# Farewell Editorial: Keeping Up the Momentum of Innovations

About three years ago, I wrote the inaugural editorial "Riding the Tidal Wave of Human-Centric Information Processing" as the incoming Editor-in-Chief (EiC) of IEEE TRANSACTIONS ON AUDIO, SPEECH, AND LANGUAGE PROCESSING (T-ASL) [1], and about the same time, the farewell editorial "The Golden Era of Signal Processing" as the retiring EiC of IEEE SIGNAL PROCESSING MAGAZINE [2]. Now, while writing this (another) farewell editorial, I am thrilled to see and reflect on waves of innovations in our field in recent years. Information processing that encompasses audio, speech, and language forms the core of our field, and the pioneering work with huge industrial-scale successes driving the innovations and elevating the prior state-of-the-art in the field [3], [4] has been published in our T-ASL (e.g., [5]–[11]).

As a result of our devoted authors who took valuable time writing up their innovative technical work, our careful reviewers who made valuable recommendations to improve quality of the work, and of our dedicated editorial team who tirelessly processed the submissions, the impact factor of our T-ASL has jumped from the previous 1.6 to the current 2.6. Another key accomplishment, completed by August 2013, is the merger of our previous IEEE TRANSACTIONS ON AUDIO, SPEECH, AND LANGUAGE PROCESSING with the *ACM Transactions on Speech and Language Processing* into a single journal, becoming the current IEEE/ACM TRANSACTIONS ON AUDIO, SPEECH, AND LANGUAGE PROCESSING. I thank the strong support of both IEEE Signal Processing Society and the ACM Publication Boards for this successful merger, and especially thank Mari Ostendorf, our Vice-President (VP) of Publications, for initiating this effort and seeing it through to its completion. Many of our editorial team members worked hard to expand the technical topics of the joint T-ASL, resulting in the new category of Human Language Technology. With the new, extended technical reach, our joint journal is poised to embrace the wider scope of technical innovations in our field with the hallmark of human-centric computing that encompasses not only spoken but also written language.

It has been a remarkable three years for me to work with an amazing set of authors, reviewers, editors, and IEEE staff in bringing the T-ASL to our readers. I wish to take this opportunity to thank everyone who has supported me and contributed to our T-ASL both before and after the merger during my term. Let me begin by thanking our VP of Publications, Mari Ostendorf, and our former EIC, Helen Meng, for their tremendous advice and help throughout this period. It has also been a great pleasure to work with a group of high-caliber and dedicated researchers and educators who have volunteered their valuable time and expertise as our Senior Area Editors and Associate Editors. Their efforts have upheld the high quality of our Transactions. Further, I wish to thank our Guest Editors for the superb jobs they have done in getting special issues done during the past three years. Also, Chairmen of the Speech and Language Processing Technical Committee (Doug O'Shaughnessey and former Chairman John Hansen) and of the Audio and Acoustic Signal Processing Technical Committee (Shoji Makino) offered help on many occasions in running T-ASL. I had pleasure to join their TC committee meetings and discussions. Thanks also go to the strong support of our IEEE staff members. I wish to thank Kathy Jackson, our Publications Coordinator, for her and her colleagues on many day-to-day activities, and to Andrew Swartz, our Associate Editor in Transactions and Journals, for his help in bringing the final manuscripts to publication.

Finally, my best wishes go to our new EIC, Haizhou Li, who is not only an expert in our field but has been instrumental in forming the merged T-ASL. Our field is a vibrant one, standing out in recent years to embrace rapid new developments in deep machine learning and to break performance records in a fast pace never seen before in the history of our field. Let us continue to accelerate the pace of rapid technical innovations and continue to provide our T-ASLP with the strongest support by publishing the best work from the members of our community.

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## REFERENCES

[1] L. Deng, "Riding the tidal wave of human-centric information processing," *IEEE Trans. Audio, Speech, Lang. Process.*, vol. 20, no. 1, pp. 2–3, Jan. 2012.

[2] L. Deng, "Shining bright: The golden era of signal processing," *IEEE Signal Process. Mag.*, vol. 28, no. 6, pp. 2–6, Nov. 2011.

[3] J. Baker *et al.*, "Research developments and directions in speech recognition and understanding," *IEEE Signal Process. Mag.*, vol. 26, no. 3, pp. 75–80, May 2009.

[4] J. Baker *et al.*, "Updated MINDS report on speech recognition and understanding," *IEEE Signal Process. Mag.*, vol. 26, no. 4, pp. 78–85, Jul. 2009.

[5] G. Hinton *et al.*, "Acoustic modeling using deep belief networks," *IEEE Trans. Audio, Speech, Lang. Process.*, vol. 20, no. 1, pp. 14–22, Jan. 2012.

[6] G. Dahl *et al.*, "Context-dependent pre-trained deep neural networks for large vocabulary speech recognition," *IEEE Trans. Audio, Speech, Lang. Process.*, vol. 20, no. 1, pp. 30–42, Jan. 2012.

[7] X. Zhang and J. Wu, "Deep belief networks based voice activity detection," *IEEE Trans. Audio, Speech, Lang. Process.*, vol. 21, no. 4, pp. 697–710, May 2013.

[8] D. Yu *et al.*, "The deep tensor neural network with applications to large vocabulary speech recognition," *IEEE Trans. Audio, Speech, Lang. Process.*, vol. 21, no. 2, pp. 388–396, Feb. 2013.

[9] S. Wright *et al.*, "Optimization algorithms and applications for speech and language processing," *IEEE Trans. Audio, Speech, Lang. Process.*, vol. 21, no. 11, pp. 2231–2243, Nov. 2013.

[10] Z.-H. Ling *et al.*, "Modeling spectral envelopes using restricted Boltzmann machines and deep belief networks for statistical parametric speech synthesis," *IEEE Trans. Audio, Speech, Lang. Process.*, vol. 21, no. 10, pp. 2129–2139, Oct. 2013.

[11] O. Abdel-Hamid *et al.*, "Convolutional neural networks for speech recognition," *IEEE/ACM Trans. Audio, Speech, Lang. Process.*, vol. 22, no. 10, pp. 1533–1545, Oct. 2014.