Video Motion Magnification using Spatio-Temporal Algorithm

Abstract

The aim is to disclose temporal variations in videos that are hard or nearly impossible to view with the naked eye and display them in an indicative fashion. Our method, which is based on spatio-temporal processing, takes a standard video sequence as input, and applies spatial processing / decomposition, followed by temporal processing / filtering to the frames where the frames are filtered to select desired band of frequencies to be amplified. These bands of frequencies are empirically decided by user and also user is allowed to decide amplification factor by which motion is to be amplified. After the processing and enhancement of the low frequencies, the spatial pyramid is reconstructed back to get improved video sequence where the subtle motions are significantly visible. Or in other words, the resulting signal is then amplified and added back to the original signal to reveal hidden information. Using this method, it is able to visualize the pulsation/movement of ULNAR artery when a blood flows though it and also to amplify and reveal subtle motions in day to day life.

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Index Terms

Computer Science Algorithms

Keywords

Decomposition subtle motion spatial temporal spatial pyramid