



## Learning From the Hidden Letters

The opportunity to write this column as the president of the IEEE Signal Processing Society (SPS) was far beyond my imagination when I first joined the SPS as a graduate student member in the 1990s. Career growth through the eyes of an SPS student member was a long journey filled with uncertainty. And at that time, SPS had few female or Asian leaders to model. Like many of you, I started by joining the tens of thousands of loyal readers of *IEEE Signal Processing Magazine* (SPM) and became engaged as a volunteer with the SPS and IEEE in an effort to learn and grow.

After celebrating the 75th anniversary of SPS in 2023, we are now embarking on a quarter-century journey toward the SPS centennial. This new year marked not only a milestone for our technical society but one for me personally since I became the first woman of Asian-Pacific heritage to take on the role of SPS president. I am deeply humbled and honored by this trailblazing opportunity to serve our global community. I sincerely appreciate the efforts and support of many colleagues who have paved the way and helped break the ceilings in our shared professional home.

Based on the publication schedule, this issue may arrive at your desk when our broader community celebrates the month of March as Women's History Month. My previous editorial, "Women in Science, Engineering, and Signal Processing," published in the January

2016 issue of *SPM*, touched on the challenges and achievements of such female pioneers as Youyou Tu (China's first Nobel Prize winner in science), Madame Curie (a science icon and role model for over a century), and Rabab Ward (the SPS Norbert Wiener Society Award recipient and SPS president from 2016 to 2017). The good news is that the effort to nurture and encourage women to participate in the fields of science and engineering has been growing and emanating from many parts of the world.

And yet, my past experiences and reflections did not prepare me enough for the thought-provoking documentary film *Hidden Letters*, which premiered on the U.S. Public Broadcasting Service (PBS) in 2023 [1]. I initially came across the announcement of the then-upcoming film while searching online for a written language example of "low-resource languages" (this was after learning about the R&D efforts by our speech and language processing community on spoken languages that have relatively fewer data available for training conversational systems as compared with the more popularly studied languages). Nüshu, or "female writing" in Chinese, was a secret written language for women in Jiangyong county of southern China for centuries. Nüshu allowed women in the past to share stories and express feelings and solidarity with each other, despite being born in a repressive era when

many Chinese women did not have the opportunity to learn to read and write. Independence was not a word associated with women in such a deeply patriarchal society. Women were considered the property of their fathers during childhood, their husbands after marriage, and their sons if widowed.

I became aware of Nüshu more than a decade ago in conjunction with the cultural heritage preservation efforts at the

Central-South Ethnic University in Wuhan, China. There, scholars in humanity and the social sciences joined forces with researchers in information sciences to use digital and informa-

tion technologies, including image processing and machine learning, to help preserve and curate this unique phonetic script. While I was always fascinated by the elegance of the written alphabet (see the example of "signal processing" in Nüshu script in Table 1) and its intriguing history, in my mind, Nüshu symbolizes women's experiences in the past, remote from modern life.

I could still feel the emotion that arose while watching this PBS documentary. Much to my surprise, the theme is not mainly about the history of Nüshu or the need to preserve this cultural heritage but focuses on revealing the life, career, identity, and independence of women, young and old, at the current time. Through the struggles, doubts, reflections, and choices of the women who shared a love of Nüshu and

**Along the way, the film extends an invitation for continued reflection, understanding, and support of women in our modern society.**

the mission to preserve it, the documentary film posed many questions for the audience to reflect on: Should women have a meaningful career and pursue their dreams? Should women stay in the safe zone of following directions and traditions handed to them? Should women remain quiet when encountering aggression or bias? Should women always be gentle and gracious unconditionally and keep their opinions and objections to themselves? *Hidden Letters* uses the touching

**Thanks to the efforts of both men and women in our community, today we celebrate the substantial rise in the number of women in our profession and their increasing presence in leadership roles.**

stories and authentic experiences of Chinese women today to remind a global audience that preserving the cultural heritage of expression by women should focus more on the spirits than the superficial form. Along the way, the film extends an invitation for continued reflection, understanding, and support of women in our modern society.

Thanks to the efforts of both men and women in our community, today we celebrate the substantial rise in the number of women in our profession

and their increasing presence in leadership roles. For example, over half of the members-at-large on the SPS governing board are now women. Still, we should reflect upon the questions posed by *Hidden Letters*, including, for instance, the

implicit and explicit obstacles and biases women encounter in our community and beyond. And we cannot stop there. We also need to promote healthy diversity, inclusive excellence, bias mitigation, and a strong sense of belonging in the global SPS community that

encompasses broad geographic areas, races and ethnicities, age and career stages, technical areas and career sectors, and more.

While we welcome the spring of a new year, I want to thank retiring officers of the Society for their service, including Athina Petropulu (president, 2022–2023), Marc Moonen (vice president–publications, 2021–2023), and Ana Perez-Neira (vice president–conferences, 2021–2023). We feel the impacts of their past efforts and appreciate

their participation in other capacities. Please join me in extending a warm welcome to new officers Kostas Plataniotis (president-elect), Haizhou Li (vice president–conferences), and Antonio Ortega (vice president–publications). In addition, many boards and committees have seen changes of the guard due to retiring members and new blood. I sincerely thank all our volunteers who have worked hard to make our Society vibrant! We have term limits on volunteer positions to encourage participation by our broad community and bring fresh perspectives. Please consider volunteering for SPS positions and recommending a colleague as well.

As SPS president, I am committed to fostering transparency, openness, trust, equity, and inclusion in our global community. In the coming months, we will leverage a five-year Society review and publication reviews with the various IEEE committees to reflect on the progress, strengths, and weaknesses of the SPS and take action to address areas in need of improvement and strategic investment. Together, we will strive to strike sound balances between many needs and constraints, mitigate politics and conflicts of interest, promote win-win, and make the SPS a welcoming and valuable professional home for all members across genders, regions, races/ethnicities, career sectors and stages, technical areas and flavors, and more. I look forward to working with you to take on challenges and opportunities and move our Society forward.





**Reference**

[1] “PBS documentary hidden letters.” PBS. [Online]. Available: <https://www.pbs.org/independentlens/documentaries/hidden-letters/>



**Table 1. Example of “signal processing” in Nüshu script.**

| English               | Signal  | Processing  |
|-----------------------|---|---|
| Nüshu: female writing |  |  |
| Simplified Chinese    | 信   | 号   |
|                       |   | 处   |
|                       |   | 理   |

Nüshu examples were generated using the tools from <https://nushuscript.org/unicode/>.