

GRITTEC'S PITCH SHIFT

Speech and audio signals

Overview

GritTec's Pitch Shift technology is used for pitch scale modification (changing the harmonics structure) of speech and audio signals. Principle of functioning GritTec's Pitch Shift technology is based on time-domain modification using SOLA technology, such as Waveform Synchronized Overlap-Add (WSOLA). Pitch shift technology can be effectively used for changing initial music or voice into another music or voice (audio-speech effect).

Applications

- With IVR systems such as text to speech (TTS) systems;
- With solutions of VoIP telephony such as audio chats;
- For voice messaging services (voice mail).

Features

- High sound quality;
- Real time processing;
- Signal delay: 0 ms.;
- Guarantees fixed speaker position for stereo signals;
- Pitch-stretch factor: 50%, ..., 200% (normal speed: 100%);
- Dynamic mode changing of pitch stretch factor;
- Length of input packet data: inside specific length OR you can set packet length in samples yourself, but not less then 20 ms and not more then 40 ms.;
- Dynamic mode changing of length of packet data;
- Easy integration with target applications.

Signal requirement

- Signal format: 16-bits linear;
- 8 kHz, ..., 48 kHz sampling rate;
- Channels: 2 (mono or stereo).

Resource Requirements

RESOURCES	GOAL	NOTES
RAM	23092 Bytes	Pointer to the general structure for stereo channels.
ROM	~ 300 Bytes	Parameters of void and tempo procedures.
Resource/Source Ratio* (MIPS) for ISPL	~ 3,2	For signal with sampling rate 44 kHz, 2 channels. Stretch factor is 80%.
Resource/Source Ratio* (MIPS) for ISPL	~ 2,1	For signal with sampling rate 44 kHz, 2 channels. Stretch factor is 90%.
Resource/Source Ratio* (MIPS) for ISPL	~ 1,05	For signal with sampling rate 44 kHz, 2 channels. Stretch factor is 110%.
Resource/Source Ratio* (MIPS) for ISPL	~ 1,69	For signal with sampling rate 44 kHz, 2 channels. Stretch factor is 120%.

* - for Intel PIII 1,5 MHz; ISPL - inside specific packet length.

Availability

- PC demo for MS Windows;
- SDK for win32, win64 with object code or ANSI C++ fixed point code is available on request;
- Customization resources if required;
- Portability to any DSP or ARM platforms.

GritTec Laboratory (GritTec Ltd.) specializes on research and development of algorithms and technologies in the field of speech and audio processing. GritTec's research is focused on speech enhancement, speech concealment, voice biometric, speech recognition, speech synthesis and other speech and audio technologies.

Contacts

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