

CRYPTOGRAPHIC IDENTITY: THE CONSTRUCTION OF PHOTOGRAPHIC IMAGES BASED ON BIOMETRIC MATERIAL INFORMATION

Gloria Marco Munuera

RMIT University

17/51 Stawell St. West Melbourne, Vic, 3003, Australia

ABSTRACT

This investigation explores the processes of the identification of individuals used in science and adapts them to art photography. It analyses the data encoded in the body and develops the construction of photographic images through biometric principles in order to expand on current concepts of identity in contemporary art by digital and analogue processes.

KEYWORDS

Biometrics, photography, art, identity, conceptual, evidence

1. INTRODUCTION

Through this project I will explore the theme of human identity focusing on the body as a source of encoded information and identification. It analyses how biometrics¹ identify human subjects in scientific methods and explores the ways in which these processes may be integrated into art photography. Biometric categories include physiological features such as fingerprints, hair, DNA, or face and iris recognition. Biometrics also extends to behavioral features as the signature or electroencephalographic examinations.²

The research will examine how biometric categories may be re-contextualized supporting the development of new languages in conceptual art, to supply a platform of knowledge concerning the “identity and truth” of the photographic image. The investigation will also present experimental photographic projects where the goal is to “objectify” the subject’s identity, in viewing the object *d’art* as truthful and material evidence. The categories I will focus on in particular are cells, skin and hair.

Translating human identity into information patterns not only provides more information, it also creates new conceptions of identity. (Aas, K.F., 2006)

2. BODY OF PAPER

Photography has been the first technique to attempt to record identities for scientific purposes. In the late 1880’s, identification bureaus used A. Bertillon’s identification method, which was based on anthropologic measurements supported by photographic documentation. Bertillon’s technique was later replaced by the far more accurate technique of fingerprinting.³ However, a few Bertillonage elements exist even today in the

¹ Biometrics are automated methods of recognizing a person based on a physiological or behavioural characteristic. (From Vacca, J. R. (2007). Biometric technologies and verification system. Oxford, Butterworth-Heinemann).

² Electroencephalographic examinations are the measurement and recording of electrical activity in the brain. Oxford University Press, 2008.

³ (1997). Introduction to Forensic Sciences New York, CRC Press LLC.

criminal police identification process, such as the combination of profile and frontal shots when photographing offenders.

Despite the well-known historical examples of photographic manipulation (O. G. Rejlander “The Two Ways of Life” created from 32 different shots in 1857), since its beginnings photographs have always been considered more reliable than human accounts. Due to its mechanical and close replication of human sight, photography has been often used as documentary evidence, but since the 1980’s, computers are able to virtually simulate the perceived authenticity of photographic realism. Processes of manipulating the photographic image increased substantially since photography lost some of its claim as documentary. Today images are being built from scratch on computers without referring to any “real” subject and as such, consequently, the emphasis in the contemporary portraits is less of the individual and more on cultural remarks upon place, gender, race, history, nationality, religious beliefs or even ethnicity.

During the early 80’s artist Nancy Burson introduced a computer program⁴ able to create facial composites by merging several photographs into a new one. The results were believable composite faces of nobody. Unlike a typical portrait, which connects with a real person, Burson’s photographs borrowed the physiognomy of several individuals to personalize the impersonal. However, what started of being an art project has finished being one of the most relevant methods used today by police departments for identification procedures.

Contemporary artist Stanza’s *Genomixer* series is a collection of audiovisual artwork inspired by the human genome sequence, and developed using DNA profiles sequenced from the artist’s blood. This artwork is an investigation into genetic codes as they are mapped and reassembled. The series enables a cross reference of all the code on the genome sequence, mixed into interactive audiovisual portraits of the artist.

Andreas Müller-Pohle’s *Digital Scores (after Nicéphore Niépce)* series is nothing but information. These pieces are digital interpretations of the earliest known photograph by N. Niépce, *View from his Study*, translated into alphanumeric signs and output as ink-jet prints. In this work we see not a photograph, but the algorithm structure of digital photography.

While on one hand Burson and Stanza have experimented with several biometric characteristics through their artwork, and Müller-Pohle, on the other hand, has dissected the composition of the photographic image by data means, my work examines human identity by bringing together the biometric methodology used in science in relation to the contemporary identity of a photograph. My project will play the role of an indexical sign between the individual represented and the image through truthful data.

This project expands the issue of human identity by conveying scientific objectivity within photography. The research will investigate how biometrics from the human body (cells, hair and skin) can be used as data such as the elements of image construction (pixels), in terms of uniqueness and permanence within the individual. My project does not approach the photographic image as a single form but as an accumulation of basic units necessary to construct the final picture being digital or analogue. The conception of these photographic images finds its influences in the deconstruction of the image during the Cubism avant-garde movement, and also obtains inspiration from the work of both artists David Hockney and Vik Muniz, both working with the idea of constructing images from different elements.

Through the underlying investigation I will study how to represent scientific human identity through art photography, rather than to represent a visual “truth” based on Renaissance perspective and traditional principles of representation. I will examine how biometrics had been used previously in art and how are they used today for surveillance and forensic evidence of authenticity.

3. CONCLUSION

Following photographic theorist G. Batchen’s claim that:

The identity of a photographic image no longer has to do with its support or its chemical composition, or with its authorship, place of origin, or pictorial appearance. It instead comprises a pliable sequence of digital data and electronic impulses. It is their configuration that now decides an image’s look and significance, even the possibility of its continued existence (Batchen, G., 2002)

⁴ Nancy Burson created the program “Morphing” together with computer scientist Richard Carling and David Kramlich in 1980.

My contribution to this field is based in the connection between biometric methodologies to recognize individuals, in relation to the identity of contemporary photography. My project may identify a type of inherent identity by establishing a relationship among the invisible encoded information of both human structure and photographic construction. I foresee how this project will contribute to understanding about identity and bodies, representation and visual encodes through photography.

Using today's technological possibilities, archival photographs and scientific resources, contemporary photography has the capability of creating images from data and as such the referent does not necessarily have to exist. Today the computer's ability to use data from any source and represent it as images, raises questions about the documentary capacity of photography. As stated by William J. Mitchell:

The connection of images to solid substance has become tenuous. The currency of the great bank of nature has left the gold standard: images are no longer guaranteed as visual truth – or even as signifiers with stable meaning and value – and we endlessly print more of them. (Mitchell, W.J., 1992)

Artist examples of Joan Fontcuberta explore the limits between truth and photography, just to make clear a division that has always existed. Projects like *Sputnik*, *Fauna* or *Landscapes* are all documents of performance full of in-jokes. While Fontcuberta retranslates images from scratch in order to prove that all photography is fiction, my project seeks to challenge the contemporary notion of what is real in a photograph, by integrating biometric information which today constitutes the height of reality, in the construction of the image.

The link between science and art photography is undeniable but the inherent use of science in photography may expand its language and conceptual position in today's contemporary market. The projects goals are to visualize this new language through the use of biometric principles and conceptual identity using the medium of photography.

REFERENCES

Book

- Barthes, R. 2000. *Camera Lucida*. London, Vintage.
- Batchen, G. 2002. *Each wild idea: writing, photography, history*. Cambridge, Mass., MIT Press.
- Batchen, G. 2004. *Forget me Not, Photography and Remembrance*. New York, Princeton Architectural Press.
- Burson, N, et al, 1986. *Composites, Computer-Generated Portraits*. New York, Beech Tree Books, William Morrow.
- Caujolle, C. (2001). *Joan Fontcuberta, 55*. London, Phaidon Press Limited.
- Fontcuberta, J. (2002). *El Beso de Judas, The Kiss of Judas, Photography and the Truth*. Barcelona, Editorial Gustavo Gili, SA.
- Grundberg, A, 1990. *Crisis of the Real*. New York, Aperture Foundation.
- Jussim, E., 1989. *The Eternal Moment*. New York, Aperture Foundation.
- Mitchell, W. J. (2003). *Me++: the cyborg self and the networked city*. Cambridge, Mass., MIT Press.
- Mitchell, W. J. (1992). *The reconfigured eye: visual truth in the post-photographic era*. Cambridge, Mass, MIT Press.
- Ritchen, F. 1990. *In Our Own Image*. New York, Aperture Foundation.
- Singh, S. (1999). *The code book: the science of secrecy from ancient Egypt to quantum cryptography*. New York, Anchor Books.
- Sobieszek, R. A. 1999. *Ghost in the Shell*. London, England, MIT Press, Los Angeles County Museum of Art.
- Sontag, S., 1981. *On Photography*. Barcelona, Edhasa
- Vacca, J. R. (2007). *Biometric technologies and verification system*. Oxford, Butterworth-Heinemann.
- Wombell, P., 1991. *PhotoVideo: Photography in the age of the computer*, Rivers Oram Press, London, UK.

Journal

- Aas, K. F. (2006). The body does not lie: Identity, risk and trust in technoculture. *Crime Media Culture* 2(2): 143-158.
- Alterman, A. (2003). *A piece of yourself: Ethical issues in biometric identification*. *Ethics and Information Technology* 5: 139-150.

- Dubbeld, L. (2003). *Observing bodies. Camera surveillance and the significance of the body*. Ethics and Information Technology 5: 151-162.
- Murray, H. (2007). Monstrous Play in Negative Spaces: Illegible Bodies and the Cultural Construction of Biometric Technology. *The Communication Review* 10(4): 21.
- Navab, A. D, 2001. "Re-Picturing Photography: A Language in the Making." *Journal of Aesthetic Education* 35(1): 69-84.
- Peim, N. (2007). "Walter Benjamin in the Age of Digital Reproduction." *Philosophy of Education* 41(3): 363.
- Speirs, A., (2007) *Corporeal Connoisseurship: Enlightenment Body Criticism, The Biometric Type and the Individual*. Melbourne, Australia. The International Journal of the humanities.