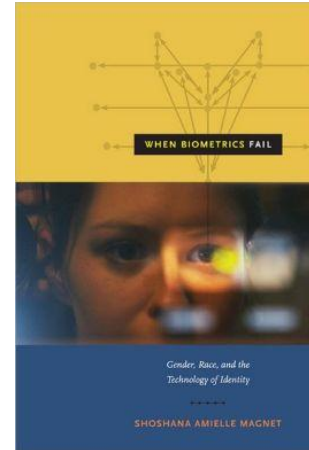Shoshana Amielle Magnet, **When Biometrics Fail: Gender, Race, and the Technology of Identity**, Durham, NC: Duke University Press, 2011, 224 pp., $22.95 (paperback).

Reviewed by
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When the twin towers fell in 2001, the American government began a "war on terror" on a number of fronts. Some we could see, and others we could not. The Bush administration focused its primary military efforts in various parts of the world to combat and disrupt groups identified as "terrorists." A second front focused on protecting the home soil by identifying and investigating potential threats. The American government deployed probably the most visible part of this strategy in airports where the practice of taking a domestic flight changed almost overnight. Prior to 9/11, one could walk their family member right up to the departure gate to say good-bye. That practiced completely changed and the state set up security screening in every airport to check people and their carry-on items, just like in international departures. Many everyday items could be potential threats and the TSA agents screened everything with scrutiny, even our shoes. The Bush government also implemented another front in the war on terror in digital space that is much more difficult to see. Aided by the Patriot Act, the intelligence agencies developed and deployed many new information technologies for identifying risks and individuals and monitoring groups. These surveillance technologies included linking criminal databases at every level (local, state, national, international), monitoring cell phone and e-mail traffic, checking individual's library records, full pipe Internet surveillance, digital fingerprinting, retina recognition, and other biometric technologies for capturing human bodies and turning them into digital data.

Shoshana Amielle Magnet's fascinating new book **When Biometrics Fail: Gender, Race, and the Technology of Identity** combines a cultural studies and feminist science studies approach to understanding the technosocial development of new identity technologies. Boosters claimed new biometric technologies would offer security and control at the national-state level and a sense of comfort and convenience in our everyday lives. The author investigates the rise of the multibillion-dollar industry biometrics industry and why these technologies fail regularly and tend to work improperly. In this well-researched study, Magnet argues that the process of capturing the human body in digital code does not account for the fact that individual bodies change over time. Capturing the human body is not a simple task of translating flesh into code and transferring it from database to database, but a complex interaction between individuals, institutions, and biometric sensors. The process of capturing, decoding, and recoding the human body is a communicative act of representation and power that create new ways of looking at the body and human groups. The author finds that biometric technologies work differently for different groups of people and reproduces social inequalities along traditional lines of difference, such as class, race, ethnicity, gender, sexuality, and disability.

In chapter one, Magnet defines biometrics as the "science of using biological information for the purposes of identification and verification" (p. 21). The author outlines the various stages of recording biological information and entering it into a biometric system, called *enrollment*, and encoding the raw data into a *template*, which is an algorithmic representation of the biological trait. Companies develop their own proprietary templates and sell them by arguing their template is better than other company's templates. Magnet explores a number of Type 1 and Type 2 (false positive and false negative) errors in the science of biometrics and shows how they are not distributed equally across racial groups. While advocates argue biometrics takes the subjectivity out of human decision-making, Magnet illustrates through a number of intriguing cases the cultural biases embedded in the programming of digital code, such as racial profiling. In chapter two, she examines the history of the science of biometrics and situates its origins in the context of the expanding American prison industrial complex in the 1960s and 1970s. Like all technological advances, the meaning and function of biometrics is tied closely to the context of the engineers and users who develop them and the institutional discourses that enable and constrain their use and deployment. Government and law enforcement officials argued biometrics could capture the truth of human identity through the objectivity of techno-science. However, the author shows how scientists encode assumptions about gender and other axis of difference into the working procedures of the biometric technologies. Further, technological fixes for complex social problems put vulnerable and marginalized populations at higher risk.

In chapters three and four, Magnet turns to case studies of biometric technology use by the U.S. welfare system and at the Canada-U.S. border. In chapter three, the author provides an excellent analysis of the criminalization of poverty under President Reagan's welfare reform programs. Discourses of welfare fraud entangled with the expansion of biometric surveillance technologies and co-created new categories of disability as well as linking information between welfare and law enforcement databases that was previously held separately. In chapter four, Magnet continues the historical narrative by shifting to the last decade and the continued spread of biometrics at the border along the 49th parallel that separates American and Canada. In the process of constructing the northern border as insecure and risky after 9/11, American authorities used these new technologies to manage the border to weed out potential threats they deemed terrorist. The author shows how the failure of the technology at the borders along lines of gender, race, and class are rooted in a history of technologies developed for the purpose of social sorting in an inequitable social system. Expanding surveillance technologies for border control created new forms and new modes of racialization for travellers, immigrants, and refugees.

Shoshana Amielle Magnet provides great insight into the rise of biometrics and offers a nuanced study of the complex social shaping of surveillance technologies at the intersection of the security industrial complex, cultural discourse, and code. This is a welcome addition to cultural studies and media studies scholarship as it examines representation and identity in a novel site. A number of scholars have pursued the political economy and social construction of code that takes place behind the computer screen in the last decade and Magnet's study fits will with the emerging area of code studies. It also well adds to new science and technology studies literature by focusing on the informationalization of race, gender, class, and sexuality, and disability and their intersections.