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Where Are Today's Signal Processing Heroes?

At the time of this writing, I had just received the electronic version of the July 2014 issue of *IEEE Spectrum*. On the cover page, the headline reads, "Where Are the Heroes? Engineers Created Our Modern World. And Yet Nobody Knows Who They Are." By clicking on that title, I was taken to page 36, where I found the article titled "Engineering Needs More Heroes: There's No Lack of Worthy Characters, So Why Doesn't the Profession Celebrate Them?" [1]. The author of the article is G. Pascal Zachary, a former reporter for *The Wall Street Journal* and a professor at Arizona State University's Walter Cronkite School of Journalism and Mass Communication.

By just reading the title, I immediately thought of my editorial in the July 2014 issue of *IEEE Signal Processing Magazine* (*SPM*) [2], which discusses, in relation to the suggested Society's name change, the means as to how to raise awareness about our profession among the lay people. This is a topic that is gaining much attention within the signal processing community, and it is not surprising that several editorials and articles have addressed this very important topic over the last decade.

I was quite pleased to see the article in *IEEE Spectrum* [1]. Not only is it nice reading, but it in fact also suggests what we urgently need to address in signal processing to achieve our goal mentioned above. As the author of [1] states, "Celebrating heroes is a good way to inspire young people and inform the public, of course…. The hero deficit is in fact bad for engineering because it diminishes the enterprise in the eyes of the public, and it constricts the flow of talent into the field."

The article [1] also appears in [3], where one can find readers' comments. In my view, the question is not whether one agrees with the author of [1] on who is a hero and who is not. Ultimately, each of us decides for himself or herself who the heroes are, and we have our own reasons to believe it. My personal signal processing hero is not a contemporary one; he is Al-Khwarizmi (c. 780–c. 850), earlier transliterated as Algorismi. He introduced the beginnings of algebra, which was revolutionary, moving away from the Greek concept of mathematics that was essentially based on geometry. His contribution is a cornerstone of both science and engineering disciplines and is the foundation of many of contemporary theorems and algorithms, underlying information theory and communications. The term algorithm is derived from a Latin corruption of the name Al-Khwarizmi, which was the technique of performing arithmetic with Hindu–Arabic numerals developed by Al-Khwarizmi [4]. In essence, it is difficult to imagine a special issue of *SPM* without the use of algorithms. (A portrait of Al-Khwarizmi can be downloaded from Don Knuth's home page [5].) The reason why I see him as a signal processing hero is because algorithms development is my profession and passion.

In [1], *IEEE Spectrum* invites its readers to identify today's unsung heroes—exemplars of engineering excellence who, for whatever reason, have not received the recognition they deserve. The invitation also includes the criteria of what makes a hero [1]. The online form can be found in [6]. I encourage you to open the online form and suggest names of signal processing heroes. As mentioned above, it is what you believe that matters, and surely you have good reasons for it.

This special issue of *SPM* is on a highly relevant and timely topic, i.e., signal processing for big data. I would like to thank the guest editors and authors for their contributions. Special thanks go to the lead guest editor, Georgios Giannakis, who, under a very tight deadline, ensured that all articles were secured for a timely production.

I also wish to thank the members of the senior editorial board who support Special Issues Area Editor Fulvio Gini and me in identifying timely and important topics and assessing white proposals for special issues. Their support is instrumental for ensuring that high-quality articles are published in *SPM*. It gives me great pleasure to introduce the new class of 2016 Editorial Board members: Mounir Ghogho, Lina Karam, Stephen McLaughlin, and Erchin Serpedin. With these energetic and dedicated professionals, we shall move *SPM* to an even higher level with more innovations to come.

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