

K.J. Ray Liu, *Editor-in-Chief*

Capture the Evolution

Everything evolves, including technical fields!

A technical field's evolution depends not only on its own internal urges for improvement but also on external forces—advances in other technical fields and knowledge. Internal elements strive for performance, effectiveness, and cost improvements, while interactions with external elements often create new ideas, directions, and visions.

In addition to continuous progress, there is also cyclical progress. Technical interests come into favor and go out of favor. Sometimes a promising area may stall for a time to be resurrected by technical breakthroughs in other areas. For example, in the 1960s the field of neural networks was declared dead, but in the late 1980s and 1990s it received much attention through new discoveries and progress. Multiresolution (wavelets) was studied as early as the opening

of the 20th century by mathematicians; it was reinvented by researchers in computer vision and “rediscovered” by signal processing researchers developing filter banks.

A good analogy to this kind of progress is seen in the world of clothing fashions, but perhaps over a longer period of time. Both technology and fashion evolve in a spiraling upward trend. In a technical field the spiral depends on the external forces of advances of other technical fields and knowledge. Such forces can sometimes drive an old field to a new height.

An important mission of *IEEE Signal Processing Magazine* is to capture pivotal moments of the evolutionary process and share them with our readers. To do so, we need to keep an open mind about the future of signal processing, one that is not defined by ourselves, the

editorial board, but by natural responses from the community.

If we can't evolve but simply hold on to traditional subjects as the sole core of signal processing, soon our community will be retired from competition. As signal processing interacts with many other areas, often we will encounter unfamiliar names such as genomics, for example. Sooner



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or later these names either will become a part of signal processing or quietly go away. If you recall, just a few years ago, “security” was a word never even heard of as a signal processing issue!

Let's keep an open mind and try all tastes—sweet, hot, sour, or even bitter. And let the evolution rule!

Looking for Articles on Education

We're starting a column that covers all aspects of signal processing education: curriculum content and trends, pedagogy, educational tools, and stakeholder perspectives. All stages of learning are considered, from preparatory K–12 through continuing education levels. Articles should be designed to further education practices, draw attention to best practices, or pose challenges that provoke forward thought on specific aspects of signal processing education. Abstracts or white papers should be submitted for early feedback, or full manuscripts may be submitted directly to Associate Editor Kenneth Barner at barner@udel.edu.

A handwritten signature of K.J. Ray Liu in black ink.

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