In Step with Marian Verhelst
An educator, philanthropist, and leader

Prof. Marian Verhelst is a longtime IEEE Solid-State Circuits Society (SSCS) member heavily involved in educating young minds, bringing science education to communities in Europe, and working to bring world-class conference content to Society members. Marian received her M.S. and Ph.D. degrees in electrical engineering from the ESAT-MICAS laboratories of the Katholieke Universiteit Leuven, Belgium (KU Leuven), in 2003 and 2008, respectively. From 2003 to 2008, she worked as a research assistant at the Belgian National Fund for Scientific Research. In the summer of 2005, she was a visiting scholar at the Berkeley Wireless Research Center, University of California, Berkeley. From 2008 to 2011, she worked in the Radio Integration Lab of Intel Labs, Hillsboro, Oregon, performing research on the digital assistance of configurable wireless radio front ends.

Since October 2012, Marian has been a professor with the MICAS research group. Her research focuses on low-power sensing processing for embedded smart sensing devices. More specifically, this encompasses research on embedded machine-learning accelerators and processors, self-adaptive sensor interfaces, low-power processing architectures for image processing, and sensor fusion. Marian teaches classes on computer architectures and digital design. She is also the lead professor of a large undergraduate design project in which nine teams of

The article is part of a series highlighting an SSCS member in each issue of the magazine. If you would like to nominate a member to be featured or would like to be featured yourself, please e-mail News Editor Abira Sengupta (abira.sengupta@ieee.org).

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12 students each build a smart camera-sensing autonomously navigating drone.

At MICAS, Marian is lucky to be surrounded by a great team of supportive colleagues. “This is the research group that started with Willy Sansen, and I work with professors Steyaert, Gielen, Dehaene, Reynaert, Tavernier, Puers, and Kraft,” she said. “I am very proud to be able to work so closely with such big names in the SSCS community.” Together, the MICAS research group hosts 70 Ph.D. students and has chip handling, bonding, packaging, fibbing, and measurement facilities. MICAS prides itself on strong collaboration between different professors.

“I consider one of my biggest accomplishments to be able to train students and see them grow,” Marian said. “It gives me immense fulfillment to see my students develop during their Ph.D. and become knowledgeable and respected members of our community.”

Marian finds science communication very important. For that reason, she has taken part in many local initiatives, including podcasts and television shows. She was part of a four-season national science television show, which can be best described as the Flemish version of MythBusters. Each episode would question the validity of a popular myth, and the hosts would prove if the myth was fact or fiction. For example, one of the episodes asked if a person could die from a coin dropped from the Eiffel Tower if it landed on the person’s head. The show reached more than 800,000 viewers per episode.

Marian also works to bring science, technology, education, and mathematics awareness and enthusiasm to children. She is the founder of InnovationLab at KU Leuven (https://eng.kuleuven.be/innovationlab). InnovationLab creates engineering projects for educators to teach at their local schools. Projects focus on topics such as energy and energy storage and safety and health, to name a few. Teachers are able to learn the lessons, borrow

FACTS ABOUT MARIAN

- Marian inherited her university gown from her mother, who was the first female professor in KU Leuven’s Engineering Department. She retired before Marian became a professor at KU Leuven.
- Marian plays the piano and started learning at the age of 22.
- Marian is a sushi lover. When she visits San Francisco for ISSCC each year, she eats sushi almost every day.

Marian and her husband Thomas at the start of a 10k run.

Marian with her husband and three children enjoying a day out on the slopes.

Marian (fifth from left) and the rest of the 2018 ISSCC Executive Committee.
the material boxes, and share the project with their classrooms. So far, the program has trained hundreds of teachers and reached thousands of children.

In addition to her work with children, Marian was one of the driving forces behind the new SSCS Women in Circuits (WiC) initiative. The goal of WiC is to increase female recruitment, retention, and advancement in the SSCS. At SSCS conferences, the WiC Committee hosts networking events promoting mentoring, work/life balance, negotiation, and interactions with successful women.

“The idea for the WiC initiative first came when we discovered that at the International Solid-State Circuits Conference (ISSCC) there is about 4% female attendance. In the SSCS community, we are clearly missing diversity,” she said. “Rather than striving for quota in boards or committees, I think it is better to show women and men that SSCS is a welcoming and attractive community where women can be successful, support each other, and combine their work with their family life.”

The WiC committee has worked diligently in the past year to support women’s events at local SSCS Chapters and provide more leadership opportunities for women through increasing their participation in journal editing and serving on technical committees.

Marian is heavily involved with the SSCS. She is a former SSCS Distinguished Lecturer (DL), an associate editor of the Journal of Solid-State Circuits, and part of the WiC Committee. She is on the ISSCC Technical Program and Steering Committees. She is also the European regional chair for the ISSCC and responsible for organizing networking events for people in Europe as well as finding the best European candidates with certain expertise to submit papers. Marian is the vice-chair of finance for the Design, Automation and Test in Europe Conference as well.

Marian credits the SSCS for giving her opportunities early in her career. SSCS-sponsored conferences such as the ISSCC and the European Solid-State Circuits Conference (ESSCIRC) have allowed Marian to build a network of people interested in the same field.

“My first Ph.D. chip was presented at ESSCIRC and my second at ISSCC. That gave my work enormous visibility,” Marian said. When starting her

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them, helped them make valuable connections, and how their experiences with the SSCS helped shape them. The YPs and mentors mingled and broke out into groups. Since the attendees were at a variety of stages in their careers, the YPs and mentors had a lot to talk about. Mentors gave mentees advice on topics such as entrepreneurship, going into academia versus industry, work/life balance, journal authorship, and much more.

The next SSCS mentoring event will be held in conjunction with the European Solid-State Circuits Conference in Dresden, Germany.

—Abira Sengupta

SSCS President Bram Nauta talked about the many benefits of joining the SSCS.

SSCS member Andreia Cathelin discussed how the IEEE and SSCS have helped shape her career.

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career as a professor, the SSCS network was very valuable for Marian. “Each time I attend an SSCS conference, my network grows.” Being part of technical program committees for conferences such as ESSCIRC and ISSCC have allowed her to follow state-of-the-art chip designs closely and gain insight on hot topics and who is working on what.

“Becoming an SSCS DL has allowed me to travel to many interesting places. I was also able to befriend many people and learn of unknown research labs,” she said. “Through the SSCS DL program, I am very happy to be able to share the knowledge my team has grown into a certain areas.”

Outside of her work with SSCS, Marian is a member of the Young Academy of Belgium, part of the Royal National Academy of Belgium.

Aside from her professional life, Marian is happily married with three daughters (Marie who is 11, Emma, 9, and Laura, 7). Marian and her family love to travel, go out to dinner, try new sports, and laugh. Marian and her husband, Thomas, participate in many running events throughout the year and enjoy the occasional theater performance or concert. Marian is very family oriented and finds much joy spending time with her family and friends.

—Abira Sengupta