Abstract

Remote measurements of the cardiac pulse can provide comfortable physiological assessment without electrodes. However, attempts so far are non-automated, susceptible to motion artifacts and typically expensive. In this paper, we introduce a new methodology that overcomes these problems. This novel approach can be applied to color video recordings of the human face and is based on automatic face tracking along with blind source separation of the color channels into independent components. Using Bland-Altman and correlation analysis, we compared the cardiac pulse rate extracted from videos recorded by a basic webcam to an FDA-approved finger *digital pulse oximeter* sensor and achieved good accuracy and correlation.

Keyword: *photoplethysmography, pulse oximeter, blind source separation, independent component analysis, bland-altmant.*