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WSQ: Women's Studies Quarterly, Volume 37, Numbers 1 & 2,
Spring/Summer 2009, pp. 183-199 (Article)

Published by The Feminist Press
DOI: *https://doi.org/10.1353/wsq.0.0150*

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KARYL E. KETCHUM

> *FaceGen software is incredible. It has dramatically improved the production of heads for our latest game release[,] Agassi Tennis Generation 2002. The interface is a delight to use. Watching a face being created is a magical experience. The mere slide of a button can change [a] character from evil to nice, from black to white, from girl to boy. Frankly[,] using the software is an entertainment in its own right!*
>
> —Paul Ranson, Aqua Pacific Games

In an interview conducted by Gerard Raulet, Michel Foucault states, "In studying the rationality of dominations, I try to study the interconnections that are not isomorphisms" (qtd. in Faubion 1994, 451). He goes on to discuss the ways in which historical strains of power are interconnected through the specific forms of rationality they share. However, he warns that these relations themselves do not remain constant; rather, they adjust themselves in such a way as to preserve and even protect their rational underpinnings, even in the face of competing forces and the shifting demands of the cultural present. To use the vernacular of technology: they morph. In so doing they fit to the cultural present while retaining the familiar surface texture of history—the prerequisite to their intelligibility. Historically, when these forms have applied their rationality to the body, they have exerted a method of control or discipline that combines normative judgments with hierarchical observation to produce power. When we look in the right places, we find this same phenomenon playing out again in and through the technovisual present in the interests of contemporary deployments of race, criminality, and the global geopolitical proliferation of "terror." Technology, as a formalized organization of cultural, ideological, and material/physical impulses into specialized modes of thinking and doing, seems de facto to offer us ourselves anew and is commonly imagined as inherently teleological—always both progress and progressive. Technology may, however, inaugurate a regressive and even violent return. This essay examines one form of technological

[*WSQ: Women's Studies Quarterly* 37: 1 & 2 (Spring/Summer 2009)]

(ir)rationality as it is produced through the visible body with a focus on the way in which it has come to fit again within the technovisual present—to return by way of nascent digital imaging technologies.

SURFACES VERSUS INTERIORS: MAKING THE BODY INTELLIGIBLE

Cultural understandings of the body have been shaped by a discourse preoccupied with surfaces and interiors, with the seeable versus the unseen, and with the exterior as a reflection—or not—of interior. By way of this (and currently exacerbated by contemporary geopolitics), the fear of form as a kind of chimera capable of deceit through the concealment of a dangerous or evil interior . . . *something*, along with the drive to reveal and thereby control and master the truths of the body, continues, even as it would seem anachronistic in an age when the body is "left behind" in the interest of all things virtual. The gaming industry interprets and represents the body through technology so as to create virtual bodies through which players can conduct what Sandy Stone (1995) calls their "prosthetic technological selves." The meanings available to determine these virtual bodies are, by and large, the same meanings available to determine physical bodies. However, the semiotic limitations restricting one become, as we will see, a troubling kind of fodder for the other. The statistically based face-generating software called FaceGen provides us with one contemporary example of this phenomenon.

Much like pseudoscientific discourses of the past, contemporary discourses such as the one deployed by FaceGen rely on a language that legitimates through recourse to a positivist model—what Donna Haraway (1996) calls science's "God trick"—and by way of this, accesses a long and deeply troubling genealogy of meanings around embodied surfaces, beauty, morality, and desire. The new twist to this old dynamic, made possible by advancements in digital imaging technologies and demonstrated through software such as FaceGen, is that these technologies do not merely offer the ability to measure the body toward the exposure of concealed truths; now they also offer their user the capacity to control, customize, and manipulate these truths in real time—to see "with your own eyes" how they play out against each other. What these software packages actually sell to their customers—gaming designers—is a certain level of assurance of their ability to emit predictable sign systems via the body; to produce a *certain* specified intelligibility; and to reliably manipulate the semiotics of the body as they relate to desire, dread, and the cultural present.

CUSTOMIZATION AND CONTROL: THE SPECULAR AND SPECTACULAR FACES OF FACEGEN

I was first introduced to the FaceGen facial modeling program at a game developer's conference in San Jose, California, in the spring of 2003. Wandering through the vast and fantastic maze of exhibitors on the conference floor, it was easy to tell by the crowds which technologies offered the most exciting advancements in gaming. After some perusing it became clear that the trend generating the most enthusiasm from game developers had something to say about customization and, in particular, the customization of the game user's own avatar and the avatars with which they interact within the virtual world—customization and control of the virtual body. Among these, Singular Inversion's statistically based FaceGen software and modeling service drew perhaps the most attention. The software's parent company, Singular Inversions, has the following to say of its product: "Founded in 1998, Singular Inversions specializes in statistical modeling of the shape and appearance of human faces, combining expertise in computer vision, statistics, and computer graphics" (Singular Inversions 2003).

The FaceGen program is what computer program designers call "middleware." In the case of the gaming industry, this term designates that portion of the software that designs and thereby structures the virtual environment and the virtual bodies through which users conduct their prosthetic technological selves. Middleware is used to develop the interface that makes interactivity possible, and in doing so makes the game "user friendly" or not, intuitive or bottlenecked—in short, a financial success or a flop. It also generates the graphic representations that ultimately become the game itself. Middleware programs create the virtual world that is the video game. FaceGen, by all accounts, is a financially successful piece of middleware. Indeed, since FaceGen first appeared on the market several comparable programs have also come out, each making similar claims of realism and ease and touting their "intuitive" interface. However, it is FaceGen that has gone on to win professional industry awards, among them *Game Developer Magazine's* 2003 Frontline Award, *Animation Magazine*'s Seal of Excellence, and a special award from International 3D (FaceGen 2008b).

While FaceGen claims it "delivers high-quality characters with just the press of a button," what FaceGen in fact sells is an assurance of its ability to emit predictable sign systems, to produce a *certain* predictable intelligibility of, specifically, the face. This is a real selling point for a gaming designer tasked with the problem of creating a cast of characters that economically

read as truly evil or merely a little villainous, wildly wanton or chaste and virtuous, or admirably heroic or painfully introverted, thereby contributing an ease of understanding to the game's internal narrative or, as the designers themselves like to characterize it, making the virtual gaming experience more "intuitive." In 2003, a product review column on Gamasutra, a website devoted to the video game development industry, gave FaceGen a four-star rating and described its capabilities this way:

> FaceGen Modeler 2.2 is the newest version of the face and head creation from Singular Inversions. It has been designed to allow a user to create custom, unique faces faster than traditional 3D modeling packages typically allow. To customize the pre-made and randomly generated heads, FaceGen comes complete with a simple yet powerful modeling toolkit. It differs from a traditional 3D modeling package in that geometry is not directly manipulated on the vertex/face level but through a series of sliders that control all aspects of your model. For example, if I create the face of a young woman and then want to change the model to reflect an older age, rather than push and pull vertices I use two sliders that control age, one for the geometry and one for the texture. Move them forward, and cheeks lose their fullness, the nose grows, and the skin weathers, all based upon the face's natural aging process. It works remarkably well, and this is how everything in FaceGen functions. There are also sliders that control masculinity and femininity, race, symmetry, and realism. (Dean 2003)

When a user opens the FaceGen software she is presented with its initial design screen (see Figs. 1 and 2). A preview screen on the left offers a real-time interactive graphic representation of the face as it is manipulated through a series of measures available on the right in the multiple design screens. The preview window remains constant, while the design window has tabs at the top allowing the user to jump through a series of different screens, which work together to manipulate the face to a truly unimaginable degree.[1]

Users can, for example, adjust eyebrow ridge thickness and protrusion, the position of the eye sockets on the face, "face-forehead-sellion-nose ratio," the chromatic value of "naso labial lines," and concave and convex measurements relating to any surface of the face; they can "tween" between

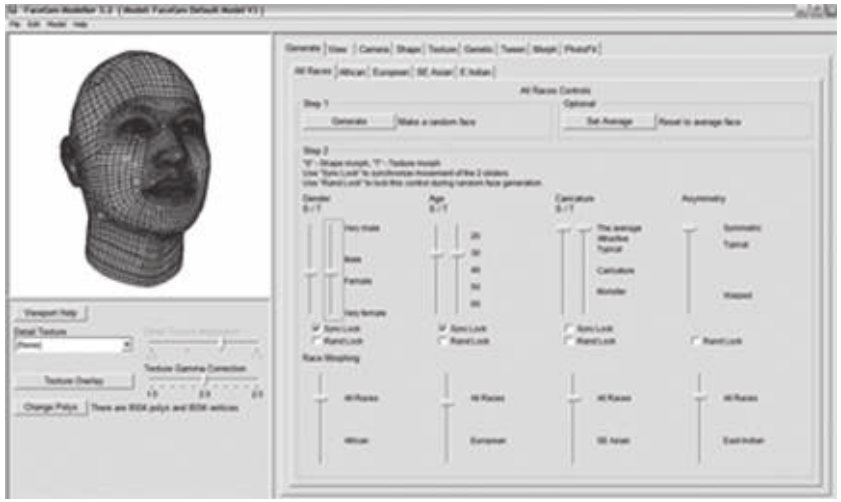

Fig. 1. *FaceGen main design screen.* Photo by the author.

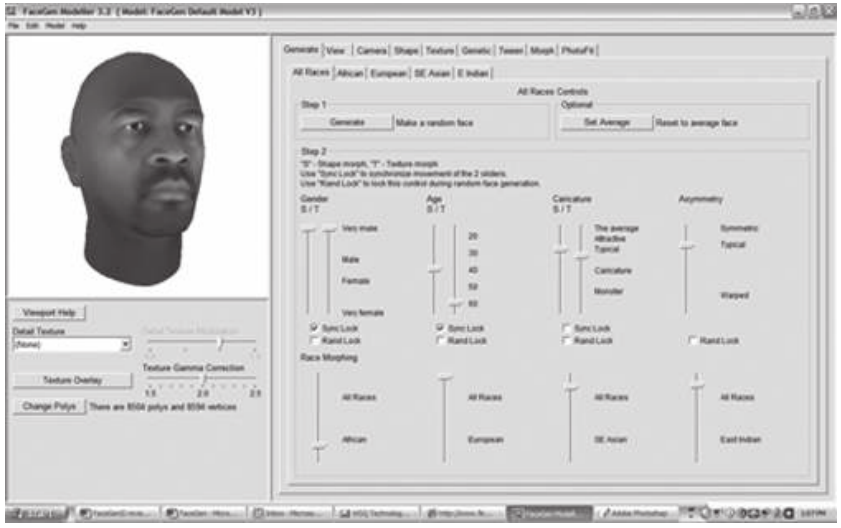

Fig. 2. *FaceGen design screen with gender slider set at most masculine point.* Photo by the author.

any number of faces; adjust skin surface textures; change the placement, angle density, and chromatic value of any facial surface; and, under the "genetic" tab, generate complete faces related to the main face that is featured in the preview window. The expression can be adjusted so that it seems to be pronouncing any phoneme; and lighting effects, as they play off the face's

surfaces, are infinitely manipulable. Finally, users can even scan in a face of their own through FaceGen's Photofit service and this face, too, comes into conversation with, and under the control of, all the various measures and interrelations of the software. The software is often celebrated for its ease of use and "intuitive" nature. The following quote, from a November 2000 Gamasutra article is typical of descriptions of the software: "Singular Inversions has released FaceGen SDK, a program designed to allow game players the ability to easily create an infinity of unique, photo-realistic faces using over 50 *intuitive* face controls" (Barker 2000; my emphasis).

While the interface of the software seems "intuitive," requiring very little technical knowledge, as you can see from the excerpt below, the software's manual describes its workings in a language that does get rather technical—even scientific:

> Diffuse Shading Mode:
> Gouraud. Diffuse lighting is calculated at each vertex and linearly interpolated over the facets, making the surface look smoothly curved.
> Phong. Diffuse lighting is calculated at each pixel. This will generally make low poly models look a bit better than using Gouraud, however it is slower (an extra render pass) and can cause artifacts on highly foreshortened surfaces if you aren't using 4x FSAA antialiasing. Each facet is considered flat and has the same lighting over its surface. This allows for easy viewing of the underlying polygonal surface. (FaceGen 2008a)

Within a relatively short time of experimenting and observing the workings of the FaceGen software, a number of disquieting patterns and affinities begin to emerge. In order to grasp the significance of these trends, however, one must first turn to the discursive construction of the software as set out by its parent company, Singular Inversions. In other words, how do the software's developers ask us to understand it? According to its lead developer, Andrew Beatty, FaceGen operates through "statistical trends." The explanation goes like this:

> A group of 273 respondents was interviewed and asked to rate a series of faces according to how male or how female they were, how attractive they were, and age estimations. These figures were

> put into a computer program, along with statistical data gathered from "other psychology data bases," and trends within this data were identified. These trends were then computed in terms of standard deviations, which were then projected out by plus or minus ten, to establish the two extreme points on each continuum. (Interview by the author, Davis, California, March 3, 2003)

This science-speak behind the software's design undoubtedly contributes to FaceGen's legitimization as a reliable information source in the mind of gaming designers, but the software's greatest appeal to its consumer is perhaps in the way it offers a very specific form of semiotic certainty to the virtual body. This is in large part accomplished within the interrelations between the various slide measures made available on the design screens. The software's internal architecture links the various facial measures so that they react reflexively to changes in what are called "related measures." In this way the software offers the user feedback on the changing semiotics of the face as its surfaces are manipulated, all the while, according to the FaceGen manual, "preserving the statistical validity of the face" (FaceGen 2008a). The semiotics of the face become understood as a system of intersecting meanings; and all this is guaranteed, scientifically even, by the "statistical extrapolations" and "psychological data" on which the software relies.

INTERACTIVITY: CONTINUUMS, STATISTICS, AND SEMIOTIC SURFACES

On FaceGen's initial design screen (see Figs. 1 and 2), the user is given eight different sliding scales, in the following categories: "gender," spanning from "very male" at the top of the scale to "very female" at the bottom; "age," from "20" at the top of the scale to "60" at the bottom; "caricature," from "the average attractive typical" at the top to "monster" at the bottom; and "asymmetry," with "symmetric" at the top and "warped" at the bottom. There are also four "race morphing" scales, each with a measure called "all races" as the top pole and "African," "European," "SE Asian," and "East Indian" as the bottom. The other design screens within the program are similarly constructed and relate to specific skeletal and surface variations (Fig. 3).

All of the measures throughout the program are interrelated so that changes in one measure register in all the other related scales throughout the program's multiple design screens and varied interfaces, and it is in part this feature of the software that its developers tout as offering designers the objective reassurance that they have achieved the "look" they are after in

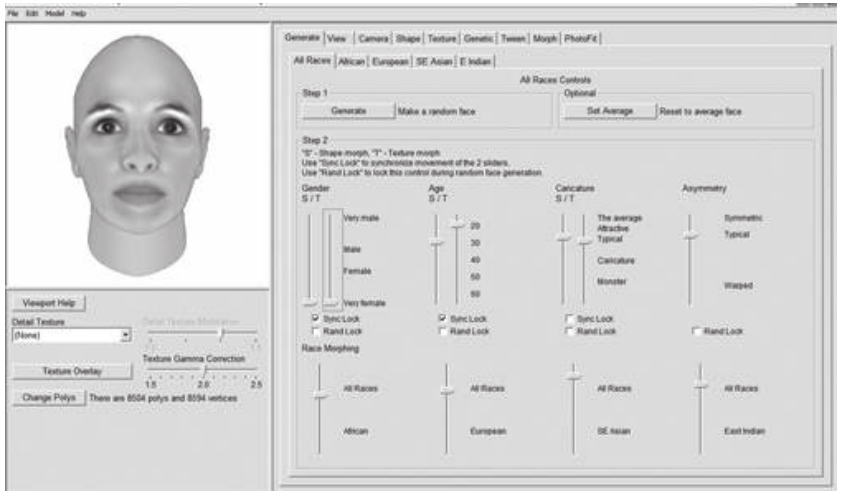

Fig. 3. *FaceGen design screen with "gender" slider set at most feminine point.* Photo by the author.

a certain character. Indeed the FaceGen manual offers users additional guidance in constructing reliable meanings under the heading "Tips and Tricks":

> Creating Attractive Faces: Everyone has personal preferences, but on average, the most attractive faces are those that are close to the average. Psychologists have found that the most attractive female faces are those which look like the average 17-year-old female, in which the degree of femininity is exaggerated by about 25%. To achieve this in FaceGen Modeller, select the race you want, slide the age to 17, move the gender just past "female" and bring the caricature values as close to average as you think necessary. The most attractive male faces are those which look like the average 25-year-old male, but with a slight amount (5%) of femininity! (FaceGen 2008a)[2]

The FaceGen software performs and predicts the interrelatedness of meanings within the complexities of the body as sign system, offering a kind of literalness to the notion of the body as undeniably, inextricably, and problematically both site and cite. Perhaps the gender continuum, and its interrelated assumptions as mapped out within FaceGen's technovisual formalism, offer the most blatant and disturbing example of this.

FaceGen's "gender" measure is given form through the slider control, spanning a continuum in which the hypermasculine is at the top and the hyperfeminine is at the bottom. As the user manipulates the slider, the face transforms in real time, reflecting the various points on the continuum. And while postmodern theories have lauded the ability of exactly this kind of movement toward collapsing reductive enlightenment binaries, in the case of FaceGen such binaries merely shift, drawing attention to the general interrelatedness of categories of thought and naturalizing these by way of "statistical data" and related science-speak. An example: if a user generates a series of random faces and moves the "gender" slider up to the hypermasculine point on the continuum, a disturbing pattern begins to emerge. Each face becomes darker in skin color and takes on a group of characteristics, which in the U.S., are often stereotypically associated with black, Mexican, or Middle-Eastern male bodies (see Fig. 2). In turn, if a series of randomly generated faces is taken to the hyperfeminine point on the scale, they all become lighter skinned and facial characteristics change to reflect those stereotypically associated with white or, according to FaceGen's terminology, "European" women (see Fig. 3). Indeed, we can also see these same results "measured" and "calculated" in the "race morphing" sliders on the same screen as each register changes within the gender scale in real time: when a series of random faces is generated and each is brought to the hypermasculine point on the continuum, the "African" and "East Indian" scales also register an increase of their (stereotypical) physical traits while the racial morphing scales "European" and "SE Asian" register a decrease (see Fig. 1). Likewise, as random faces are generated and then each manipulated to reflect (stereotypical) hyperfeminine features, increases in the measurements "European" and "SE Asian" are reflected (see Fig. 2). Thus, it would seem that FaceGen's statistically based model, in extrapolating its "scientific data," has documented a determinative relationship between the hyperfeminine and the looks that they describe as European and South East Asian. It would additionally seem that a correlation between the hypermasculine and an increase in the characteristics FaceGen labels as "African" and "East Indian" has also been made measurable. So the face legitimized as the epitome of femininity, according to the technoscience of FaceGen, is a stereotypically whiter face, and—it would then of course follow—that the face of hypermasculinity, with all its cultural associations with aggression and potential violence, is that of the darker-skinned stereotypically racialized male. These identities also become associated with geographies and nation-state forma-

tions within the software's design screen as a darker-skinned male registers as more "African" or "East Indian" on the "race morphing" slide while a lighter-skinned female measures as more "European."[3] This additional twist in the software's design neatly aligns it with contemporary geopolitics, perhaps in anticipation of its use in the arena of surveillance and global "terror," as discussed later in this essay.

Thus, after little experimentation, the FaceGen software—as series of interactive slide measures, or continuums—constructs for us a *visual* paradigmatic scale of the body's surfaces that allows a graphic view of the way in which any single logic is constituted only in relation to all the others, thus invoking/reifying an entire historical system of racialized meanings around the body. It also illustrates the stubborn flexibility of semiotic systems as it demonstrates the way in which, when meanings commute within a single paradigmatic set, such as the gender slider, these changes are compensated for in other sets, such as the race sliders, thus preserving the underlying logic of the entire system, a system whose center remains unmarked as neither the top of the continuum nor the bottom. The unmarked default within the FaceGen system is found within the interrelated system of center points on each continuum—a matrix between the hypermasculine and hyperfeminine and the various racialized continuums—that semiotic position visually free of the stigmata of race and gender. This middle unmarked point is, not surprisingly, a (stereotypically) white male face. Thus while FaceGen firmly establishes white masculinity as the unmarked human default, it also positions all other bodies as possible only through an adjustment—or morphing—of this original "pure" body.

Laura Marks, in discussing the meanings behind visually "morphing" bodies in contemporary music videos and films notes that "the uncanniness of morphing speaks to a fear of unnatural transformable bodies" (2002, 152). The architecture of the FaceGen software enforces the uncanny nature of racialized and feminized bodies but also puts these unnatural bodies under the surveillance and control of technology. Further, like the movement of postmodern theory itself—which denies the legitimacy of binary categorizations in favor of a more nuanced critique of power, in a focus on the shades of gray between poles of meaning—FaceGen graphically illustrates, by way of its own emphasis on the betwixt and between of complex racialized and gendered markers, the way in which a postmodern shift does nothing to change the system through which power is naturalized. FaceGen, and the virtual bodies and worlds it helps to structure, corroborate larger cultural

and historical discourses linking the "hypermasculine" to the darker-skinned male body and the "hyperfeminine" to the lighter-skinned female body and reductively naturalizing these in terms of global nation-state formations producing both race and citizenship as "visualizable fact" (Fusco and Wallis 2003). As Judith Butler states: "Materiality designates a certain effect of power or, rather, is power in its formative or constitutive effects. Insofar as power operates successfully by constituting an object domain, a field of intelligibility, as a taken-for-granted ontology, its material effects are taken as material data or primary givens" (1993, 34).

The "taken-for-granted ontology" of a technoscientifically revealed specular body is buttressed by the fact that it is just so darned familiar—its semiotic vicissitudes experienced as something akin to putting on an old friendly sweater—particularly for those cultural identities and forms of power legitimated through its historical linkages. The same (il)logics of FaceGen have appeared and reappeared in several key historical moments in which there have been upheavals in forms and technologies of vision—a *technovisual* turn, if you will. In the case of one such instance the comparison is jarringly literal: same technoscientific discourse; same racialized result; and, as we will see, same movement out into the world of surveillance and criminality.

DIGITAL (RE)IMAGININGS: EVERYTHING OLD IS NEW AGAIN

Johan Caspar Lavater, in a treatise first published in 1775, attempts to legitimate physiognomy (the practice of judging character and mental qualities by observation of the body, especially the face) as a science. In it he strives to construct a logic of beauty and, by extension, morality, as it is inscribed on the body and legitimized through the language of science. Lavater's project, reminiscent of Singular Inversion's FaceGen, relied on the state-of-the-art visual technologies of its time—copperplate engravings—to create a kind of specular body, whose meanings were then accessible to the pseudo-objectivity of scientific measure. Lavater's manual on and practices in physiognomy predictably legitimated stereotypes of race and class, offering his technoscience in their defense. Like Singular Inversion, he developed a cast of character types, seen in his well-known text *Physiognomische Fragmente zur Beförderung der Menschenkenntnis und Menschenliebe* (1775). Within this text Lavater documented his scientific research. Among his assertions was an ability to scientifically identify the (stereotypically racialized) facial characteristics that, he claimed, revealed an innate criminal nature and the veracity of

a set of characteristics that directly linked (stereotypically European; read, white) beauty to morality. The similarities between Lavater's work and contemporary discourses such as those of FaceGen, are striking, even down to their methodologies.

For example, when one submits a face for FaceGen's custom Photofit service, one goes through a measuring procedure (Fig. 4). This procedure requires that the user position several nodes onto various parts of the face which FaceGen then calibrates through its Photofit service. Likewise, Johan Lavater also put his subjects through a measuring procedure calibrating distances between and among facial features by way of specialized calipers whose measures were then translated onto copper plates for the purposes of documentation, printing, and further study.

This literalness within the form, content, and process of these two technologies—technologies separated by well more than two hundred years—is uncanny in the most psychoanalytic sense: it provides an experience both familiar and frightening. And this sense of the uncanny takes on new resonance with the latest FaceGen target markets.

Richard Gray, in *About Face: German Physiognomic Thought from Lavater to Auschwitz*, discusses the way in which Lavater's physiognomics moved from the realm of parlor game and other entertainment to becoming a scientific discourse promoted by such German intellectuals as Goethe and later employed by Nazism as a technovisual scientific method of reading the meanings of the body's surfaces in an attempt to rationalize the atrocities of World War II (Gray 2002). Ironically (or not), it would seem that we may be witnessing this same shift in discourse with FaceGen as both the U.S. Department of Defense and police sketch artists "across the U.S. and Canada" adopt the software (www.facegen.com 2007).

TECHNOVISIONING THE EMBODIED CULTURAL PRESENT

In March 2004, Lt. Col. Steven Boutelle, chief information officer of the U.S. Army and the executive agent for biometrics at the Department of Defense, announced the formation of the Department of Defense's Biometric Management Office. The DoD's website quotes Boutelle: "We have a responsibility to keep our people, information, and equipment as secure as possible. Biometrics help us do that by ensuring that the right people, and only the right people, have access to the resources they need to maintain superiority on the battlefield and in the war on terrorism" (United States Department of Defense 2003).

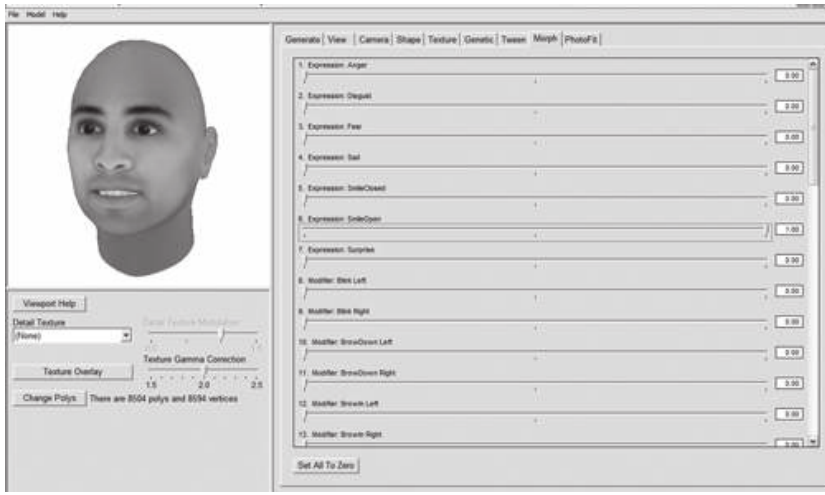

Fig. 4. *FaceGen "morph" design screen.* Photo by the author.

As explained on the DoD's biometrics division's website, "Biometrics are measurable physical characteristics or personal behavioral traits used to recognize the identity or verify the claimed identity of an individual. A biometric system is an automated tool for measuring and evaluating these characteristics or traits for the purpose of human recognition. Examples include: finger, face, hand eye and voice" (United States Department of Defense 2003). According to the DoD's website, the biometrics division is partnering with several private companies to explore various types of biometric technologies for use as "passive monitoring systems," used for surveying large population flows in places such as airports and at large sporting events. One of these companies is the MITRE Corporation.

In October 2003, MITRE announced that it was conducting "Army-funded" research to address the need for biometric systems engineering, working in conjunction with the DoD Biometrics Management Office, the U.S. Army, and the Intelligence Technology Innovation Center. Specifically, MITRE is developing improved methods for predicting the performance of biometric system designs with emphasis on facial recognition systems (MITRE 2008). MITRE explains: "Face recognition works by comparing a photographic image (of subjects walking into a building, for example) with a database of stored images. The software programs in most of the systems

available today use appearance-based classifiers. Or they attempt to measure some of the nodal points on your face, such as the distance between your eyes, the width of your nose, the distance from eye to mouth, or the length of your jaw line" (MITRE 2003).

The article outlining this research goes on to describe, in rather technical language—that is, science-speak—the way in which statistics, algorithms, and templates can be stored and defined with threshold values set by defaults that are provided by the software vendor or calibrated according to other data. In other words, measurements of the surfaces of the face are inserted into an idiom that classifies and stores this data for processing, manipulation, and retrieval. The software that MITRE is using to develop and test this technoscience is Singular Inversion's FaceGen. In an online research article, "Biometric Systems: Finding a Face in the Crowd," MITRE discusses the software: "MITRE's synthetic face generation experiments use software from Singular Inversions, Inc., called FaceGen, which is normally used in the entertainment industry to do facial animation. The FaceGen software, combined with a rendering environment, generates alternate images of faces that vary by lighting, camera angle, facial expression, age, backgrounds, and even something as simple as the subject wearing a hat or sunglasses" (MITRE 2003).

While we cannot confirm the ways in which the DoD, through MITRE, is using the FaceGen software (the rest of the biometrics site is available only by password), we can at least say this of the project: *it feels familiar*. Again, we see a discourse claiming an ability to quantify, calculate, and organize—or master—the surfaces of the body changing from parlor entertainment into a new governmental technovisual pseudoscience. And, we can also assert with assurance that any biometric facial profile inserted into the (il)logic of the FaceGen system will be calibrated through a series of measures based on problematic associations between stereotypical facial characteristics, stereotypical understandings of national identities, and a positivist model that claims access to interior truths of character based on these associations. As related by Lisa Nakamura, "Biometrics are deeply implicated in racial and ethnic profiling of all sorts and their compulsive usage . . . works to construct a dataveillant state that constructs all its members and nonmembers as subjects of interactivity" (2008, 126). A belief in the technovisible truths of the body is the dangerous precondition to such a dataveillant state.

Even despite all of this, perhaps the most deeply troubling chapter of the FaceGen story lingers: some time around the spring of 2005, Singular

Inversions began to publicize the success of FaceGen among the company's latest target market: police sketch artists. This was reflected on their website and in their marketing literature: "We are a small company, and license our technology to other companies to reach end markets, with applications such as: Avatar-based communication software; Face recognition research & development; Graphics and psychology research; Police sketch artist software" (FaceGen 2008c).

Given the problematic racialized measures structuring the software's technovisual science, coupled with the extraordinary magnitude of incarceration rates among darker-skinned males in the United States as compared with those of their lighter-skinned counterparts, this new "market niche" will undoubtedly also find the FaceGen software "intuitive" (Human Rights Watch 2002). FaceGen's (il)logics efficiently and "scientifically" corroborate the cultural narratives and biases that naturalize current and historical correlations between darker-skinned male bodies, criminality, and violence. Further, as Mark Hansen notes about racialized bodies in cyberspace, "at the moment when the raced image has been emptied of its promise as the signifier of positive difference" through biological and postmodern refutations of both the corporeal and the discursive, "it has become brutally effective as the signifier of racism" (2006, 172). Thus, race becomes for Hansen, and for those deploying FaceGen—whether in the interests of "entertainment" or surveillance and control—an "empty husk," dangerously masking our shared status as always "being radically in excess of ourselves" and inviting us to retreat back into historical pseudoscientific beliefs that "human beings can (and should) be classified through categories of social visibility" (173).

CONCLUSION

As Foucault reminds us, historical strains of power do not remain constant; rather, they adjust themselves in such a way as to preserve and protect their rational underpinnings even in the face of competing forces and the shifting demands of the cultural present—this is how they remain relevant—dominant—exnominated. They morph. The interconnections among technovision, science, and the body appear and reappear across both the diachronic and synchronic planes of culture, fitting into each cultural moment as they fortify and extend the same (ir)rationality of racialized and gendered dominations. Claims, forms, and technologies such as those made and propagated by FaceGen do not merely and benignly re-present what already exists in the mode of some "scientific objectivism," but rather they do powerful cultural

work toward naturalizing associations between certain bodies and certain discourses, certain ways of looking and certain ways of being seen. With this new contemporary brand of technovisual science that is directed at the body, underpinning the racialized rhetoric of global geopolitics and potentially used to legitimate the racist ideologies behind practices of criminal profiling, the stakes raised by FaceGen and the contemporary technovisual present are high and require an urgent, critical, and sustained analysis.

KARYL E. KETCHUM is an assistant professor in the women's studies program at California State University, Fullerton, where she has a ball teaching classes on the creative and critical use of technology toward interventions in visual culture. Her research centers on issues of national, cultural, and individual identities both virtual and "real."

NOTES

1. A free trial version of the FaceGen software is available for download at www.facegen.com.

2. This particular section of the FaceGen manual is interesting for several reasons not elaborated on in this essay but nonetheless worthy of discussion. The commentary on the age of female characters and how this is "measured" in terms of desirability certainly deserves further analysis. I also find the concluding exclamation point after the section describing the "most attractive male faces" both fascinating and amusing. I have come to think of this punctuation as a symptom of both the denial and the homosocial triangulation that heteronormative masculine desire is dependent on and as a kind of reassurance to the FaceGen user of both the hegemonic integrity of the program's logics and, by extension, of the users' own hetero"normal" status, despite any personal response that users may have to this (obviously *dangerous*) 5 percent femininity.

3. Thanks to colleagues Marjorie Jolles and Donna Nicol for their assistance in teasing out associations between race and nation-state formations within the FaceGen system.

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