

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
17 January 2002 (17.01.2002)

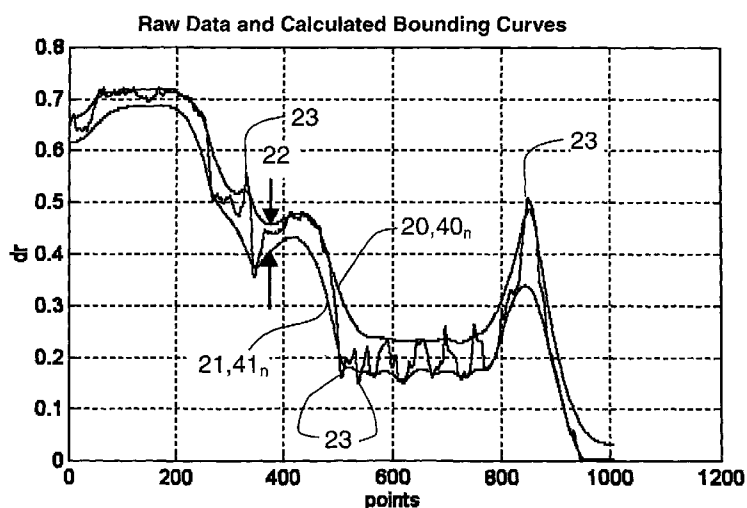
PCT

(10) International Publication Number
WO 02/005206 A3

- (51) International Patent Classification⁷: **G06T 5/40**
- (21) International Application Number: PCT/CA01/00982
- (22) International Filing Date: 5 July 2001 (05.07.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/611,773 7 July 2000 (07.07.2000) US
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CH, CN, CO, CR, CU, CZ,
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,
MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,
TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— with international search report
— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments
- (88) Date of publication of the international search report:
19 December 2002

[Continued on next page]

(54) Title: DISTORTION-FREE IMAGE CONTRAST ENHANCEMENT



(57) **Abstract:** An image, such as an X-ray, is enhanced through local enhancement of the contrast of the image's point intensities. A first, low frequency upper curve is fitted to the local maximums and a second independent, low frequency lower curve is fit to the local minimums, forming a fairway with the raw image data residing therebetween. A local range, between the fairway local maximum intensity and fairway local minimum intensity, is extracted for each point. Each point is scaled by the ratio between the fairway's local range and the dynamic range for the image so as to maximize its variation in intensity between it and its neighboring points. Preferably an iterative moving average technique is used to establish the fairway curves. In a preferred embodiment, outlier points scaled outside the fairway are temporarily stored at higher precision than the dynamic range. A histogram of the fairway corrected data is formed, having a range greater than the dynamic range and encompassing substantially all the outlier points. Only the most deviant of the outliers are trimmed in this histogram correction and the resulting range limits for the entire image are scaled to the dynamic range.



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