frontiers | Frontiers in Signal Processing

TYPE Editorial
PUBLISHED 16 August 2022
DOI 10.3389/frsip.2022.977475

OPEN ACCESS

EDITED AND REVIEWED BY
Fulvio Gini,
University of Pisa, Italy

*CORRESPONDENCE
Hagit Messer,
messer@eng.tau.ac.il

SPECIALTY SECTION
This article was submitted to Radar Signal Processing, a section of the journal Frontiers in Signal Processing

RECEIVED 24 June 2022
ACCEPTED 18 July 2022
PUBLISHED 16 August 2022

CITATION
Messer H (2022), Editorial: Women in signal processing.
Front. Sig. Proc. 2:977475.
doi: 10.3389/frsip.2022.977475

Editorial: Women in signal processing

Hagit Messer*

School of Electrical Engineering, Tel Aviv University, Tel Aviv, Israel

KEYWORDS

women in science and engineering, signal processing, women in academia, science, engineering

Editorial on the Research Topic
women in signal processing

One of the turn-points in my life was in the mid-90th, during the yearly major conference of the Signal Processing community, the IEEE international conference on acoustic, speech and signal processing (ICASSP). Women were always minorities in these meetings, and if one of them joined a chat in a social gathering, she were naturally considered as the wife of one of the men around. Being young and naïve then, I never saw it as an issue. However, at that specific meeting on 1995 I decided to join, for the first time, a social event, entitled "lunch for women in signal processing." I found there a small but very diverse group of about 50 women from all around the world, and when each introduced herself, I had a very strong emotional reaction of a sisterhood. For the first time I felt at home in my professional community, and at that very specific moment I became active in the advancement of women in science and engineering, and in particular in my field, i.e., signal processing.

An essential question rises is about the quantity and the visibility of women in signal processing today. Such data is hard to trace, but fortunately, the IEEE keeps and publishes statistical records[1]. These records show that while the overall share of women in the IEEE (including students) is still around 10%, in the signal processing society it is a bit but not much better, about 2,300 out of 19,000 (~12%). However, Figure 1 shows a promising trend over the last decade: while the total number of women (non-students) in the IEEE signal processing society has increased by 45%, the number of women in higher-level grades (senior member and fellow) has doubled. Moreover, women take leadership positions in the IEEE signal processing society[2] with the current president Athina P. Petropulu and 11 out of its 23 board members being women[3].

1 https://mga.ieee.org/resources/annual-statistics.

2 https://signalprocessingsociety.org/our-story/board-governors.

3 Note, however that in the EURASIP only 1 out of 8 board members is a women (https://eurasip.org/organization/).

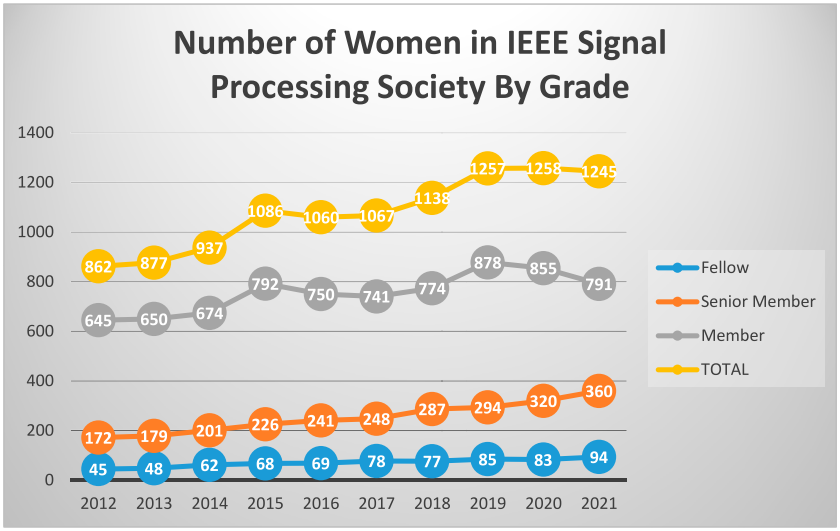

FIGURE 1
IEEE Signal Processing Society women members in all non-student grades over the decade of 2012–2021. Based on data published in the annual IEEE statistical reports.

With that in the background, I was happy to accept the role of an editor of the topic "*Women in signal processing*" for the journal Frontiers in Signal Processing. The first challenging task was to identify potential contributors, trying to open a gate for women outside the natural circle of collaborators and colleagues. Luckily, with the help of my co-editors Monica Bugallo, Maria Sabrina Greco and Fauzia Ahmad, we have identified 82 potential female contributors whom were directly approached, and managed to deliver this unique Research Topic of Frontiers in Signal Processing.

The 10 papers published under the topic of "*Women in signal processing*" came from senior or junior female researchers from North America, Europe and Asia. They cover a variety of topics in signal and image processing, involving learning techniques, integrating sensing and communication, satellite communication, security and more, presenting original research and methods:

- Eva Lagunas et al. from the University of Luxemburg contribute to GEO satellite communication and propose an efficient time–space illumination pattern design, where they determine the set of clusters that shall be illuminated simultaneously at each hopping event along with the dwelling time.
- Sara Baldoni et al. from Italy deal with security and propose a flexible context-based security framework by exploring two types of context: distributed and local.
- Sina Shahsavari et al. from University of California, San Diego present an error analysis for Angle of Arrival (AoA) estimation in mmWave channel, a Research Topic relevant to 5G technologies and beyond.
- Tiziana Cattai et al. from Rome, Italy present an original Visually Driven Point cloud Denoising Algorithm (VIPDA) contributing for better digital representation of 3D surfaces;
- Kavya Gupta et al. from France present a stability analysis of fully connected neural networks allowing one to capture the influence of each input or group of inputs on the neural network stability.
- Alotaibi and Suppappola from Italy propose two methods for dealing with a primary source tracking a moving object under time-varying and unknown noise conditions;
- Shobha Sundar Ram et al. from Indraprastha Institute of Information Technology Delhi, India present contribution to the optimization of JRC—joint radar communication system;
- Josiane Zerubia et al. from France propose a track-by-detection approach to detect and track small moving targets by using a convolutional neural network and a Bayesian tracker;
- Melissa Gray et al. from Drexel University, United States study methods for metagenomic taxonomic classification, contributing to accurately identifying which microbes are present in a biological sample;
- Athina Petropulu et al. from Rutgers and Yale universties, United States, present methods for dealing with the problem of joint beamforming and discrete motion control for mobile relaying networks in dynamic channel environments;

These articles attract increasing attention from the relevant community all around the world, as indicated by *Women in signal processing* Frontiers Research Topic (frontiersin.org), and hopefully contribute to the visibility of women in signal processing.

Finally, I deeply thank my co-editors Monica Bugallo, Maria Sabrina Greco and Fauzia Ahmad and the frontiers staff for making it happens.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note