System and software for thermal image screening in medicine

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Abstract

This paper presents a novel method for the medical screening of the skin pathology such as melanoma, tumors, different inflammations, psoriasis as well as breast cancers. Our approach uses 3-layer Pennes thermal model of a skin including the perfusion in the frequency domain. It simplifies the mathematical calculations of the model and even makes it analytical. The model is tuned by the measured data captured using the thermal camera. Application of the optimization procedure allows the estimation of thermal parameter for each layer. The parameters of the skin is then used for classification of the different tissue's states. System and software are presented as a novel tool which can support medical screening using thermovision camera.