



- (51) **International Patent Classification:**
A61C 19/04 (2006.01) *A61B 19/00* (2006.01)
- (21) **International Application Number:**
PCT/US2012/031945
- (22) **International Filing Date:**
3 April 2012 (03.04.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
13/081,895 7 April 2011 (07.04.2011) US
13/081,869 7 April 2011 (07.04.2011) US
- (71) **Applicant (for all designated States except US):** **DOLPHIN IMAGING SYSTEMS, LLC** [US/US]; 9200 Eton Avenue, Chatsworth, California 91311-5807 (US).
- (72) **Inventor; and**
- (75) **Inventor/Applicant (for US only):** **LIAO, Swanwa** [US/US]; 4858 Queen Victoria Rd, Woodland Hills, California 91364 (US).
- (74) **Agent:** **PREWITT, Brian, K.**; Baker Botts L.L.P., Foreign Patent Department, 98 San Jacinto Blvd., 1500 San Jacinto Center, Austin, Texas 78701 (US).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,

KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

- (88) **Date of publication of the international search report:**
13 December 2012

(54) **Title:** SYSTEM AND METHOD FOR SIMULATED LINEARIZATION OF CURVED SURFACE

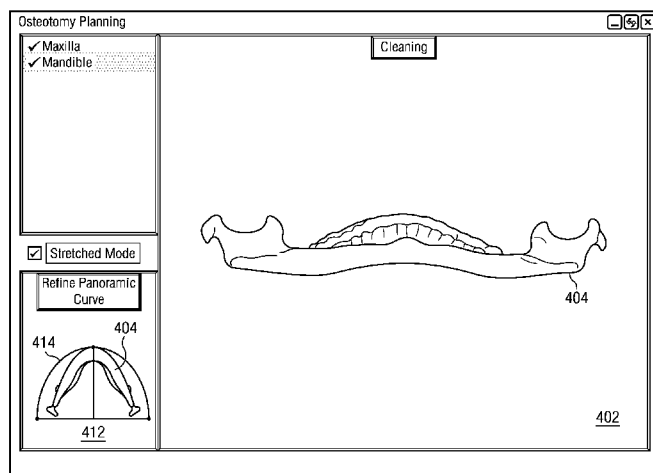


FIG. 2A

(57) **Abstract:** In accordance with embodiments of the present disclosure, a method may include mapping an ellipse with its center at the origin of an xy-coordinate plane to a circle with its center at the origin of the xy-coordinate plane. The method may also include transforming a three-dimensional subject image including a curved profile in the xy-coordinate plane to an intermediate image based at least on the mapping of the ellipse to a base circle. The method may further include transforming the intermediate image to a transformed image having a linear profile by distorting each of one or more points of interest of the intermediate image based at least on a dimension of the circle and a coordinate of such point.

WO 2012/138627 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/031945**A. CLASSIFICATION OF SUBJECT MATTER***A61C 19/04(2006.01)i, A61B 19/00(2006.01)i*

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)

A61C 19/04; A61C 7/00; A61B; G01B 11/00; G06T 1/00; A61B 5/00

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

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: dentofacial surgery, ellipse, map, circle, transform, three-dimension, two-dimension, xy-coordinate plane, curved profile, linear profile

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2001-283191 A (HITACHI MEDICAL CORP.) 12 October 2001 See the abstract and paragraphs [0014] - [0016], [0036].	1-18
A	WO 2005-025404 A2 (VANDERBILT UNIVERSITY) 24 March 2005 See the abstract and claims 26-27.	1-18
A	US 2011-0045428 A1 (BOLTUNOV ANATOLIY et al.) 24 February 2011 See the abstract and claim 1.	1-18
A	JP 2009-165558 A (PANASONIC CORP.) 30 July 2009 See the abstract and claim 1.	1-18

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

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

28 SEPTEMBER 2012 (28.09.2012)

Date of mailing of the international search report

04 OCTOBER 2012 (04.10.2012)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

HWANG, Yun Koo

Telephone No. 82-42-481-5715



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/031945

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2001-283191 A	12.10.2001	JP 4748843 B2	17.08.2011
WO 2005-025404 A2	24.03.2005	US 2005-0101855 A1 US 2005-0148859 A1 US 2007-0021669 A1 US 7072705 B2 US 7103399 B2 US 7647087 B2 WO 2005-025404 A3 WO 2006-028474 A1	12.05.2005 07.07.2005 25.01.2007 04.07.2006 05.09.2006 12.01.2010 18.08.2005 16.03.2006
US 2011-0045428 A1	24.02.2011	EP 2467824 A2 WO 2011-021099 A2	27.06.2012 24.02.2011
JP 2009-165558 A	30.07.2009	None	