NYUSteinhardt
Steinhardt School of Culture, Education, and Human Development

DEPARTMENT OF MEDIA, CULTURE, AND COMMUNICATION

October 24, 2011

Federal Trade Commission
Bureau of Consumer Protection
600 Pennsylvania Avenue, NW
Washington, DC 20580

Re: Workshop on Facial Recognition Technology

Dear Commissioners and Staff:

We write on behalf of Professors Lucas Introna (Centre for the Study of Technology and Organization, Lancaster University) and Helen Nissenbaum (Department of Media, Culture, and Communication, New York University) to submit a report that may contribute to the discussion at the upcoming workshop on facial recognition technology. The report, entitled "Facial Recognition Technology: A Survey of Policy and Implementation Issues," tackles many of the topics identified in the September 19th release, including issues of performance, evaluation, and operation as well as policy concerns and moral and political considerations.

Although the state of the art of facial recognition technology has progressed since its publication (2009), the report offers a number of findings that are still relevant. In fact, many of the points highlighted in the executive summary that opens the report have only become more salient. We urge the commission to consider the subtle distinctions between different applications of facial recognition technology (verification, identification, and watch-lists) and the substantial differences in accuracy rates and developmental and operational concerns across these different applications. We also hope that the commission will review the challenges involved in performing evaluations of facial recognition technology (open vs. closed set testing; lab vs. *in situ* testing; strict separations of training and evaluation data).

We would also like to point out that some recent applications of facial recognition technology have upended some of the report's findings. The advent and popularity of photo-sharing and photo-tagging through online social networks has helped to overcome earlier challenges with the use of facial recognition technology for purposes of identification. Matching a face to one specific person from an entire population of possible candidates had been a troubled endeavor because the process required a search of an entire database of candidates. And this search would return an increasing number of close, but false matches (false positives) as the size of the database grew. The so-called social graph (which

239 Greene Street, 7th Floor | New York, New York 10003
212 998 5191 | http://steinhardt.nyu.edu/mcc/

describes the relationships between individuals on social networks) reduces the severity of this problem by prioritizing candidates who happen to be in close proximity to the person who has uploaded a photo. In other words, information from the social graph can help limit the scope of the search and thus reduce the opportunity for false matches. We would not be surprised if such application demonstrated a significant increase in accuracy, even with the varied photos in which social networks deal.

That said, the more fundamental troubles that had previously limited the success of facial recognition technology for purposes of identification will remain in many cases. To make effective use of the social graph in prioritizing or limiting possible candidates, the technology must know the identity of at least one person in the photo (to locate their position in the social graph). Attempting to identify a face from a photo which includes only unknown persons will remain a difficult task because it will again require a much more expansive search with all the concomitant hazards.

The success of facial recognition technology in the context of photo-tagging in social networks is unlikely to easily translate to other applications (e.g., for purposes of advertising (digital signage), policing, or security. Nonetheless, experts and policy-makers must consider the potential consequences of using the vast databases of pre-identified (or potentially mis-identified) people made available by social media in conjunction with facial recognition technologies, exploring, in particular, the impact on both the efficiency and efficacy of recognition.

Some of the questions that social graphs raise for the consideration of facial recognition technology are:

1) To what degree can facial recognition technologies be enhanced by social graphs? How much information would need to be known about an individual (age, geographic location, etc.) to effectively deploy a social graph?

2) What are the legal constraints on the use of social graphs for facial recognition technologies by the government? And by the private sector? Do these uses violate the end-user license agreements (EULAs) of the various social media providers?

3) What are the privacy implications of the use of social graphs to enhance facial recognition technology? Likewise, what are the legal and ethical implications?

Sincerely,

Solon Barocas, New York University
Travis Hall, New York University
Aaron Martin, London School of Economics and Political Science