on people and society. Whether in academia or industry, I want to keep pushing the boundaries of intelligent systems at the edge, contributing to solutions that make our environments smarter, more adaptive, and more human-centered. Ultimately, I hope my work will not only advance the scientific community, but also leave a tangible mark by improving everyday life, whether through smarter cities, more sustainable systems, or better healthcare support.

6. What advice would you give to other students considering joining IEEE or a specific society like SMC?

My advice to students is straightforward: go for it. IEEE is much more than access to publications, it's about joining a global community where you can learn, exchange ideas, and grow both academically and personally. I encourage students not only to become members, but also to get actively involved: attend events, volunteer, and take on leadership roles whenever possible. These experiences open doors to collaborations, mentorship, and friendships that extend well beyond the classroom. In my own case, IEEE allowed me to connect with researchers around the world and to develop leadership skills as Chair of the Student Branch at the University of Calabria. For any student passionate about technology and its impact on society, it's an invaluable platform to start building both knowledge and network.