

In one embodiment, the present invention comprises a vocoder having at least one input and at least one output, an encoder comprising a filter having at least one input operably connected to the input of the vocoder and at least one output, a decoder comprising a synthesizer having at least one input operably connected to the at least one output of the encoder, and at least one output operably connected to the at least one output of the vocoder, wherein the encoder comprises a memory and the encoder is adapted to execute instructions stored in the memory comprising classifying speech segments and encoding speech segments, and the decoder comprises a memory and the decoder is adapted to execute instructions stored in the memory comprising time-warping a residual speech signal to an expanded or compressed version of the residual speech signal.