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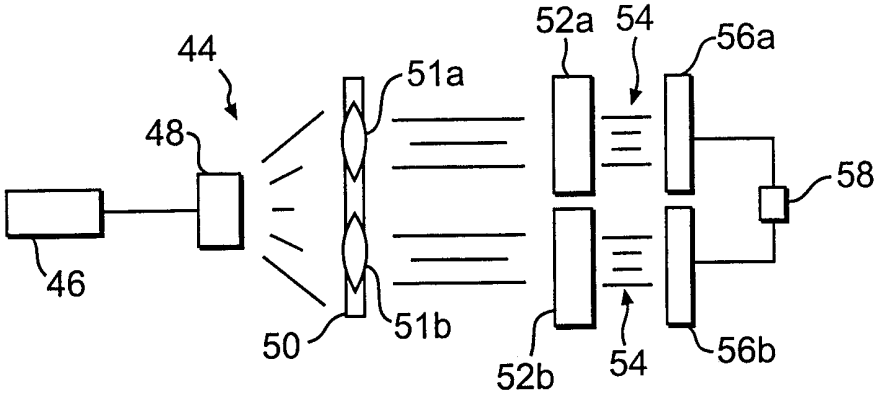

(57) Abstract

In optical filter systems and optical transmission system, an optical filter compresses data into and/or derives data from a light signal. The filter may weight an incident light signal by wavelength over a predetermined wavelength range according to a predetermined function so that the filter performs the dot product of the light signal and the function. In a simple form, the function may represent a regression vector having a positive coefficient and a negative coefficient, each associated with a vector component. Two lenses (51a, 51b) separate incoming light (44) into paths corresponding to each vector component. Filters (52a, 52b) are provided in each path to perform the dot product of light signal and the vector component. The filter outputs at detectors (56a, 56b) are both positive, but the sense of each coefficient as positive or negative is applied at a summer (58).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/07520

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06E 3/00; G01J 3/40
US CL : 359/107; 356/302
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)

U.S. : 359/107, 15, 16, 34, 570, 571, 572, 575, 578, 579; 356/302

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

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

US PTO APS EAST (brs)
search terms: regress$3 near vector, athermaliz$5, optical$2, filter$3

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	US 5,513,022 A (SON ET AL) 30 April 1996 (30.04.96), the entire document.	1-4, 8-10 ---------- 5-7
Y	US 4,118,106 A (LEITH) 03 October 1978 (03.10.78), the entire document.	5-7
A	US 5,555,128 A (KHOURY ET AL) 10 September 1996 (10.09.96), the entire document.	1-10
X	US 5,321,539 A (HIRABAYASHI ET AL) 14 June 1994 (14.06.94), ther entire document.	27,28,31,32
X	US 4,687,335 A (ZUPANICK ET AL) 18 August 1987 (18.08.87), the entire document.	47,48

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

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INTERNATIONAL SEARCH REPORT

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 4,084,880 A (CLOW) 18 April 1978 (18.04.78), the entire document.	53-56
P	US 5,828,492 A (MOSER ET AL) 27 October 1998 (27.10.98), ther entire document.	53-56
A	US 4,934,782 A (SOFFER ET AL) 19 June 1990 (19.06.90), the entire document.	38-41
A	US 5,459,677 A (KOWALSKI ET AL) 17 October 1995 (17.10.95), the entire document.	33-37
A	US 5,412,465 A (BAYLOR ET AL) 02 May 1995 (02.05.95), the entire document.	33-37