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New method for computing optical hemodynamic blood pressure

Mor Ram-On

Cnoga Medical Ltd., Israel

Hypertension is a major risk indicator for coronary heart diseases, renal failure, stroke and other various illnesses, and it is the primary global risk for mortality. Blood pressure measurements are essential for managing the risks resulting from hypertension. Today, the most common technique used for monitoring blood pressure is the oscillometric technique based on the sphygmomanometer arm cuff pressure. In this paper we will present a new device, the TensorTip MTX, which computes hemodynamic blood pressure noninvasively and without the need of air pumping. This technique uses the color imaging resulting from a set of monochrome light source that traverse the tissue under consideration and is projected onto the color image sensor. We have found that the variation in the pressure flow can be determined from the changes in the height of the temporal color histograms and additional temporal volume information. A new extended solution of the Windkessel model is being displayed in the paper and provides additional insight on various functional resistance rather than a constant resistance. The TensorTip MTX was clinically evaluated in two medical centers and was found to perform well at standard blood pressure measurements and also in monitoring patients who suffered from alterations of blood pressure due to cardiac surgery. The device successfully fulfilled the ISO 81060-2 recognized standard requirements for various notified bodies.

Biography

Yosef Segman is the CEO & CTO of Cnoga Medical Ltd. Prior to founding Cnoga Medical Ltd., he founded Oplus Technologies Ltd., where he served as CEO and Chief Scientist until 2005 when Oplus was acquired by Intel. Dr. Segman holds a PhD degree in applied mathematics from the Israeli Institute of Technology and was a guest researcher at Harvard University and Siegen University, Germany. He is the author of fundamental papers and patents on signal processing, neural computation and brain modelling.

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