

Title (en)

Voice activity detection.

Title (de)

Detektion für die Anwesenheit eines Sprachsignals.

Title (fr)

Détection de la présence d'un signal de parole.

Publication

**EP 0335521 A1 19891004 (EN)**

Application

**EP 89302422 A 19890310**

Priority

- GB 8805795 A 19880311
- GB 8813346 A 19880606
- GB 8820105 A 19880824

Abstract (en)

Voice activity detector (VAD) for use in an LPC coder in a mobile radio system, uses autocorrelation coefficients R0, R1..... of the input signal, weighted and combined, to provide a measure M which depends on the power within that part of the spectrum containing no noise, which is thresholded against a variable threshold to provide a speech/no speech logic output. The measure is  $\langle MATH \rangle$  where  $H_i$  are the autocorrelation coefficients of the impulse response of an Nth order FIR inverse noise filter derived from LPC analysis of previous non-speech signal frames. Threshold adaption and coefficient update are controlled by a second VAD responsive to rate of spectral change between frames.

IPC 1-7

**G10L 3/00; G10L 9/08**

IPC 8 full level

**G10L 25/00 (2013.01); G10L 25/78 (2013.01)**

CPC (source: EP KR)

**G10L 25/00 (2013.01 - EP); G10L 25/78 (2013.01 - EP KR); G10L 25/84 (2013.01 - KR)**

Citation (search report)

- [X] US 4358738 A 19821109 - KAHN LEONARD R
- [A] US 4052568 A 19771004 - JANKOWSKI JOSEPH ALBIN
- [A] EP 0127718 A1 19841212 - IBM [US], et al
- [A] US 4688256 A 19870818 - YASUNAGA SATOSHI [JP]
- [A] GB 2061676 A 19810513 - MARCONI CO LTD
- [A] EP 0178933 A2 19860423 - SHARP KK [JP]
- [X] IEEE TRANSACTIONS ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING, vol. ASSP-25, no. 4, August 1977, pages 338-343, New York, US; L.R. RABINER et al.: "Application of an LPC distance measure to the voiced-unvoiced-silence detection problem"
- [A] ICASSP'81 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING, Atlanta, 30th March - 1st April 1981, vol. 3, pages 1082-1085, IEEE, New York, US; C.K. UN et al.: "Improving LPC analysis of noisy speech by autocorrelation subtraction method"
- [A] 1977 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, and SIGNAL PROCESSING, Hartford, Connecticut, 9th-11th May 1977, pages 425-428, IEEE, New York, US; R.J. McAULAY: "Optimum speech classification and its application to adaptive noise cancellation"
- [A] IBM TECHNICAL DISCLOSURE BULLETIN, vol. 22, no. 7, December 1979, pages 2624-2625, New York, US; R.J. JOHNSON et al.: "Speech detector"
- [A] IEEE TRANSACTIONS ON COMMUNICATIONS, vol. COM-26, no. 1, January 1978, pages 140-145, IEEE, New York, US; P.G. DRAGO et al.: "Digital dynamic speech detectors"

Cited by

US6427134B1; EP1703493A3; GB2306010A; US2013054236A1; EP0786760A3; EP0625774A3; US5611019A; EP0714088A1; FR2727236A1; US5732141A; EP0768770A1; FR273995A1; US5812965A; EP0633658A3; EP0594480A1; FR2697101A1; US5572623A; EP1887559A3; AU670383B2; US5579432A; AU681551B2; AU672934B2; US5579435A; US5632004A; EP0435458A1; GB2317084A; US5774847A; GB2317084B; EP0451796A1; US5293588A; US8775168B2; US8611556B2; WO9801847A1; WO0063887A1; WO9428542A1; WO9634382A1; WO2005048619A1; WO9512879A1; US8275136B2; US6618701B2; US8244528B2; US8682662B2

Designated contracting state (EPC)

AT BE CH DE ES FR GB GR IT LI LU NL SE

DOCDB simple family (publication)

**EP 0335521 A1 19891004; EP 0335521 B1 19931124;** AU 3355489 A 19891005; AU 608432 B2 19910328; BR 8907308 A 19910319; CA 1335003 C 19950328; DE 68910859 D1 19940105; DE 68910859 T2 19941208; DE 68929442 D1 20030123; DE 68929442 T2 20031002; DK 175478 B1 20041108; DK 215690 A 19900907; DK 215690 D0 19900907; EP 0548054 A2 19930623; EP 0548054 A3 19940112; EP 0548054 B1 20021211; ES 2047664 T3 19940301; ES 2188588 T3 20030701; FI 110726 B 20030314; FI 115328 B 20050415; FI 20010933 A 20010504; FI 904410 A0 19900907; HK 135896 A 19960802; IE 61863 B1 19941130; IE 890774 L 19890911; JP 2000148172 A 20000526; JP 3321156 B2 20020903; JP 3423906 B2 20030707; JP H03504283 A 19910919; KR 0161258 B1 19990320; KR 900700993 A 19900817; NO 304858 B1 19990222; NO 316610 B1 20040308; NO 903936 D0 19900910; NO 903936 L 19901109; NO 982568 D0 19980604; NO 982568 L 19901109; NZ 228290 A 19920129; PT 89978 A 19891110; PT 89978 B 19950301; WO 8908910 A1 19890921

DOCDB simple family (application)

**EP 89302422 A 19890310;** AU 3355489 A 19890310; BR 8907308 A 19890310; CA 593386 A 19890310; DE 68910859 T 19890310; DE 68929442 T 19890310; DK 215690 A 19900907; EP 93200015 A 19890310; ES 89302422 T 19890310; ES 93200015 T 19890310; FI 20010933 A 20010504; FI 904410 A 19900907; GB 8900247 W 19890310; HK 135896 A 19960725; IE 77489 A 19890310; JP 32819899 A 19991118; JP 50377289 A 19890310; KR 890702099 A 19891109; NO 903936 A 19900910; NO 982568 A 19980604; NZ 22829089 A 19890310; PT 8997889 A 19890310