

Title (en)  
Singing voice synthesizing method

Title (de)  
Verfahren zur Synthese einer Singstimme

Title (fr)  
Méthode de synthèse de voix chantée

Publication  
**EP 1505570 A1 20050209 (EN)**

Application  
**EP 03017548 A 20030806**

Priority  
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Abstract (en)  
A frequency spectrum is detected by analyzing a frequency of a voice waveform corresponding to a voice synthesis unit formed of a phoneme or a phonemic chain. Local peaks are detected on the frequency spectrum, and spectrum distribution regions including the local peaks are designated. For each spectrum distribution region, amplitude spectrum data representing an amplitude spectrum distribution depending on a frequency axis and phase spectrum data representing a phase spectrum distribution depending on the frequency axis are generated. The amplitude spectrum data is adjusted to move the amplitude spectrum distribution represented by the amplitude spectrum data along the frequency axis based on an input note pitch, and the phase spectrum data is adjusted corresponding to the adjustment. Spectrum intensities are adjusted to be along with a spectrum envelope corresponding to a desired tone color. The adjusted amplitude and phase spectrum data are converted into a synthesized voice signal.

IPC 1-7  
**G10L 13/02**

IPC 8 full level  
**G10L 13/033** (2013.01); **G10L 21/0232** (2013.01)

CPC (source: EP)  
**G10L 13/033** (2013.01); **G10L 21/0232** (2013.01)

Citation (applicant)  
• LAROCHE J ET AL.: "New phase-vocoder techniques for pitch-shifting, harmonizing and other exotic effects", APPLICATIONS OF SIGNAL PROCESSING TO AUDIO AND ACOUSTICS, 1999 IEEE WORKSHOP ON NEW PALTZ, NY, USA 17-20 OCT. 1999, 17 October 1999 (1999-10-17), pages 91 - 94, XP010365068, DOI: doi:10.1109/ASPAA.1999.810857  
• CHENG-YUAN LIN ET AL.: "ADVANCES IN MULTIMEDIA INFORMATION PROCESSING - PCM 2002. THIRD IEEE PACIFIC RIM CONFERENCE ON MULTIMEDIA PROCEEDINGS (LECTURE NOTES IN COMPUTER SCIENCE VOL. 2532), ADVANCES IN MULTIMEDIA INFORMATION PROCESSING", 2002, SPRINGER-VERLAG, article "An on-the-fly Mandarin singing voice synthesis system", pages: 631 - 638  
• MOULINES E ET AL.: "SPEECH COMMUNICATION", vol. 16, 1 February 1995, ELSEVIER SCIENCE PUBLISHERS, article "Non-parametric techniques for pitch-scale and time-scale modification of speech", pages: 175 - 205  
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Citation (search report)  
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• [T] LAROCHE J: "Frequency-domain techniques for high-quality voice modification", DAFX-03 - PROC. OF THE 6TH INT. CONFERENCE ON DIGITAL AUDIO EFFECTS, 8 September 2003 (2003-09-08) - 11 September 2003 (2003-09-11), London, UK, XP002265865

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