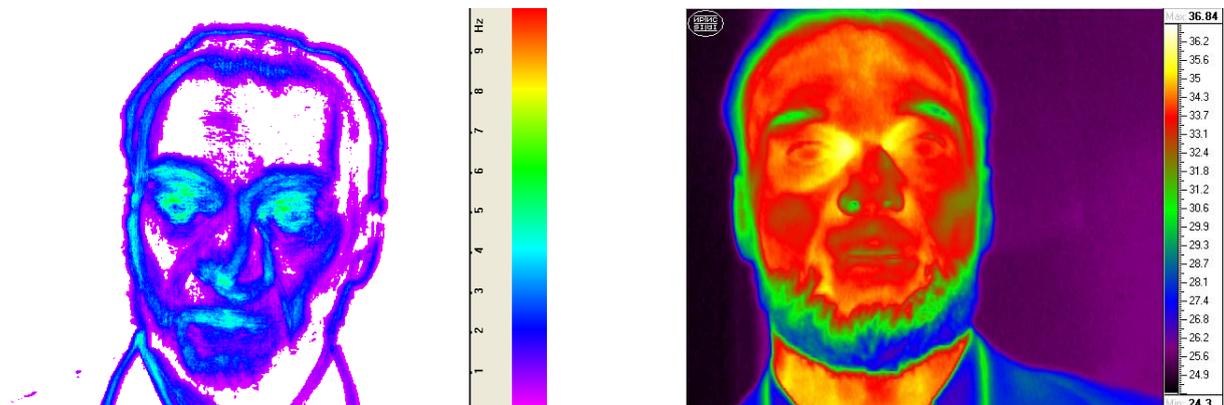


## Vibraimage

Human vibraimage is the technical demonstration of psychodynamic features [1], the image displays micro vibrations of human head mostly linked with vestibular system function. According to vestibular system functions human stands head in balance vertical position, continuously and reflex performing three-dimensional micromovements [2] or vibration. The dependence between head vibration parameters and emotional state called vestibular-emotional reflex (VER) [3], or vestibular-energy reflex. The head vibration parameters are sensitive to emotions and human energy regulation in coordination with the first and second thermodynamics laws.

### Overview

Vibraimage is the primary image indicates the vibration parameters of object [4]. Vibraimage calculates by video image processing and shows amplitude and frequency of vibration in every pixel of object, so it reflects time and spatial movement characteristics of object. Closely related analogue of vibraimage is thermal imaging.



*Vibraimage with vibration frequency scale (Hz)*

*Thermal image with temperature scale ( °C)*

### History

The direct link between reflex movement and brain activity was discovered in 1863 by the famous Russian physiologist Ivan Sechenov in his publication “Reflexes of Brain” [5]. Charles Darwin in his book “The expression of the emotions in man and animals” [6], 1872, also declared that reflex movements associated with emotions. Nobel laureate and the famous researcher of aggression Konrad Lorenz claims, that amplitude and intensity of reflex movements characterized the aggression. (On Aggression, 1966) [7]. George Gladyshev in his hierarchical thermodynamics theory [8] supposed that it is possible to consider the person in mechanical balance condition as thermodynamics system and it is well known that vestibular system realized mechanical balance in human like any other

physiological sensor system [9]. Coordination of vestibular system characterized by different vestibular reflexes and vestibular-emotional reflex is the one of it characterizing emotion energy by head vibration. First thermodynamics law gives two possibilities for emotional human energy regulation as heat or movements. Galvanic skin response (GSR) [10] is sensitive to human emotion because of thermoregulation and vibraimage is sensitive to emotions because of energy regulation by reflex head vibration. Vibraimage has several advantages in comparison with other emotions detector methods as contactless and friendly for users method.

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