

1) Family number: 63579010 (WO15192117A1)

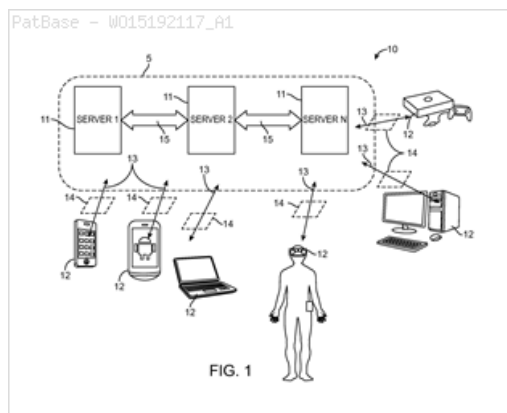
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Title: METHODS AND SYSTEMS FOR CREATING VIRTUAL AND AUGMENTED REALITY**Priority:** US20140012273P 20140614

Publication number	Publication date	Application number	Application date
WO15192117 A1	20151217	WO2015US35718	20150613

Probable Assignee: MAGIC LEAP INC**Assignee(s):(std):** MAGIC LEAP INC**Inventor(s):(std):** MILLER SAMUEL A ; BRADSKI GARY R ; ABOVITZ RONY**Agent(s):** MEI PETER C**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW**International class (IPC 8-9):** G06K9/00 (Advanced/Invention)**CPC:** A61B2090/365 G06F3/011 G06F3/012 G06F3/013 G06F3/017 G09G3/003 G09G2354/00 G09G2370/02 G09G2380/08 G02B6/0011 G06F3/14 G06K9/00389 G06K9/00604 G06K9/00671 G06F3/147 G09G3/002[Classification Explorer](#)**Cited documents:** US6028664 A, US2014043329 AA, US2013121570 AA, US2012207384 AA, US2012059706 AA, US2010149177 AA, US2007183653 AA, US2004068173 AA,**Forward Citations:** WO19094047, WO19070681, WO19067476, WO19032143, WO19013823, WO18201150, WO18195463, WO18195456, WO18125262, WO18064169, WO18049485, WO18017751, WO17184694, WO17176375, WO17130197, WO17120588, US9858637, US2017295446, US10416769, US10398514, US10345914, US10339721, US10192115, US10088911, TWI671711, EP3445049, EP3288259, CN106951153, CN105788390, AU2018101226, AU2016386349,**Abstract:**

Configurations are disclosed for presenting virtual reality and augmented reality experiences to users. The system may comprise an image capturing device to capture one or more images, the one or more images corresponding to a field of the view of a user of a head-mounted augmented reality device, and a processor communicatively coupled to the image capturing device to extract a set of map points from the set of images, to identify a set of sparse points and a set of dense points from the extracted set of map points, and to perform a normalization on the set of map points.

**2) Family number: 64426087** (KR20170018930A)

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Title: METHODS AND SYSTEMS FOR CREATING VIRTUAL AND AUGMENTED REALITY**Priority:** US20140012273P 20140614 WO2015US35718 20150613

Publication number	Publication date	Application number	Application date
AU2015274283 AA	20170112	AU20150274283	20150613
CA2953335 AA	20161221	CA20152953335	20150613
CN106937531 A	20170707	CN201580043458	20150613
EP3155560 A1	20170419	EP20150807476	20150613
EP3155560 A4	20180110	EP20150807476	20150613
HK1236658 A1	20180329	HK20170110247	20171012
IL249371 A0	20170228	IL20150249371	20150613

IN201747001399 A	20170512	IN201747001399	20170113
JP2017529635 T2	20171005	JP20170518040T	20150613
KR20170018930 A	20170220	KR20177001117	20150613

Probable Assignee: MAGIC LEAP INC

Assignee(s):(std): MAGIC LEAP INC

Assignee(s): MILLER SAMUEL A ; ABOVITZ RONY ; BRADSKI GARY R

Inventor(s):(std): ABOVITZ RONY ; BRADSKI GARY R ; MILLER SAMUEL A

Agent(s): DAVIES COLLISON CAVE PTY LTD; RICHES MCKENZIE AND HERBERT LLP; LECOMTE AND PARTNERS; LIU SHEN AND ASSOCIATES

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): A61B90/00 F21V8/00 G02B6/27 G06F19/00 G06F3/01 G06F3/14 G06K G06K9/00 G06T19/00 G09G3/00 G6K9/00 (Advanced/Invention)

CPC: A61B2090/365 G02B6/0011 G06F3/011 G06F3/012 G06F3/013 G06F3/017 G09G3/003 G09G2354/00 G09G2370/02 G09G2380/08 G06F3/14 G06K9/00389 G06K9/00604 G06K9/00671 G06K9/00 G02B6/2706 G06F3/147 G09G3/002

JP class F-Term: 5B050 5B050/AA10 5B050/BA06 5B050/BA18 5B050/CA07 5B050/EA07 5B050/EA12 5B050/EA27 5B050/FA02 5B050/FA08

JP class F-Index: G06T19/00/300/B

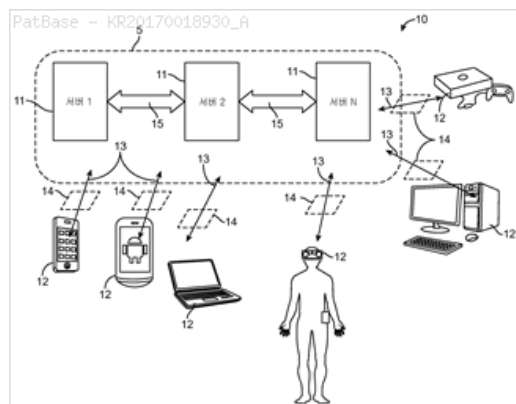
[Classification Explorer](#)

Cited documents: US2014002444 AA, US2013069985 AA, US2012113223 AA,

Forward Citations: WO19153405, WO19117655, WO19117583, WO18100518, WO17156622, TWI663423, TWI648556, KR20190046210, KR20180106812, KR102004048, KR101963244, KR101942770, KR101932007, KR101894455, KR101848680, CN109118594, CN109107161, CN108765270, CN108282228, CN108172051, CN107680105, CN107561549,

Abstract:

Configurations are disclosed for presenting virtual reality and augmented reality experiences to users. The system may comprise an image capturing device to capture one or more images the one or more images corresponding to a field of the view of a user of a head mounted augmented reality device and a processor communicatively coupled to the image capturing device to extract a set of map points from the set of images to identify a set of sparse points and a set of dense points from the extracted set of map points and to perform a normalization on the set of map points.



3) Family number: 64368090 (US2016360970A)

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Title: WEARABLE DEVICE FOR TAKING THERMAL AND VISUAL MEASUREMENTS FROM FIXED RELATIVE POSITIONS

Priority:

US20150175319P	20150614	US20150202808P	20150808	US20150372063P	20150808
US20150236868P	20151003	US20160182592	20160614	US20160182566	20160614
US20160354833P	20160627	US20160231276	20160808	US20160372063P	20160808
US20160284528	20161003	US20160408677P	20161014	US20170456105P	20170207
US20170480496P	20170402	US20170635178	20170627	US20170566572P	20171002
US20170722434	20171002	WO2017B56067	20171002	WO2017B56069	20171002
WO2017B56066	20171002	US20170832879	20171206	US20170833025	20171206
US20170832998	20171206	US20170832833	20171206	US20170832844	20171206
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US20170833115	20171206	US20170833101	20171206	US20170833158	20171206
US20170833134	20171206	US20180859772	20180102	US20180859773	20180102
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Family:	Publication number	Publication date	Application number	Application date
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	DE102016110902 A1	20161215	DE201610110902	20160614
	DE102016110903 A1	20161215	DE201610110903	20160614

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DE102016118777 A1	20170406	DE201610118777	20161004
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DE102016118782 A1	20170406	DE201610118782	20161004
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WO18069789 A1	20180419	WO20171B56066	20171002
WO18069790 A1	20180419	WO20171B56067	20171002
WO18069791 A1	20180419	WO20171B56069	20171002

Probable Assignee: FACENSE LTD

Assignee(s):(std): FACENSE LTD ; FRANK ARI M ; THIEBERGER GIL ; TZVIELI ARIE

Inventor(s):(std): TZVIELI ARIE ; THIEBERGER GIL ; FRANK ARI M ; TZVIELI ORI ; ARI M FRANK ; GIL THIEBERGER ; ARIE TZVIELI

Agent(s): ACTIVE KNOWLEDGE LTD

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML NM NR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): A61B3/113 A61B5/00 A61B5/01 A61B5/0205 A61B5/021 A61B5/024 A61B5/0295 A61B5/0402 A61B5/0476 A61B5/05 A61B5/08 A61B5/087 A61B5/091 A61B5/093 A61B5/103 A61B5/11 A61B5/1455 A61B5/16 A61B7/00 A61B7/04 A61M21/02 G01J5/00 G01J5/02 G01J5/08 G01J5/10 G01J5/12 G01N25/00 G02B27/00 G02B27/01 G02C11/00 G03B15/00 G06F16/583 G06F19/00 G06F3/01 G06K9/00 G06K9/62 G06N3/08 G06N99/00 G06T7/00 G06T7/60 G09B19/00 G09G5/00 G16H30/40 G16H50/20 G16H50/50 H04N13/00 H04N5/225 H04N5/232 H04N5/247 H04N5/33 (Advanced/Invention); A61B5/00 A61B5/01 A61B5/02 A61B5/0205 A61B5/024 A61B5/026 A61B5/04 A61B5/0402 A61B5/0476 A61B5/053 A61B5/08 A61B5/091 A61B5/11 A61B5/16 A61M21/00 G01J5/00 G02B27/01 G02C11/00 G06F16/335 G06F17/30 G06N3/00 G06N3/04 (Advanced/Non-invention)

CPC: G01J5/12 G01J2005/0085 G01J5/0265 A61B5/7282 A61B2562/0276 A61B2576/00 G01J2005/0077 A61B5/7278 A61B5/0008 A61B5/1128 A61B5/164 A61B5/0823 A61B5/0878 A61B5/7475 A61B5/091 A61B2503/12 A61B2562/0204 A61B2562/0233 A61B2562/046 G06F21/32 A61B7/003 A61B5/0935 A61B7/04 G09B19/00 G06T7/0014 H04N5/247 G06K9/00255 G06K9/00281 H04N5/2253 G06K9/6267 G06K9/6256 G06T7/60 G06K9/6202 G01J5/10 G01J5/0014 G06T2207/30201 A61B5/4064 A61B5/04014 A61B5/6819 G01J5/0205 G06T7/0012 G01N25/005 G01J5/0806 G06K9/00228 A61B5/11 G02C11/10 A61B2562/225 G16H50/50 G06N3/08 A61B5/02028 A61B5/4041 A61B5/4052 A61B5/41 A61B5/7445 G06K9/00234 A61B2560/0242 A61B7/00 A61B5/445 G02B2027/0187 G06K9/00302 H04N5/2252 H04N5/2254 H04N5/332 G02B27/017 G06K9/00536 G06K9/00885 A61B5/024 A61B5/01 A61B5/7264 A61B5/0022 A61B5/0077 A61B5/0402 A61B5/0476 A61B5/0531 A61B5/4803 A61B5/4845 A61B5/4875 A61B5/6898 A61B5/744 A61B5/748 A61B2560/0252 H04N5/2251 A61B5/16 G06N3/006 G06N3/0454 G06K2009/00939 A61B5/02055 A61M21/02 A61M2021/0088 A61M2205/507 A61M2230/42 A61M2230/50 A61M2230/63 A61M2230/65 H04N5/2257 A61B5/0533 G09B23/28 A61B5/4884 G06K9/00248 G06K9/2018 G06K9/3233 G06K9/4628 G06K9/4671 G06K9/627 G06K9/00 G06F3/012 G06F3/0304 G06F2203/011 A61B5/4094 A61B5/1032 A61B5/441 G06N20/00 G06F16/436 A61B5/1455 A61B5/0836 A61B5/681 A61B5/0013 A61B5/004 A61B5/4824 A61B5/746 A61B5/0295 A61B5/0833 A61B5/14552 A61B5/6835 A61B2505/07 G01J3/0254 G01J5/0275 G01J5/04 G01J2005/106 G02B2027/0181 G16H30/40 A61B5/0075 A61B5/6814 A61B2562/0271 G01J5/0025 G02B27/0176 G02B2027/014 G02B2027/0141 G06F16/337 G06F16/5838 H04N5/23219 G06N3/0445 A61B8/0816 A61B5/02125 A61B5/4848 A61B5/02427 A61B5/02433 A61B5/0261 A61B5/6826 A61B5/0064 A61B5/6831 A61B2560/0223 A61B2560/0247 A61B5/0002 A61B5/015 A61B5/0205 A61B5/02405 A61B5/02416 A61B5/02438 A61B5/08 A61B5/0816 A61B5/0873 A61B5/1118 A61B5/112 A61B5/1123 A61B5/163 A61B5/165 A61B5/168 A61B5/411 A61B5/486 A61B5/6803 A61B5/6821 A61B5/7267 A61B5/7275 A61B5/742 A61B2503/08 A61B2503/10 A63B23/18 A63B2071/0666 A61B3/113 G02B7/002 G02B13/14 G02B27/0093 G02B2027/0138 G16H20/30 G16H40/63 G16H50/70 H04N5/33 A63B71/0619 A63B71/0686 G02B27/0172 G02B2027/0178

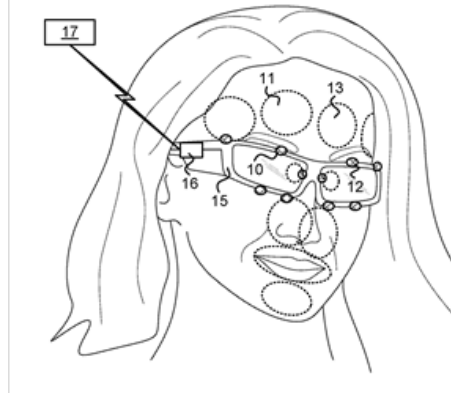
US class: 1/1 250/338.1 348/77 374/121 374/124 374/128 600/26 600/301 600/408 600/473 600/474 600/538 600/549

[Classification Explorer](#)

Cited documents: WOWO2016095057, WOWO2016025323, WO16095057 A1, WO16025323 A1, US9940710 BB, US9867546 BB, US9848780 BA, US9808204 BB, US9805475 BB, US9788714 BB, US9610035 BB, US9569734 BB, US9414769 BB, US9410854 BB, US9370302 BB, US9220856 BB, US9211069 BB, US9194749 BB, US9189021 BB, US9053483 BB, US9044180 BB, US9020185 BB, US9019174 BB, US9000933 BB, US8977347 BB, US8964298 BB, US8855384 BB, US8786698 BB, US8768438 BB, US8723790 BA, US8694899 BB, US8617081 BB, US8585588 BB, US8573866 BB, US8360986 BB, US8334872 BB, US8289443 BB, US8251903 BB, US8175670 BB, US8172459 BB, US8149273 BB, US7138905 BB, US7135980 BB, US7127081 BA, US7027621 BA, US6996256 BB, US6963074 BB, US6837615 BB, US6771423 BB, US6286958 BA, US6163281 A, US6129673 A, US6121953 A, US5757002 A, US5664578 A, US5143086 A, US2018314879 AA, US2018214079 AA, US2018206735 AA, US2018206733 AA, US2018199870 AA, US2018192950 AA, US2018177416 AA, US2018161579 AA, US2018146870 AA, US2018143458 AA, US2018031372 AA, US2017367590 AA, US2017319123 AA, US2017235931 AA, US2017231490 AA, US2017202505 AA, US2017112376 AA, US2017095157 AA, US2017091535 AA, US2017053447 AA, US2017011210 AA, US2017007167 AA, US2016360970 AA, US2016342835 AA, US2016341959 AA, US2016302677 AA, US2016270656 AA, US2016253561 AA, US2016235324 AA, US2016224803 AA, US2016216760 AA, US2016170996 AA, US2016120411 AA, US2016116979 AA, US2016100790 AA, US2016098592 AA, US2016091877 AA, US2016081622 AA, US2016037025 AA, US2016033792 AA, US2016022157 AA, US2016015289 AA, US2015366518 AA, US2015359443 AA, US2015332576 AA, US2015326570 AA, US2015310263 AA, US2015297126 AA, US2015157255 AA, US2015148618 AA, US2015126872 AA, US2015126845 AA, US2015112606 AA, US2015087924 AA, US2015005646 AA, US2014366049 AA, US2014347265 AA, US2014282911 AA, US2014213917 AA, US2014204235 AA, US2014180449 AA, US2013278631 AA, US2013257709 AA, US2013250232 AA, US2013241805 AA, US2013230074 AA, US2013215244 AA, US2013124039 AA, US2013116591 AA, US2013072820 AA, US2012327194 AA, US2012197093 AA, US2012105473 AA, US2012062719 AA, US2012029320 AA, US2011318717 AA, US2011275959 AA, US2010280334 AA, US2010241011 AA, US2010191124 AA, US2010168589 AA, US2009237564 AA, US2009221888 AA, US2008260212 AA, US2008146892 AA, US2007276632 AA, US2007265507 AA, US2007248238 AA, US2007047768 AA, US2005271117 AA, US2005083248 AA, US2004097839 AA, US2003012253 AA, US2002080094 AA, EP2233071 A1,

Forward Citations: WO19089014, WO19040669, WO18220203, WO18069791, WO18069790, WO18069789, US9967670, US9654734, US2019126152, US2018256115, US2018078187, US2018061127, US2018053041, US2017243387, US2017223459, US2017206712, US2017188928, US2017143211, US2017105662, US2017095157, US2017065183, US2016113345, US10410042, US10395508, US10388016, US10362265, US10339922, US10311287, US10299716, US10276210, US10217261, US10178969, US10169973, US10113913, US10098548, US10055892, US10043319, GB2570829, GB2570247, GB2569936, GB2569323, GB2561537,

Abstract: Wearable devices for taking symmetric thermal measurements. One device includes first and second thermal cameras physically coupled to a frame worn on a user's head. The first thermal camera takes thermal measurements of a first region of interest that covers at least a portion of the right side of the user's forehead. The second thermal camera takes thermal measurements of a second ROI that covers at least a portion of the left side of the user's forehead. Wherein the first and second thermal cameras are not in physical contact with their corresponding ROIs, and as a result of being coupled to the frame, the thermal cameras remain pointed at their corresponding ROIs when the user's head makes angular movements.

**4) Family number: 63579153** (US2016026253A)

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Title: METHODS AND SYSTEMS FOR CREATING VIRTUAL AND AUGMENTED REALITY

Priority: US20140205126 20140311 US20140012273P 20140614 US20140331218 20140714
US20140555585 20141127 US20150690401 20150418 US20150738877 20150613

Family:	Publication number	Publication date	Application number	Application date
	US2016026253 AA	20160128	US20150738877	20150613
	US10203762 BB	20190212	US20150738877	20150613

Probable Assignee: MAGIC LEAP INC

Assignee(s):(std): MAGIC LEAP INC

Assignee(s): JP MORGAN CHASE BANK NA

Inventor(s):(std): MILLER SAMUEL A ; BRADSKI GARY R ; ABOVITZ RONY

Agent(s): VISTA IP LAW GROUP LLP

International class (IPC 8-9): A63F13/00 G02B27/00 G02B27/01 G02B27/22 G06F3/01 G06F3/03 G06F3/0482 G06K9/00 G06T19/00 G10L19/00 H04N13/02 H04N13/04 H04N21/414 H04N7/18 (Advanced/Invention); H04N13/00 (Advanced/Non-invention)

CPC: G06F3/017 G02B27/0172 G06F3/013 G06F3/012 H04N7/185 G02B2027/0178 G02B2027/0187 G02B2027/014 G02B2027/0138 H04N13/194 H04N13/383 H04N13/395 H04N13/398 H04N13/0278 H04N13/044 H04N13/0484 H04N13/0495 H04N13/0497 H04N13/0059 H04N13/0239 A63F13/00 G02B27/0093 G02B27/225 G02B27/2278 G06F3/011 G06F3/016 G06F3/0304 G06F3/0482 G06K9/00389 G06K9/00671 G10L19/00 H04N13/128 H04N13/167 H04N13/239 H04N13/279 H04N13/332 H04N13/344 H04N13/366 H04N21/414 H04N2013/0081 G06F3/147 G09G3/002

US class: 345/8

[Classification Explorer](#)

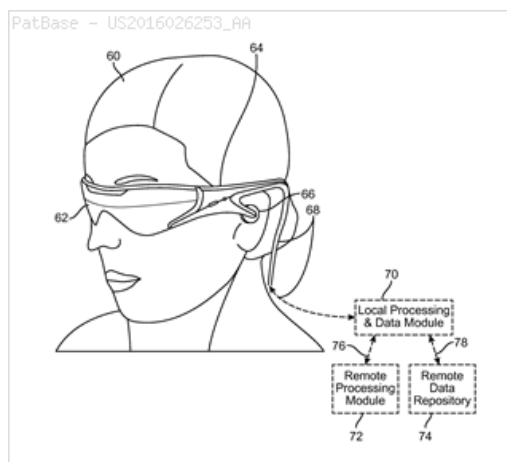
Cited documents: US9535506 BB, US9417452 BB, US9310559 BB, US9285872 BA, US9141193 BB, US8836768 BA, US8824802 BB, US8819812 BA, US8381108 BB, US8050465 BB, US7760182 BB, US7308112 BB, US6256400 BA, US6028664 A, US2016188181 AA, US2015016777 AA, US2015012426 AA, US2014281946 AA, US2014267009 AA, US2014184475 AA, US2014068173 AA, US2014043329 AA, US2014002444 AA, US2013294651 AA, US2013271370 AA, US2013265218 AA, US2013121570 AA, US2013095924 AA, US2013069985 AA, US2013004016 AA, US2012207384 AA, US2012113223 AA, US2012059706 AA, US2010149177 AA, US2010045705 AA, US2009316952 AA, US2007183653 AA, US2005256611 AA,

Forward Citations: WO19152351, WO19130349, WO19126671, WO19097522, WO19079003, WO19067641, WO19066436, WO19028479, WO19022849, WO19012522, WO19002666, WO18195099, WO18185169, WO18175780, WO18175625, WO18175546, WO18170421, WO18156737, WO18156192, WO18152455, WO18125405, WO18118958, WO18118435, WO18102246, WO18097882, WO18090056, WO18089691, WO18089041, WO18083687, WO18038834, WO18026737, WO18013495, WO18004863, WO17222997, WO17222685, WO17209829, WO17208148, WO17195177, WO17192467, WO17188696, WO17184694, WO17165848, WO17156412, WO17151245, WO17143012, WO17139667, WO17136833, USD835145, USD834606, USD823312, USD820313, USD790597, USD785656, USD774086, USD774085, USD772928, USD763913, USD762673, US9990779, US9983747, US9978181, US9972137, US9971415, US9959678, US9958843, US9952656, US9946072, US9940551, US9940535, US9933908, US9921660, US9916496, US9916002, US9910276, US9904058, US9894226, US9874749, US9864208, US9837760, US9837043, US9787846, US9754419, US9740239, US9740005, US9703374, US9696549, US9690374, US9665174, US9652897, US9652038, US9613461, US9606992, US9600094, US9594247, US9582922, US9540786, US9519144, US9417660, US9389424, US2018348885, US2018314888, US2018284459, US2018232941, US2018189532, US2018174366, US2018144537, US2018101989, US2018091953, US2018088669, US2018088344, US2018061138, US2018056190, US2018032130, US2018025545, US2018018451, US2018018064, US2017365101, US2017330385, US2017330378, US2017323481, US2017315347, US2017312634, US2017301140, US2017300285, US2017296872, US2017295278, US2017294048, US2017289623, US2017287205, US2017287097, US2017265272, US2017261610, US2017249726, US2017243369, US2017236337, US2017221276, US2017192499, US2017186232, US2017185142, US2017177075, US2017165525, US2017161590, US2017161546, US2017140216, US2017136296, US2017123208, US2017097506, US2017090747, US2017090477, US2017084293, US2017064209, US2017007843, US2017006172, US2017000342, US2016300387, US2016275722, US2016253844, US2016212272, US2016187652, US2016180592, US2016147304, US2016132189, US2016096073, US2016091964, US2015370070, US2015279105, US2015248119, US2015177514, US2014271074, US2014153173, US2013083064, US10417831, US10416776, US10412379, US10409385, US10408613, US10406440, US10404938, US10403046, US10402649, US10401954, US10401490, US10401158, US10397546, US10394030, US10393312, US10391408, US10390165, US10388077, US10386641, US10386640, US10386639, US10380800, US10380763, US10379621, US10379355, US10379354, US10379353,

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Abstract:

Configurations are disclosed for presenting virtual reality and augmented reality experiences to users. The system may comprise an image capturing device to capture one or more images, the one or more images corresponding to a field of the view of a user of a head-mounted augmented reality device, and a processor communicatively coupled to the image capturing device to extract a set of map points from the set of images, to identify a set of sparse points and a set of dense points from the extracted set of map points, and to perform a normalization on the set of map points.



5) Family number: 73733223 (US2019094981A)

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Title: METHODS AND SYSTEMS FOR CREATING VIRTUAL AND AUGMENTED REALITY

Priority: US20150738877 20150613 US20180200290 20181126

Family:	Publication number	Publication date	Application number	Application date
	US2019094981 AA	20190328	US20180200290	20181126

Probable Assignee: MAGIC LEAP INC

Assignee(s):(std): MAGIC LEAP INC

Assignee(s): JP MORGAN CHASE BANK NA

Inventor(s):(std): BRADSKI GARY R ; MILLER SAMUEL A ; ABOVITZ RONY

International class (IPC 8-9): A63F13/00 G02B27/00 G02B27/01 G02B27/22 G06F3/01 G06F3/03 G06F3/0482 G06K9/00 G10L19/00 H04N13/139 H04N13/189 H04N13/204 H04N13/279 H04N13/366 H04N21/414 H04N7/18 (Advanced/Invention); H04N13/00 H04N13/239 H04N13/371 (Advanced/Non-invention)

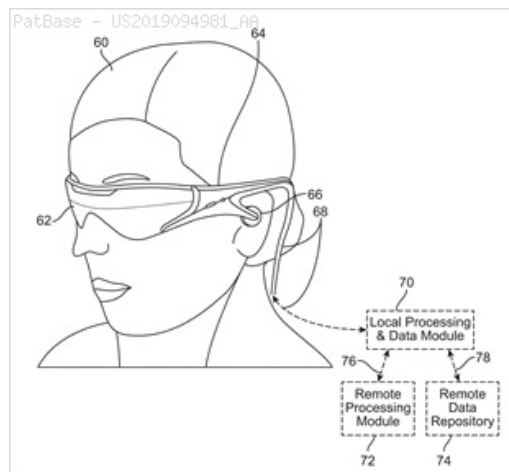
CPC: G06F3/017 H04N13/371 H04N13/204 H04N13/279 G06F3/012 H04N13/139 G06F3/013 H04N13/189 G06F3/0304 G02B27/0172 G06F3/011 G02B27/0093 G10L19/00 G06F3/0482 G06K9/00671 G02B27/225 A63F13/00 G06F3/016 G02B27/2278 H04N21/414 H04N2013/0081 G02B2027/0178 G02B2027/014 G02B2027/0187 H04N13/366 G06F3/014 G06F3/0346 G06K9/00268 G06K9/00389 G06K9/4642 G06K9/4652 H04N7/185 H04N13/117 H04N13/239 H04N13/271 H04N13/344 H04N13/383

US class: 1/1

[Classification Explorer](#)

Abstract:

Configurations are disclosed for presenting virtual reality and augmented reality experiences to users. The system may comprise an image capturing device to capture one or more images, the one or more images corresponding to a field of the view of a user of a head-mounted augmented reality device, and a processor communicatively coupled to the image capturing device to extract a set of map points from the set of images, to identify a set of sparse points and a set of dense points from the extracted set of map points, and to perform a normalization on the set of map points.



6) Family number: 48070268 (US2011004481A)

© PatBase

Title: SYSTEM AND METHOD FOR COMMUNICATING AND INTERFACING BETWEEN REAL AND VIRTUAL ENVIRONMENTS

Priority: US20080098329P 20080919 US20090563759 20090921

Family:	Publication number	Publication date	Application number	Application date
	US2011004481 AA	20110106	US20090563759	20090921

Probable Assignee: DELL INC

Assignee(s):(std): DELL INC ; DELL PRODUCTS LP

Assignee(s): DELL PRODUCTS L P

Inventor(s):(std): JONES CASEY CURTIS

Agent(s): DUBOIS BRYANT CAMPBELL AND SCHWARTZ LLP

International class (IPC 8-9): G06F3/01 G06Q30/00 G06Q99/00 H04N9/47 (Advanced/Invention)

CPC: G06F3/011 G06F3/0488 G06Q30/00

European class: G06F3/01B G06F3/0488 G06Q30/00

US class: 348/143 348/143S 348/E9.033 348/E90.33S 705/1.1 705/1.100P 715/716 715/716S

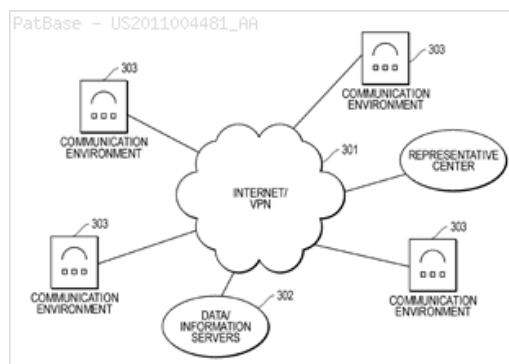
[Classification Explorer](#)

Cited documents: US2010306021 AA, US2008158222 AA, US2007179867 AA, US2004044542 AA,

Forward Citations: WO16134331, WO14121079, WO14121079, US9990373, US9952427, US9910761, US9843766, US9818162, US9756287, US9516270, US9439563, US9414051, US9380976, US9265458, US9250703, US9094570, US9086776, US9037968, US8879155, US8850342, US8660924, US8649533, US8560482, US8478187, US2016348647, US2015381937, US2015379406, US2015156228, US2015100464, US2014357377, US2014222627, US2014221089, US2013257877, US2013014055, US2012295708, US2012148998, US2012127281, US2011239143, US2011137844, US2011131510, US2011083075, US10419921, US10311482, US10176519, RU2617918, JP5651639, JP2014010605, CN104571805,

Abstract:

A human-to-avatar communication environment is disclosed in which a user comes into contact with a life-sized avatar simulating a sales assistant. The avatar communicates with the user to assist with product information, give advice, provide specifications, answer questions, and transact sales. By interacting with the user, the avatar may gather information from the user that indicates the user's interests. The avatar could assist the user by providing information that may include answering questions the user may have about certain products, directing the user to detailed information about the products, informing the user about the product that best suits the user's needs, informing the user of any complementary or popular accessories that go along with the product, helping the user purchase the products, and notifying the retail store's inventory to prepare the product for delivery or pick-up by the user. In addition, the avatar may provide the user with product information which may include information about a specific product, information about a class of products, information used in the sale of a product, a product rating, a product description, a product price, a product's features, a product's peripheral devices, or any other type of information associated with a product. The user could also be provided with information regarding promotions or prizes from an external source (e.g. online, a catalog, an advertisement, etc.) and instructions to redeem the prize at the communication environment. The avatar could then assist the user in redeeming the prize or receiving, for example, a discount offered in a promotion.



7) Family number: 62808354 (US9381426B)

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Title: SEMI-AUTOMATED DIGITAL PUPPETRY CONTROL

Priority: US20130790467P 20130315 US20140216488 20140317

Publication number	Publication date	Application number	Application date
US9381426 BA	20160705	US20140216488	20140317

Probable Assignee: OF CENTRAL FLORIDA RESEARCH FOUNDATION INC UNIV

Assignee(s):(std): UNIV CENTRAL FLORIDA RES FOUND

Assignee(s): NATIONAL INSTITUTES OF HEALTH NIH US DEPT OF HEALTH AND HUMAN SERVICES DHHS US GOVERNMENT ; NAVY SECRETARY OF UNITED STATES OF AMERICA ; OF CENTRAL FLORIDA RESEARCH FOUNDATION INC UNIV

Inventor(s):(std): NAGENDRAN ARJUN ; HUGHES CHARLES E ; HYNES MICHAEL C ; DIEKER LISA A

Agent(s): POSTERMAK BLANKSTEIN AND LUND LLP

International class (IPC 8-9): A63F13/219 G06T17/00 (Advanced/Invention); G06F3/01 (Advanced/Non-invention)

CPC: G06F3/011 G06F3/017 A63F13/42 A63F2300/6607 H04L67/06

US class: 1/1

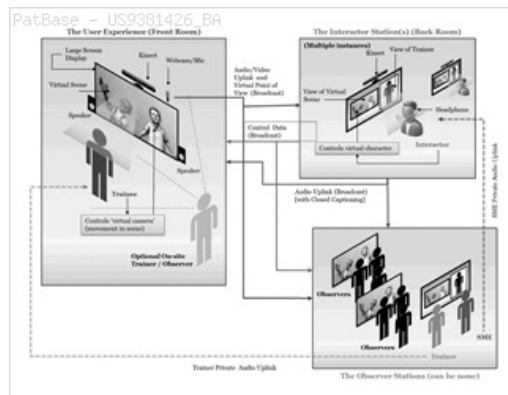
[Classification Explorer](#)

Cited documents: US2013002669 AA, US2011175918 AA, US2004190775 AA,

Forward Citations: WO19147392, WO18112112, US9987749, US2016232698, US10049483,

Abstract:

A low-cost, low-demand (physical and cognitive) interface for puppeteers that allows them to easily participate in the control of verbal and non-verbal activities of a set of virtual characters or avatars. The invention further provides a low-cost, unencumbered interface for participants that allows them to employ both natural movement and also verbal and non-verbal interaction with virtual characters. A network protocol supports real-time remote interaction even when dealing with relatively poor network connections; and an integrated after-action review system supports trainers in the processes of tagging and commenting on events, subsequently using these to assist reflection on the part of participants.



8) Family number: 55522375 (US2016267942A)

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Title: MOTION TRACKING SYSTEM

Priority: GB20130018838 20131024 GB20130021981 20131212 WO2014EP72920 20141024

Publication number	Publication date	Application number	Application date
EP3061092 A1	20160831	EP20140799681	20141024
GB201318838 A0	20131211	GB20130018838	20131024
GB201321981 A0	20140129	GB20130021981	20131212
GB201608790 A0	20160706	GB20160008790	20141024
GB2536822 A1	20160928	GB20160008790	20141024
GB2536822 B2	20180404	GB20160008790	20141024
HK1232329 A1	20180105	HK20170103214	20170328
US2016267942 AA	20160915	US20140031900	20141024
US10032480 BB	20180724	US20140031900	20141024
WO15059304 A1	20150430	WO2014EP72920	20141024

Probable Assignee: VISIBLE INK TELEVISION LTD

Assignee(s):(std): VISIBLE INK TELEVISION LTD

Inventor(s):(std): FISHER MARTIN ; MARTIN FISHER

Agent(s): ELLIS MICHAEL JAMES; VIVIEN CHAN AND CO; BERLINER AND ASSOCIATES; ELLIS MICHAEL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW

MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM
SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): G06T G06T11/60 G06T13/40 G06T13/80 G06T7/20 G11B G11B27/031 H04N H04N5/262 H04N5/272 (Advanced/Invention); G11B27/031 H04N5/272 (Advanced/Non-invention); G06T G11B H04N (Subclass/Invention)

CPC: G06T13/40 G06T11/60 G11B27/031 H04N5/272 G06T13/80 H04N5/262

US class: 1/1 386/280

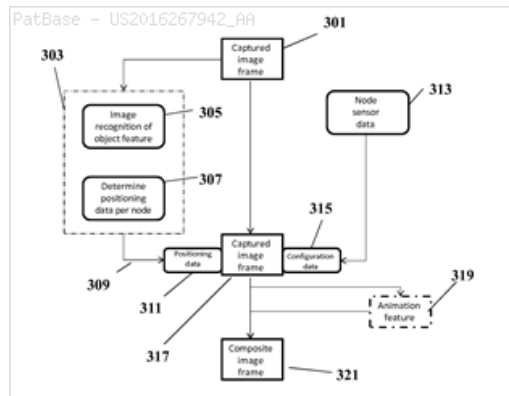
[Classification Explorer](#)

Cited documents: WO11034963 A2, US2015297949 AA, US2005207617 AA,

Forward Citations: USD810761, JP6465209, JP2016207983,

Abstract:

In a method of producing a composite animation live captured image sequence by capturing a live action sequence of action scenes with an image capture device, which include a stand-in for an animated feature or character, generating concurrently with the live action sequence configuration data for the stand-in, positioning data associated with the stand-in derived through machine vision techniques applied to the live action sequence image frames; producing from the configuration data and the positioning data a computer-generated animated sequence for combining with the captured image sequence to produce composite image sequence comprising the animated feature in place of the stand-in, both the configuration data and frame-by-frame virtual camera data corresponding to the live action image captured frames can be synchronously incorporated enabling efficient and effective production of composite animation live action digital video or film or broadcast. As such, the stand-in tracking data is video-ready such that all animation data may be readily slotted into the captured video image to produce a composite that achieves the requirement of suspended disbelief.



9) Family number: 42973589 (US2009055019A)

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Title: INTERACTIVE SYSTEMS EMPLOYING ROBOTIC COMPANIONS

Priority: US20070928487P 20070508 US20080117389 20080508

Family:	Publication number	Publication date	Application number	Application date
	US2009055019 AA	20090226	US20080117389	20080508
	US8909370 BB	20141209	US20080117389	20080508

Probable Assignee: MASSACHUSETTS INST OF TECHNOLOGY

Assignee(s):(std): BREAZEAL CYNTHIA ; CHEUNG IRIS M ; KNIGHT HEATHER ; LEE JUN KI ; MASSACHUSETTS INST TECHNOLOGY ; TOSCANO ROBERT L ; MAYMIN ALLAN Z ; STIEHL WALTER DAN

Assignee(s): MASSACHUSETTS INSTITUTE OF TECHNOLOGY ; MASSACHUSETTS INST ; MASSACHUSETTS INST OF TECHNOLOGY

Inventor(s):(std): KNIGHT HEATHER ; MAYMIN ALLAN Z ; TOSCANO ROBERT L ; CHEUNG IRIS M ; STIEHL WALTER DAN ; BREAZEAL CYNTHIA ; LEE JUN KI

Agent(s): GORDON E NELSON PATENT ATTORNEY PC ; STEPHEN R

International class (IPC 8-9): B25J13/00 B25J13/02 B25J13/08 B25J19/02 B25J9/04 B25J9/16 G06F19/00 G06N3/00 (Advanced/Invention); B25J13/02 B25J13/08 B25J19/02 B25J9/02 B25J9/16 (Core/Invention)

CPC: B25J13/00 A63H2200/00 B25J9/1671 B25J13/081 G06N3/008 B25J9/1656 G05B2219/33051 G05B2219/35444

European class: B25J13/00 B25J13/08B B25J9/16P5 G06N3/00L3 K63H200/00

US class: 700/245 700/249 700/249P 700/254 700/254S 700/258 700/258S 700/259 700/259S 700/260 700/260S 700/264 700/264S 901/10 901/10S 901/17 901/17S 901/20 901/20S 901/30 901/30S 901/47 901/47S 901/50 901/50S

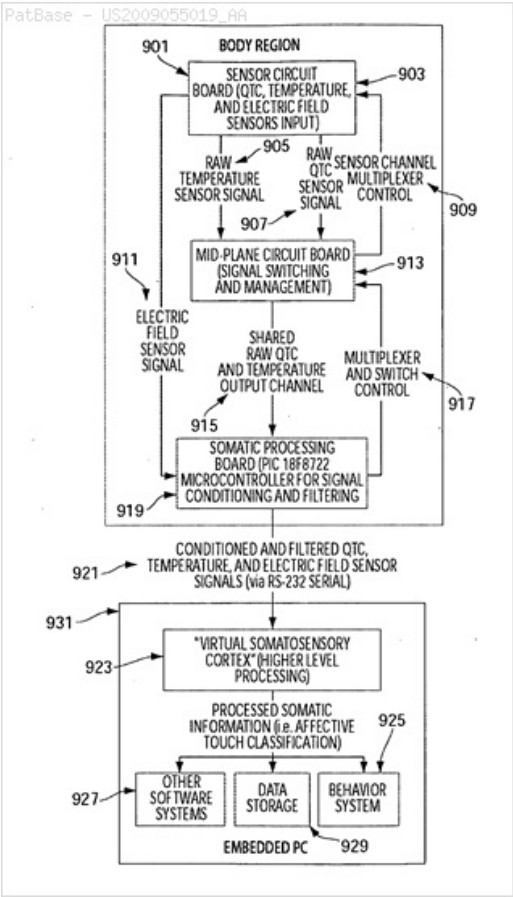
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Forward Citations: WO19135780, WO19133680, WO18233857, WO18084170, WO17204826, WO17024176, WO16172002, WO16099827, WO14184288, WO13166146, USD761895, USD746886, US9952590, US9950431, US9939169, US9902061, US9886032, US9885876, US9878228, US9878214, US9868204, US9868034, US9846843, US9841758, US9836046, US9829882, US9827487, US9824606, US9808678, US9804594, US9802314, US9802125, US9798325, US9796095, US9796093, US9792825, US9791858, US9782637, US9766620, US9766089, US9764201, US9757624, US9733644, US9713675, US9712359, US9710613, US9704103,

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Abstract:
 An interactive system for interacting with a sentient being. The system includes a robotic companion of which the sentient being may be a user and an entity which employs the robot as a participant in an activity involving the user. The robotic companion responds to inputs from an environment that includes the user during the activity. The robotic companion is capable of social and affective behavior either under control of the entity or in response to the environment. The entity may provide an interface by which an operator may control the robotic companion. Example applications for the interactive system include as a system for communicating with patients that have difficulties communicating verbally, a system for teaching remotely-located students or students with communication difficulties, a system for facilitating social interaction between a remotely-located relative and a child, and systems in which the user and the robot interact with an entity such as a smart book. Also disclosed are control interfaces for the robotic companion, techniques for rendering the robotic companion sensitive to touch and responding to those touches, and techniques for providing quiet, back-drivable motion to components of the robotic companion.



10) Family number: 47944668 (US7862522B) © PatBase				
Title:	SENSOR GLOVE			
Priority:	US20050706627P 20050808 US20060501547 20060808			
Family:	Publication number	Publication date	Application number	Application date
	US7862522 BA	20110104	US20060501547	20060808
Probable Assignee:	BARCLAY DAVID			
Assignee(s):(std):	BARCLAY DAVID ; LANOIL BRUCE ; SILVER GLENN ; VERSTEEGH JOHAN			

Family:

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Probable Assignee: MEDIBOTICS LLC

Assignee(s):(std): BEHYMER JEDIDIAH ; CONNOR ROBERT A ; HARDYMAN MATTHEW ; HERICKS MATT ; MEDIBOTICS LLC ; HOMMER GARRISON ; LOPEZ GUS ; SMIDA JOHN ; OLSON TYLER ; STEIN ALEX ; VALENCIA DANIEL ; WONG ERIC

Inventor(s):(std): CONNOR ROBERT A ; BEHYMER JEDIDIAH ; HARDYMAN MATTHEW ; HERICKS MATT ; HOMMER GARRISON ; LOPEZ GUS ; OLSON TYLER ; SMIDA JOHN ; STEIN ALEX ; VALENCIA DANIEL ; WONG ERIC

International class (IPC 8-9): A41B1/08 A41B7/00 A41D13/12 A41D27/10 A41D27/20 A44C5/00 A44C9/00 A47G21/02 A61B19/00 A61B5/00 A61B5/01 A61B5/0205 A61B5/026 A61B5/03 A61B5/04 A61B5/0402 A61B5/0476 A61B5/0478 A61B5/0482 A61B5/0488 A61B5/053 A61B5/107 A61B5/11 A61B5/117 A61B5/145 A61B5/1455 A61B5/1468 A61B5/1477 A61B7/00 A61B7/04 A61B90/00 A61F5/00 A61M1/12 A61M21/00 A61M31/00 A61M5/142 A61M5/172 A61N1/365 A61N1/372 A61N2/00 A61N2/02 G01B11/25 G01B7/16 G01J3/02 G01J3/10 G01J3/28 G01N21/25 G01N21/27 G01N21/33 G01N21/35 G01N21/3554 G01N33/02 G01R27/02 G06F1/16 G06F17/00 G06F19/00 G06F3/01 G06F3/03 G06F3/0346 G06F3/044 G06K9/00 G06K9/22 G06T1/00

CPC:

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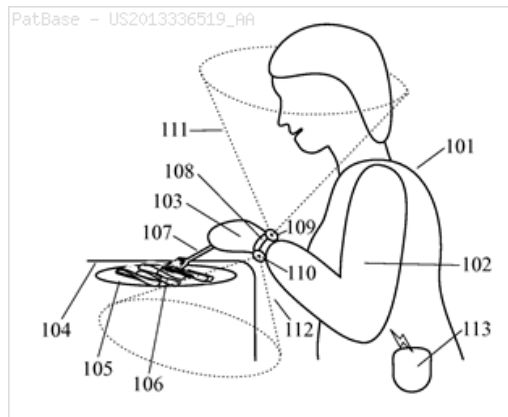
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Abstract:

This invention is a wearable, automatic, and tamper-resistant device and method for monitoring and measuring food consumption and caloric intake. It can help people to manage their energy balance and weight. It can be embodied as: (a) one or more automatic-imaging members that are worn on a person from which these members collectively and automatically take pictures of the person's mouth and pictures of a reachable food source when the person eats; (b) a tamper-resisting mechanism which detects and responds if the operation of the one or more automatic-imaging members is impaired; and (c) an image-analyzing member which automatically analyzes pictures of the person's mouth and pictures of the reachable food source in order to estimate the types and quantities of food that are consumed by the person.



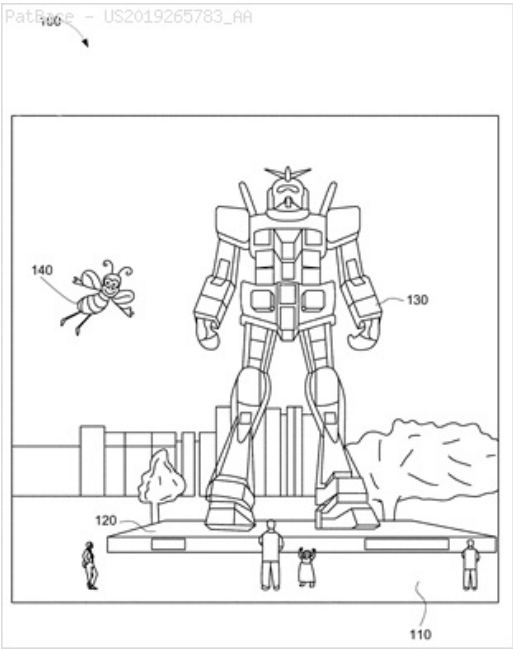
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Priority:	US20180636695P 20180228		US20190280740 20190220	
Family:	Publication number	Publication date	Application number	Application date
	US2019265783 AA	20190829	US20190280740	20190220
	WO19168723 A1	20190906	WO2019US18815	20190220
Probable Assignee:	MAGIC LEAP INC			
Assignee(s):(std):	MAGIC LEAP INC			
Assignee(s):	JP MORGAN CHASE BANK NA			
Inventor(s):(std):	WEDIG GEOFFREY			
Agent(s):	ALTMAN DANIEL E			
Designated states:	AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW			
International class (IPC 8-9):	G01S17/00 G01S17/87 G01S5/00 G01S5/16 G02B27/01 G06F3/01 G06T19/00 (Advanced/Invention)			
CPC:	G06F3/012 G06T19/006 G02B3/14 G02B27/017 G06F3/013 G02B2027/0127 G02B2027/014 G02B2027/0174 G02B2027/0187 G06K9/00248			

Classification Explorer

Abstract:
Methods and systems for aligning head scans of a subject for a virtual avatar can be based on locating eyes of the subject in the scans. After one or more eyeball models are fitted to reference candidate points of a sclera of each eyeball of the subject in a reference head scan, an additional reference point can be inferred from the eyeball models. The eyeball models can be fitted to candidate points of the sclera of each eyeball of the subject in another head scan and an additional point can be inferred from the fitted eyeball models. An affine transformation can be determined between the head scans based on the eyeball models fitted to the candidate points in the reference head scan and the other head scan and the additional points inferred. The methods and systems can be used for rigging or animating the virtual avatar.



13) Family number: 75910959 (WO19177870A1) © PatBase

Title: ANIMATING VIRTUAL AVATAR FACIAL MOVEMENTS ANIMATION DE MOUVEMENTS FACIAUX D'AVATAR VIRTUEL

Priority: US20180643548P 20180315

Family:

Publication number	Publication date	Application number	Application date
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Probable Assignee: MAGIC LEAP INC

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Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT HW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): G02B27/01 G06F3/01 G06K9/00 G06T7/00 G06T7/20 (Advanced/Invention)

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Abstract:
Systems and methods generating an animation rig corresponding to a pose of a subject include accessing image data corresponding to the pose of the subject. The image data can include the face of the subject. The systems and methods process the image data by successively analyzing subregions of the image according to a solver order. The solver order can be biologically or anatomically ordered to proceed from subregions that cause larger scale movements to subregions that cause smaller scale movements. In each subregion, the systems and methods can perform an optimization technique to fit parameters of the animation rig to the input image data. After all subregions have been processed, the animation rig can be used to animate an avatar to appear to be performing the pose of the subject.

