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(74) Agents: FENSTER, Paul et al.; Fenster & Co, Intellectual
Property Ltd., P.O. Box 10256, 49002 Petach Tikva (IL).

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(71) Applicant (for all designated States except US): YISSUM
RESEARCH DEVELOPMENT COMPANY OF THE
HEBREW UNIVERSITY OF JERUSALEM [IL/IL];
Hi-Tech Park, Edmond J. Safar Campus, 91390 Jerusalem
(IL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): LEVIN, Anat
[IL/IL]; 8 Brand Street, Apt. 2, 93878 Jerusalem (IL).
LISCHINSKI, Dani [IL/IL]; 13 Habanay Street, Apt.
7, 96264 Jerusalem (IL). WEISS, Yair [IL/IL]; 29 Nave
Shanan Street, Apt. 17, 93708 Jerusalem (IL).

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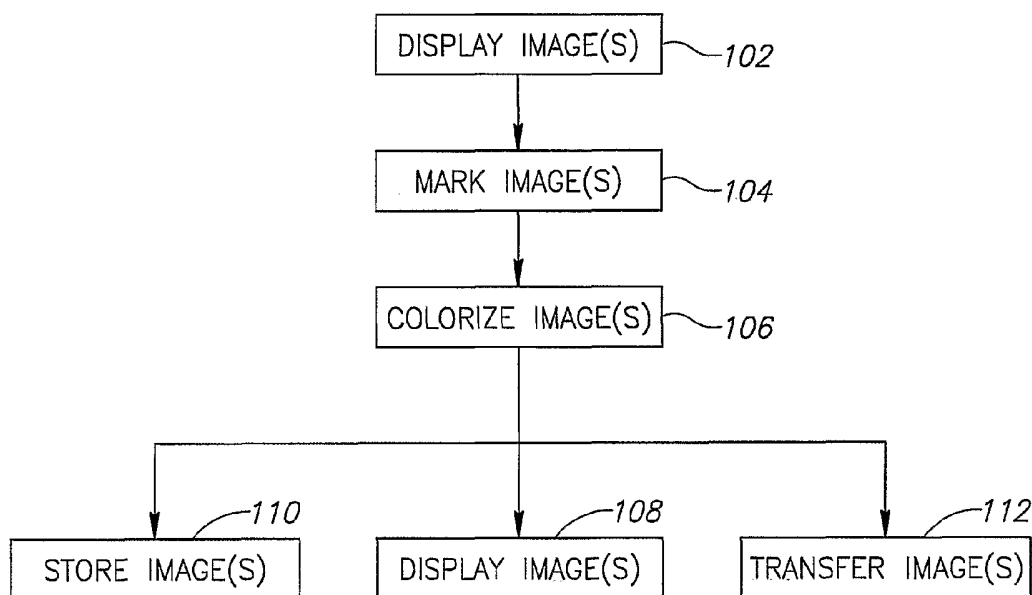
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(54) Title: COLORIZATION METHOD AND APPARATUS



(57) Abstract: A method for colorization of images is presented. The method comprises the following steps: Displaying an image (102); applying multiple color markings (at least two colors are different) to the displayed image (104); automatically coloring the image by applying a constrained optimization to a cost function that is responsive to the marked colors and the intensity differences of the neighborhoods of some of all of the pixels (106); the resultant image is subsequently stored (110), displayed (108), or transferred (112).



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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US CL : 345/473; 348/29, 32, 34; 352/38; 382/162

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/473; 348/29, 32, 34; 352/38; 382/162

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)
IEEE Xplore, ACM, SPIE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HORIUCHI, T. et al. Colorization Algorithm for Grayscale Image by Propagating Seed Pixels, Proceedings of the 2003 International Conference on Image Processing, 14-17 Sept. 2003, pp. 457-460.	33, 34
A	HORIUCHI, T. Estimation of Color for Gray-level Image by Probabilistic Relaxation, Proceedings of the 16th International Conference on Pattern Recognition, Vol. 3, 11-15 August 2002, pp. 867-870.	1-32 & 36-44
A	US 5,050,984 A (GESHWIND) 24 September 1991, figure 1 and column 2, line 57-column 3, line 27.	35
A	BERTALMIO, M. et al. Image Inpainting, Proceedings of the 27th Conference on Computer Graphics and Interactive Techniques, July 2000, pp. 417-424.	1-44
A	US 5,743,266 A (LEVENE et al) 28 April 1998, figures 5-7.	36-44
A	US 5,831,633 A (VAN ROY) 03 November 1998, figures 3 & 7-9, column 7, line 51-column 8, line 10 & column 9, lines 8-53.	1-44

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Robin Hung
Telephone No. (571) 272-2600