Supporting Information

Vernon et al. 10.1073/pnas.1409860111

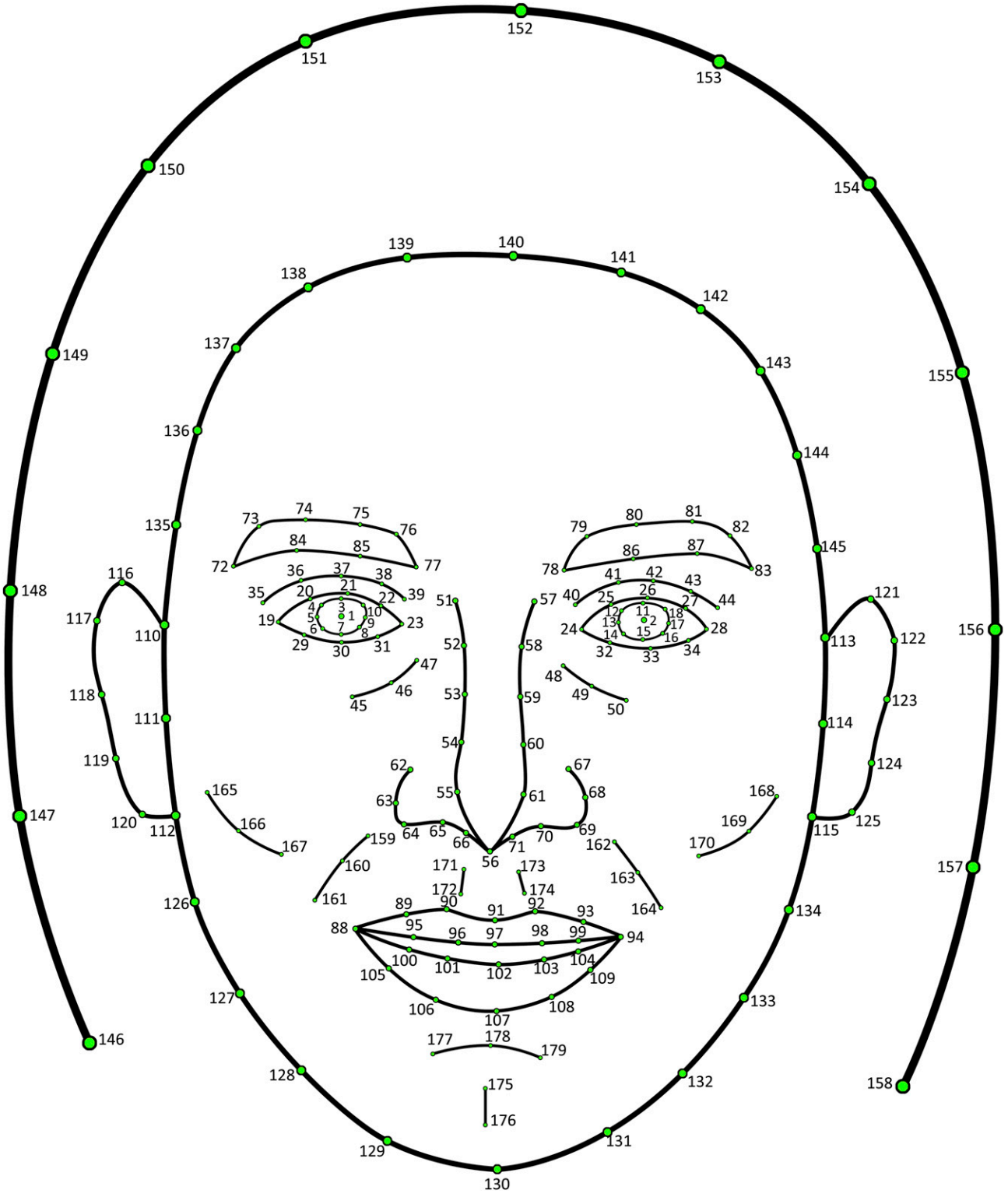


Fig. S1. Key to fiducial points.

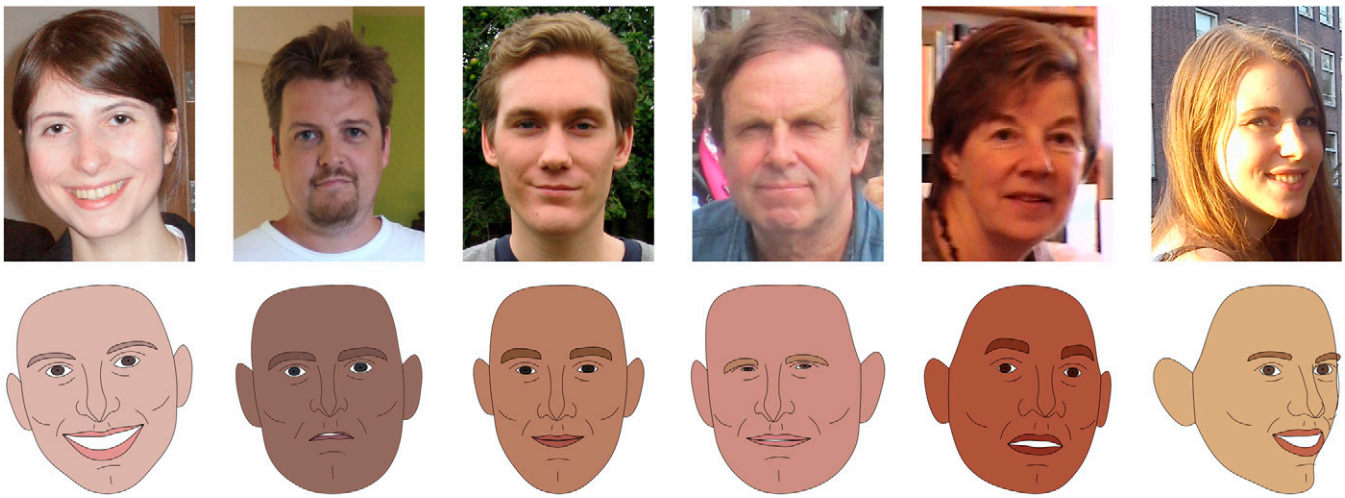


Fig. S2. Examples of individual face reconstructions based on modeled attributes.

Table S1. Description of attributes derived from ambient face images

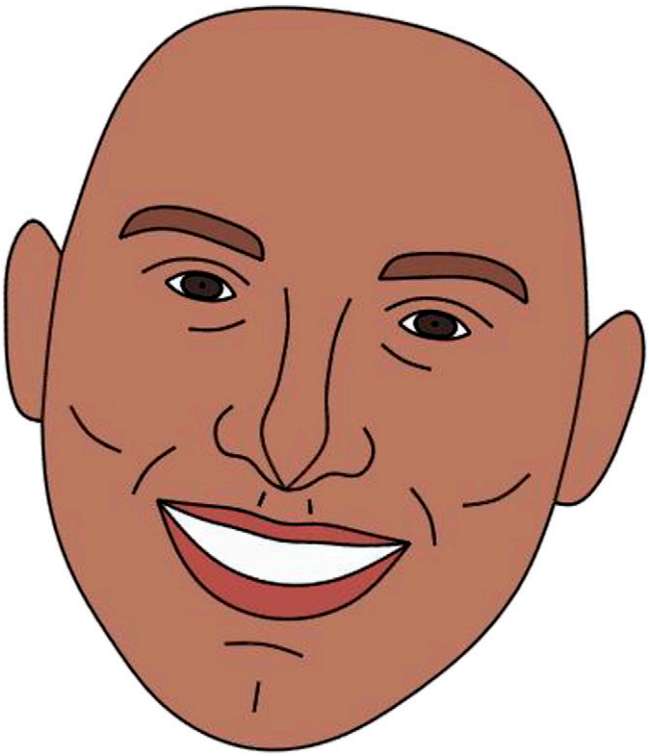
Attribute		Calculation
01.	Head area	Area enclosed by points 135:145, 113:115, 126:134, 110:112
02.	Head height	Vertical distance between centroid of 139:141 and centroid of 129:131
03.	Head width	Horizontal distance between centroid of 110:112 and centroid of 113:115
04.	Head orientation 1	Absolute *x* axis coordinate of middle of nose (centroid of 54:56, 60, 61, 66, 71). Should increase as individual looks to the left or right.
05.	Head orientation 2	Absolute *y* axis coordinate of middle of nose (centroid of 54:56, 60, 61, 66, 71). Should increase when looking down (may be confounded by nose length).
06.	Head tilt*	Gradient of line used for *x* axis before standardization. Should increase as individual's face becomes tilted (i.e., rotation about nose).
07.	Eyebrow area	Area enclosed by points 72:77, 85, 84
08.	Eyebrow height	Vertical distance between centroid of 72, 84, 85, 77 and centroid of 73:76
09.	Eyebrow width	Horizontal distance between point 72 and point 77
10.	Eyebrow gradient*	Absolute gradient of linear polynomial fitted through points 84, 85, 77. Should increase as eyebrows become arched, or slant downward.
11.	Eye area	Area enclosed by points 19:23, 31, 30, 29
12.	Iris area	Area enclosed by points 3:10
13.	Eye height	Vertical distance between centroid of 20:22 and centroid of 29:31
14.	Eye width	Horizontal distance between points 19 and 23
15.	% Iris*	$(1/\pi r^2)$*Iris area, where *r* is 1/2 horizontal distance between points 5 and 9. Intended to show what percentage of the iris is visible, should approach one as iris becomes less hidden and more circular
16.	Nose area	Area enclosed by points 51:54,62:66,56,71:67,60:57
17.	Nose height	Vertical distance between points 56 and centroid of 51,57
18.	Nose width	Horizontal distance between centroid of 67:69 and centroid of 62:64
19.	Nose curve*	Coefficient of x^2 from quadratic polynomial fitted through points 64:66, 56, 71:69. Should increase as the bottom of the nose becomes less flat
20.	Nose flare	Vertical distance between centroid of 65, 70 and centroid of 64, 66, 71, 69 Should increase as nostrils become dilated/larger.
21.	Jaw height	Vertical distance between centroid of 112,115 and centroid of 129:131
22.	Jaw gradient*	Absolute gradient of linear polynomal fitted through points 128:130
23.	Jaw deviation	SD of distances between all points on jaw (126:134) and point at the top of the jaw (x = average of 112, 115, 126:134; y = average of 112, 115) Should increase as jaw becomes longer/less rounded.
24.	Chin curve*	Coefficient of x^2 from quadratic polynomial fitted through points 128:132. Similar to jaw gradient (should increase as chin gets less rounded)
25.	Mouth area	Area enclosed by points 88:94, 109:105
26.	Mouth height	Vertical distance between centroid of 88:94 and centroid of 88, 105:109.94
27.	Top lip height	Vertical distance between centroid of 88:94 and centroid of 88, 95:99,94
28.	Bottom lip height	Vertical distance between centroid of 88, 100:104, 94 and centroid of 88, 105:109.94
29.	Mouth width	Horizontal distance between points 94 and 88
30.	Mouth gap	Vertical distance between centroid of 88, 95:99, 94 and centroid of 88, 100:104, 94. Should increase with an open mouth.
31.	Top lip curve*	Coefficient of x^2 from quadratic polynomial fitted through points 88–95:99–94
32.	Bottom lip curve*	Coefficient of x^2 from quadratic polynomial fitted through points 88–100:104–94. The above two attributes should increase with a smile.
33.	Nose line sep.	Horizontal distance between centroid of 171:172 and centroid of 173:174
34.	Cheekbone position*	(1/head height) × (vertical distance between centroid of 165:170 and centroid of 129:131)
35.	Cheek gradient*	Absolute gradient of linear polynomal fitted through points 165:167
36.	Eye line gradient*	Absolute gradient of linear polynomal fitted through points 45:47
37.	Eyes position*	(1/head height) × (vertical distance between centroid of 13:34 and centroid of 129:131)
38.	Eyebrows position*	(1/head height) × (vertical distance between centroid of 72:87 and centroid of 129:131)
39.	Mouth position*	(1/head height) × (vertical distance between centroid of 88:94,105:109 and centroid of 129:131)
40.	Nose position*	(1/head height) × (vertical distance between centroid of 51:71 and centroid of 129:131) These attributes all return a value between 0 (bottom of face) and 1 (top of face). If nose position was 0.5, it would suggest that the middle of the nose is vertically located in the middle of the face.
41.	Eye separation	Horizontal distance between centroid of 2, 11:18, 24:28, 32:34 and centroid of 1, 3:10, 19:23, 29:31
42.	Eyes-mouth distance	Vertical distance between centroid of 23:24 and centroid of 90:92
43.	Eyes-eyebrows distance	Vertical distance between centroid of 72, 84, 85, 77, 78, 86, 87, 83, and centroid of 20:22, 25:27
44.	Left jead to left eye	Horizontal distance between centroid of 110:112 and 19
45.	Right head to right eye	Horizontal distance between centroid of 113:115 and 28
46.	Mouth-chin dististance	Vertical distance between centroid of 106:108 and centroid of 129:131
47.	Mouth-nose distance	Vertical distance between centroid of 66, 56, 71 and centroid of 90:92

Table S1. Cont.

Attribute		Calculation
48.	Skin hue*	Color information (HSV format) for area enclosed by points points 135:145, 113:115, 134:126, 112:110, excluding the eyebrows, eyes, and mouth.
49.	Skin saturation*	
50.	Skin value*	
51.	Eyebrow hue*	Color information (HSV format) for area enclosed by points points 72:77, 85,84 and 78:83, 87,86.
52.	Eyebrow saturation*	
53.	Eyebrow value*	
54.	Lip hue*	Color information (HSV format) for area enclosed by points points 88:94, 99:95 and 88, 100:104, 94, 109:105.
55.	Lip saturation*	
56.	Lip value*	
57.	Iris hue*	Color information (HSV format) for area enclosed by points points 3:10 and 11:18.
58.	Iris saturation*	
59.	Iris value*	
		Hue represents color, it should increase as the hue becomes redder, and decrease as it becomes yellower. Saturation is how vibrant that color is; as this attribute decreases the color becomes more faded. Value (or brightness) is how light or dark the color is, as this increases the color becomes lighter.
60.	Hue entropy*	These attributes are based on Matlab's "entropyfilt," used on the hue, saturation and value channels of the area classed as skin (see skin color above). As these attributes decrease, the respective channel should become more uniform ('smoother').
61.	Saturation entropy*	
62.	Value entropy*	
63.	Glasses*	Signifies whether the person has glasses (1) or not (0)
64.	Facial hair*	Signifies whether the person has facial hair (beard, moustache; 1) or not (0)
65.	Stubble*	Signifies whether the person has stubble (1) or not (0)

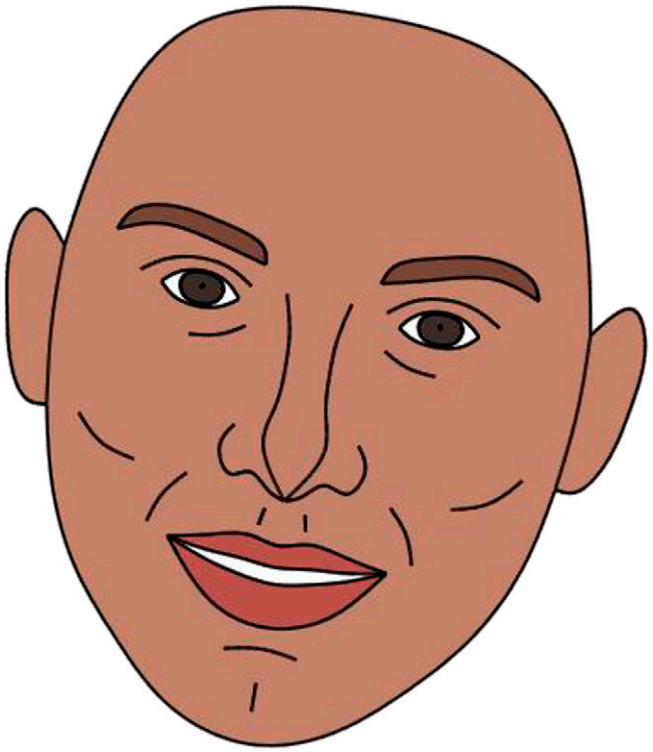
Refer to Fig. S1 for the location of the numbered fiducial points mentioned in the Description column [specified using Psychomorph (1)], *m*:*n* indicates inclusive ranges of points *m* through *n*. An asterisk indicates attributes where (further) normalization with reference to head size was not applicable. HSV, hue, saturation, value.

1. Tiddeman B, Burt M, Perrett D (2001) Prototyping and transforming facial textures for perception research. *Computer Graphics and Applications, IEEE* 21(5):42–50.



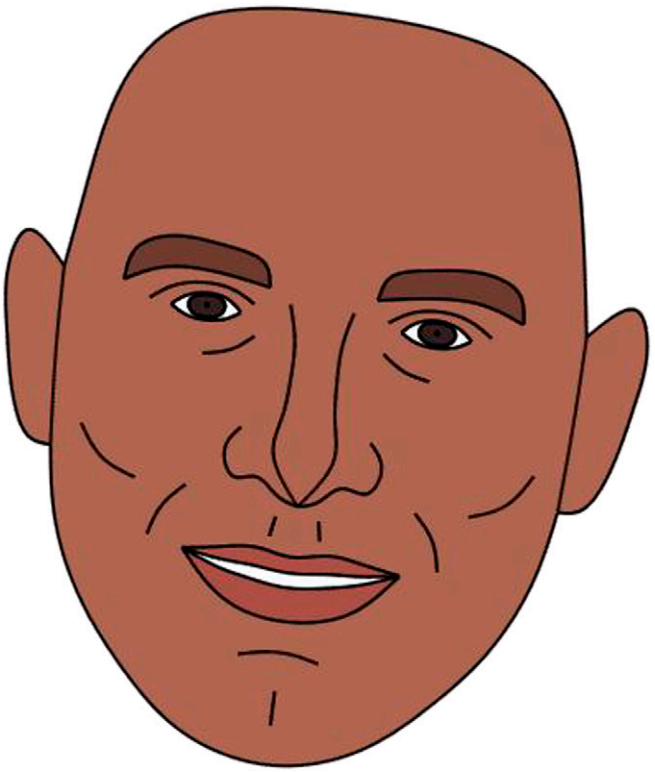
Movie S1. Animation showing changes in facial features associated with the Approachability dimension. Face-like images generated using the approach illustrated in Fig. 1 *C* and *D* with target factor scores varying from (–1, 0, 0) to (1, 0, 0) (and back again).

Movie S1



Movie S2. Animation showing changes in facial features associated with the Youthful-Attractiveness dimension. Face-like images generated using the approach illustrated in Fig. 1 *C* and *D* with target factor scores varying from (0, −1, 0) to (0, 1, 0) (and back again).

Movie S2



Movie S3. Animation showing changes in facial features associated with the Dominance dimension. Face-like images generated using the approach illustrated in Fig. 1 *C* and *D* with target factor scores varying from (0, 0, −1) to (0, 0, 1) (and back again).

Movie S3