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ADAPTIVE NON-CONTACT HEART RATE MONITORING



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MEGA-TREND

- From Fat to Fit: Health
- Wellness and Well Being (HWW)
- Healthcare
- Information and Communication Technologies

TECHNOLOGY READINESS LEVEL (TRL)

- TRL 4

PATENT/ GRANTED NUMBER

- PI 2013702090

▶ TECHNOLOGY OVERVIEW

The present invention relates to a method for adaptive non-contact heart rate monitoring, characterized by the steps of: acquiring an image from a visual capturing means; detecting and segmenting a body part shown in the image to localize a region of interest (ROI), wherein said body part segmentation comprises of extracting Red Green Blue (RGB) information for pixels of the ROI; performing first normalization and averaging pixels to obtain vector of the RGB information; training vector of the RGB information using recursive Independent Component Analysis (ICA) to extract independent

sources from the image; performing Fast Fourier Transform (FFT) on extracted independent source signals; filtering output frequencies of the FFT using a band-pass filter to eliminate frequencies of resting heart rate; summing the filtered output frequencies; extracting the highest frequency and output as a heart rate array; performing second normalization based on the outputted heart rate array to obtain a probability distribution of the heart rate; determining heart rate frequency corresponding with the probability distribution using a data fusion technique; and identifying highest probability and outputting the highest probability as the heart rate

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