Title (en)
AN ADAPTIVE MULTIVARIATE ESTIMATING APPARATUS

Publication
EP 0308433 B1 19921111 (EN)

Application
EP 88901347 A 19880112

Priority
US 3429687 A 19870403

Abstract (en)
[origin: WO8807738A1] Apparatus for detecting a fundamental frequency in speech in a changing speech environment by using adaptive statistical techniques. A statistical voice detector (103) detects changes in the voice environment by classifiers that define certain attributes of the speech to recalculate weights that are used to combine the classifiers in making the unvoiced/voiced decision that specifies whether the speech has a fundamental frequency or not. The detector is responsive to classifiers to first calculate the average of the classifiers (202) and then to determine the overall probability that any frame will be unvoiced. In addition, the detector using a statistical calculator (203) forms two vectors, one vector represents the statistical average of values that an unvoiced frame's classifiers would have and the other vector represents the statistical average of the values of the classifiers for a voiced frame. These latter calculations are performed utilizing not only the average value of the classifiers and present classifiers but also a vector defining the weights that are utilized to determine whether a frame is unvoiced or not plus a threshold value. A weights calculator (204) is responsive to the information generated in the statistical calculations to generate a new set of values for the weights vector and the threshold value which are utilized by the statistical calculator during the next frame. An unvoiced/voiced determinator (205) then is reponsive to the two statistical average vectors and the weights vector to make the unvoiced/voiced decision.

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G10L 3/00

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Citation (examination)
• Atal and Rabiner "Pattern recognition approach to voiced-unvoiced-silence classification" in IEEE ASSP 24 no. 3
• de Souza: "A statistical approach to the design of an adaptive self-normalizing silence detector" in IEEE, ASSP 31 no. 3
• Prezas et al: "Fast and accurate pitch detection using pattern recognition and adaptive time-domain analysis", Proc. IEEE Int. Conf. Acoust., Speech and Signal Proc., Vol. 1, pp. 109-112, April 1986

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