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A Survey of Hardware Architectures Designed for Speech Recognition

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Abstract

In the past few years, there have been many special purpose hardware designs emerging to support speech recognition systems. This paper tries to identify the the system requirements of different spoken language systems' components, such as search and training. Some general design criteria of speech hardware architecture are also presented. Based on these criteria, we survey a variety of notable special purpose computer architectures designed for speech recognition systems and make a paper-and-pencil evaluation of those architecture alternatives.

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Keyword : speech recognition, spoken language system, Viterbi search, beam search, stack decoding, GSM (Graph Search Machine), ASPEN (AT&T's Systolic Processing Ensemble), MARS (Microprogrammable Accelerator for Rapid Simulation), Search Machine, BEAM, PLUS

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