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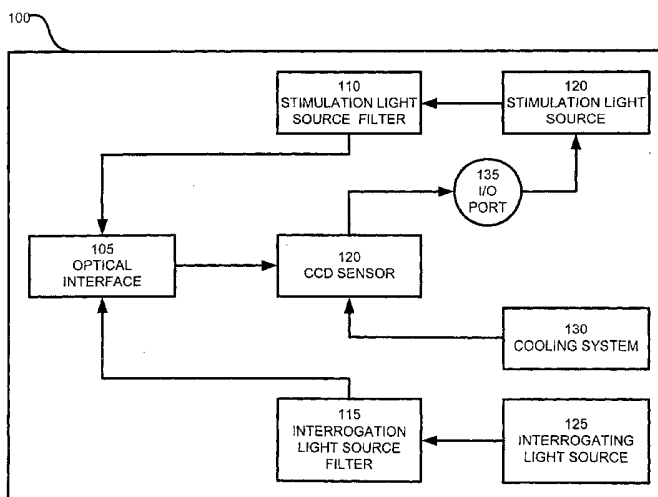
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ning of each regular issue of the PCT Gazette.

(54) Title: A METHOD FOR DETECTING A FUNCTIONAL SIGNAL IN RETINAL IMAGES



(57) Abstract: A system and method for detecting a functional signal in retinal images. An optical imaging device (100) comprises a stimulation light source (120), an interrogating light source (125), and a detector (120). The retina is stimulated by the stimulation light source. The retina is then illuminated by an interrogation light, and the reflected intensity from the retina is measured at an interrogating spectral band that indicates the state of hemoglobin saturation before and after visual stimulation. The optical changes that result from retinal neuronal activity are captured by the detector. The signal representing the state of hemoglobin saturation before and after visual stimulation is isolated. In an embodiment of the present invention, this signal is isolated using principle components analysis (PCA). In another embodiment of the present invention, blind source separation (BSS) and independent component analysis (ICA) algorithms such as extended spatial decorrelation and fast-ICA are used to isolate the functional signal from the retinal videos.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61B 3/00, 3/10, 3/14, 5/00, 13/00
US CL : 351/200, 205, 206, 213, 221, 246; 600/318, 320, 558

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,086,206 A (SUTTER) 11 July 2000 (11.07.2000), entire document.	1-4, 8-13
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Y		17-20, 25-28
Y	US 6,478,424 B1 (GRINVALD et al) 12 November 2002 (12.11.2002), entire document.	1-4, 8-13, 17-20, 25-28
Y	US 5,219,400 A (JACOT et al) 15 June 1993 (15.06.1993), entire document.	17-20, 25-28
Y	US 5,308,919 A (MINNICH) 03 May 1994 (03.05.1994), entire document.	17-20, 25-28
A	US 5,297,554 A (GLYNN et al) 29 March 1994 (29.03.1994), entire document.	1-31
A	US 4,922,919 A (NOVAK) 08 May 1990 (08.05.1990), entire document.	17-31

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