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SPOKEN LANGUAGE PROCESSING: PEOPLE VERSUS MACHINES

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ABSTRACT

A fundamental challenge we must meet for computers to eventually process spoken language as effectively as humans is to capture the immensely rich fund of information we have in our heads that is NOT in the speech signal. This information is what gives us the ability to supply acoustic cues when these are degraded or missing, or to zero in on one speaker amid a chorus of other voices. While the powerful statistical methods currently used in speech recognition and synthesis have brought some success and useful applications, future progress will depend crucially on a deeper knowledge and greater use of this information. Some of this information is applicable to all languages, and some of it is specific to individual language types. In my discussion, special attention will be given to the processing of spoken Chinese.

ABOUT THE SPEAKER

William S.-Y. Wang is Research Professor at the Chinese University of Hong Kong, in the Department of Electronic Engineering and in the Department of Linguistics and Modern Languages. He is an Academician and Research Fellow at Academia Sinica, Taiwan. He is also Professor of Linguistics Emeritus of the University of California at Berkeley, where he taught for some 30 years. His work has spanned broad areas of language study, including language evolution and language engineering. His publications have appeared in American Scientist, Nature, Proceedings of the National Academy of Sciences (USA), Scientific American, as well as in many professional journals. He was a Guggenheim Fellow, and twice a Fellow at the Center for Advanced Study in the Behavioral Sciences, Stanford, California. In recent years, he has been collaborating with biologists and computer scientists in a common search for the origins of language, and for patterns in language differentiation and language endangerment.