

*Before the*  
FEDERAL TRADE COMMISSION  
Washington, DC 20580

In the Matter of )  
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"Face Facts: A Forum on ) File No. P115406  
Facial Recognition Technology" )  
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**COMMENTS OF**

The Center for Digital Democracy

31 January 2012

Facial recognition (FR) technologies, part of a growing complex of digital marketing techniques, require a range of both privacy and consumer protection safeguards. As CDD and its colleagues have documented to the FTC previously, online marketing utilizes a set of increasingly interrelated digital marketing practices designed both to foster the collection of personal data and also to elicit offline and online behaviors and actions from users (both individuals and also, via social media marketing, one's networks of friends). While CDD has concerns about the overall use of facial recognition-based technologies targeted to adults, we focus our comments on children and adolescents. As the commission has made clear, protecting the privacy and wellbeing of children and youth is a core commitment of the agency.<sup>1</sup>

As we noted in our recent FTC filing on the Children's Online Privacy Protection Rule, "Children are... using new media technologies at an earlier age, and spending increasing amounts of time engaged in an expanding array of new platforms, including virtual worlds, interactive games, and mobile apps. In our comments, through research commissioned by one of the country's leading privacy technologists, "We identified how leading children's sites are implementing their online behavioral advertising and digital marketing strategies, drawing from a growing arsenal of powerful data tools to collect 'real-time intelligence' from children, which can be used to target them across multiple platforms, including mobile devices, social networks, and interactive games."<sup>2</sup> The commission must take into consideration, in its work to address FR, the current state of behavioral advertising and related digital direct marketing applications—including cross-platform. FR cannot be viewed in isolation, and an effective and comprehensive set

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<sup>1</sup> Julie Brill, presentation to the 33rd Annual PMA Marketing Law Conference, 16 Nov. 2011, <http://www.ftc.gov/speeches/brill/111116pmaspeech.pdf>; Federal Trade Commission, "An Examination of Children's Privacy: New Technology and the Children's Online Privacy Protection Act," testimony before the Subcommittee on Consumer Protection, Product Safety, and Insurance, Committee on Commerce, Science, and Transportation, United States Senate 29 Apr. 2010, <http://www.ftc.gov/os/testimony/100429coppastatement.pdf>. See also Center for Digital Democracy & U.S. PIRG, "Complaint and Request for Inquiry and Injunctive Relief Concerning Unfair and Deceptive Mobile Marketing Practices," 13 Jan. 2009, [http://www.democraticmedia.org/current\\_projects/privacy/analysis/mobile\\_marketing](http://www.democraticmedia.org/current_projects/privacy/analysis/mobile_marketing); Center for Digital Democracy, "Testimony to the House Committee on Energy and Commerce, Subcommittee on Commerce, Trade, and Consumer Protection, and the Subcommittee on Communications, Technology, and the Internet, For the hearing on Behavioral Advertising: Industry Practices And Consumers' Expectations," 18 June 2009, <http://www.democraticmedia.org/doc/cdd-testimony-20090618> (all viewed 30 Jan. 2012).

<sup>2</sup> Center for Digital Democracy, et al., "In the Matter of Children's Online Privacy Protection Rule: Request for Public Comment on Proposal to Amend Rule to Respond to Changes in Online Technology," 23 December 2011, <http://www.centerfordigitaldemocracy.org/sites/default/files/COPPA%20Rule%20Comments%20of%20Children's%20Privacy%20Advocates.pdf> (viewed 20 Jan. 2012).

of safeguards are required in the youth digital marketplace. FR applications targeting youth have already appeared.<sup>3</sup>

CDD urges the FTC to issue appropriate rules, under its current COPPA proceeding, that place decisions about the use of FR under the control of a parent or appropriate adult guardian. It also must recommend new safeguards for adolescents, giving them greater information and control over how interactive marketing applications and data collection, including FR, are used in targeting. Specifically, we ask that:

1. The commission issue a regulation, under the COPPA rule, stipulating that the results of facial recognition applications are inherently personally identifiable information, and thus cannot be collected or used without parental consent.
2. For teens, companies must have a clear opt-in structure in order to undertake FR.
3. The commission oversee the development of a set of Fair Marketing Practices for all digital marketing targeting both children and teens, which should address how the overall use of facial recognition will be governed.<sup>4</sup>

Research conducted at Carnegie Mellon University underscores the potential danger of FR—and the concomitant need to harness its power with adequate regulations:

We investigated the feasibility of combining publicly available Web 2.0 data with off-the-shelf face recognition software for the purpose of large-scale, automated individual re-identification. Two experiments demonstrated the ability of identifying strangers online (on a dating site where individuals protect their identities by using pseudonyms) and offline (in a public space), based on photos made publicly available on a social network site. A third proof-of-concept experiment illustrated the ability of inferring strangers'

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<sup>3</sup> According to the Wall Street Journal, for example, "Recognition technology was featured in a project R/GA worked on last year for 77kids, the children's brand of American Eagle Outfitters Inc. The technology allowed children to stand in front of a digital screen and try on a virtual outfit." Emily Steel, "Ad Firms Experiment With Recognition Technologies," WSJ.com, 28 Feb. 2011, <http://online.wsj.com/article/SB10001424052748704692904576167272357856608.html> (viewed 10 Feb. 2011). Coca-Cola' FaceLook trial, similarly, employed FR technology to integrate Coke-sponsored events with teens' Facebook postings. "FaceLook: Coca-Cola's Facial Recognition App," Digital Buzz Blog, 2 Aug. 2011, <http://www.digitalbuzzblog.com/facelook-coca-colas-facial-recognition-app/> (viewed 20 Jan. 2012).

<sup>4</sup> See discussion of such Fair Marketing Practices in Kathryn Montgomery and Jff Chester, "Digital Food Marketing to Children and Adolescents," Oct. 2011, [http://www.foodpolitics.com/wp-content/uploads/DigitalMarketingReport\\_FINAL\\_web\\_20111017.pdf](http://www.foodpolitics.com/wp-content/uploads/DigitalMarketingReport_FINAL_web_20111017.pdf) (viewed 30 Jan. 2012).

personal or sensitive information (their interests and Social Security numbers) from their faces, by combining face recognition, data mining algorithms, and statistical re-identification techniques. The results highlight the implications of the inevitable convergence of face recognition technology and increasing online self-disclosures, and the emergence of “personally predictable” information. They raise questions about the future of privacy in an “augmented” reality world in which online and offline data will seamlessly blend....

Other than adapting to a world where every stranger in the street could predict quite accurately sensitive information about you (such as your SSN, but also your credit score, or sexual orientation), we need to think about policy solutions that can balance the benefits and risks of peer-based face recognition. Self-regulation, or opt-in mechanisms, are not going to work, since the results we presented are based on publicly available information.<sup>5</sup>

CMU’s cautionary note is entirely appropriate. Indeed, even some industry representatives are expressed alarm over the inherent threat to privacy that FR represents. As Google Executive Chairman Eric Schmidt observed last year, the “surprising accuracy” of FR was “very concerning.” For that reason Google initially resisted deploying FR technology among its various offerings, although, Schmidt added, “some company ... is going to cross that line.”<sup>6</sup>

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<sup>5</sup> “Experiment 1 was about online-to-online re-identification. We took unidentified profile photos from a popular dating site (where people use pseudonyms to protect privacy), compared them—using face recognition—to identified photos from social networking sites (namely, we used what of a Facebook profile can be publicly accessed via a search engine; we did not even log on to the network itself), and ended up re-identifying a statistically significant proportion of members of the dating site.... Experiment 2 was about offline-to-online re-identification. It was conceptually similar to Experiment 1, but we focused on re-identifying students on the campus of a North American college. We took images of them with a webcam and then compared those shots to images from Facebook profiles. Using this approach, we re-identified about one third of the subjects in the experiment.... [C]onceptually, the goal of Experiment 3 was to show that it is possible to start from an anonymous face in the street, and end up with very sensitive information about that person, in a process of data “accretion.” In the context of our experiment, it is this blending of online and offline data - made possible by the convergence of face recognition, social networks, data mining, and cloud computing—that we refer to as augmented reality.” Carnegie Mellon University, “Face Recognition Study - FAQ,” <http://www.heinz.cmu.edu/~acquisti/face-recognition-study-FAQ/> (viewed 20 Jan. 2012).

<sup>6</sup> Quoted in Matt Warman, “Google Warns Against Facial Recognition Database,” *The Telegraph* 18 May 2011, <http://www.telegraph.co.uk/technology/google/8522574/Google-warns-against-facial-recognition-database.html>. “Earlier this year,” according to a report in the *Los Angeles Times* “Google Inc. said privacy concerns drove the company to abandon a project for mobile phones that would have enabled users to snap photos of someone and then run a search online for other photos of the person. ‘We built that technology and we withheld it,’ Google

CDD highlights five areas of concern raised by FR's emergence in the contemporary digital marketplace: digital data collection analysis and use, ad targeting, mobile and location-based marketing, social networks, and digital signage.

**1. Digital Data Collection Analysis and Use:** FR adds more data points to the increasingly detailed profiles that the ad industry routinely compiles in their quest to achieve the "1-to-1" marketing paradigm.<sup>7</sup> And with FR's capability to transform diverse data sets on a user, sometimes claimed by marketers to be so-called non-PII, into clearly identified dossiers, it is playing a role in further delivering that paradigm online. The evidence on this score is clear: "In 2010, the National Institute of Standards and Technology tested various facial recognition systems and found that the best algorithm correctly recognized 92% of unknown individuals from a database of 1.6 million criminal records. In 2003, some facial recognition systems could run comparisons at a rate of 70 million images per minute. The sophistication of computer vision generally is also quickly progressing. In 2010, GE Global Research claimed that its facial recognition system could recognize individuals at a distance of 15- 20 meters and track an individual from a distance of 25-50 meters. Visual sensors can estimate an individual's emotional state by measuring minutely shifting facial features."<sup>8</sup>

Such technology, moreover, is finding its way into the arena of personal and mobile computing, vastly expanding the target audience for FR. "...[C]onsidering the technological trends in cloud computing, face recognition accuracy, and online self-disclosures," researchers at CMU observe, "it is hard not to conclude that what today we presented as a proof-of-concept in our study, tomorrow may become as common as everyday's text-based search engine queries."<sup>9</sup> Research undertaken at MIT's Media Lab illustrates this direction:

MindReader API enables the real time analysis, tagging and inference of cognitive-affective mental states from facial video. The API builds on Rana el Kaliouby's doctoral research, which presents a computational model of mind

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Executive Chairman Eric Schmidt said at the D: All Things Digital conference in May. He said the decision was made because 'of the fact that people could use this stuff in a very, very bad way as well as in a good way.'" Shan Li and David Sarno, "Advertisers Start Using Facial Recognition to Tailor Pitches," *Los Angeles Times*, 21 Aug, 2011, <http://articles.latimes.com/2011/aug/21/business/la-fi-facial-recognition-20110821> (both viewed 20 Jan. 2012).

<sup>7</sup> Joseph Turow, *The Daily You: How the New Advertising Industry is Defining Your Identity and Your Worth*; also *Kathy's Generation Digital*, New Haven, CT: Yale University Press, 2012.

<sup>8</sup> Center for Democracy & Technology, "Seeing Is ID'ing: Facial Recognition & Privacy," 6 Dec. 2011, p. 2, [http://cdt.org/files/pdfs/Facial\\_Recognition\\_and\\_Privacy-CDT\\_Comments\\_to\\_FTC\\_Workshop.pdf](http://cdt.org/files/pdfs/Facial_Recognition_and_Privacy-CDT_Comments_to_FTC_Workshop.pdf) (viewed 20 Jan. 2012).

<sup>9</sup> Carnegie Mellon University, "Face Recognition Study - FAQ."

reading as a framework for machine perception and mental state recognition. This framework combines bottom-up vision-based processing of the face (e.g. a head nod or smile) with top-down predictions of mental state models (e.g. interest and confusion) to interpret the meaning underlying head and facial signals over time. A multilevel, probabilistic architecture (using Dynamic Bayesian Networks) models the hierarchical way with which people perceive facial and other human behavior and handles the uncertainty inherent in the process of attributing mental states to others. The output probabilities represent a rich modality that technology can use to represent a person's state and respond accordingly.

Using Google's face tracker (formerly NevenVision), 24 feature points are located and tracked on the face. Next, motion, shape and color deformations of these features are used to identify 20 facial and head movements (e.g., head pitch, lip corner pull) and communicative gestures (e.g., head nod, smile, eyebrow flash). Dynamic Bayesian Networks model these head and facial movements over time, and infer the person's affective-cognitive state.<sup>10</sup>

Another Media Lab creation, the Affectiva app, gathers data and insights "that draw on the emerging field of gesture and facial expression recognition.... 'At the highest level, we can tell how anyone is feeling about anything,' explains Dave Berman, CEO of Affectiva, which was incubated at MIT before branching out as a commercial entity less than two years ago. 'The commercial applications are endless.' Along with IPG, Berman said Affectiva is now working with nearly 100 clients interested in using real-time facial recognition to improve their online offerings. A large gaming company, for instance, wants to know when online players are losing interest so it can ramp up the action, or offer them another game to play."<sup>11</sup> With young people in the forefront of gaming, one can imagine a scenario in which FR will be used to target them and to encourage the playing of various games where data are collected and additional commercial transactions are stealthily promoted.

**2. Targeting and Tracking:** With the emergence of FR, ad targeting is poised to shift its focus from behavior, making inferences about consumers' interests and preferences based on their online actions, to physiognomy, identifying and tagging specific individuals based on detailed analyses of facial characteristics. Nor do FR advocates in the interactive ad industry mask their ultimate intentions. "What we are trying to do is figure out what your brain is doing,' says Benjamin Palmer, CEO of Barbarian Group, an interactive-ad agency owned by Cheil Worldwide Inc. 'If your eyes are the window into the soul, we're paying attention to what you are paying

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<sup>10</sup> MIT Media Lab, "API for Facial Analysis and Tagging," <http://web.media.mit.edu/~kaliouby/API.html> (viewed 2 Jan. 2012).

<sup>11</sup> Gavin O'Malley, "Face Time: New App Reads Facial Responses, Boon To Marketers," *Online Media Daily*, 3 Mar. 2011, <http://www.mediapost.com/publications/article/146000/> (viewed 20 Jan. 2012).

attention to.” The growth of real-time targeting, with the routine merging of offline and online data for profiling-based user ad sales, is the context for the FTC to develop safeguards related to FR. Physical data will be added to the plethora of information layered to target users (which now also includes increasingly neuromarketing-derived data. The commission must also address how FR is designed to identify and target multicultural youth. Today, digital marketers engage in a range of ethnic and racial targeting, including children of color. African-American, Hispanic/Latino and Asian-American children and adolescents are the focus of wide-ranging data collection, profiling, and targeting applications.<sup>12</sup> The use of FR to identify race/ethnicity without COPPA or new adolescent digital marketing rules requires proactive policy action by the commission.

**3. Mobile and Location Marketing Campaigns:** Coupled with geo-location and other smart phone technologies, FR allows marketers to determine not only *where* we are, but *who* we are as well, giving additional power to 360-degree marketing campaigns. “While it hasn’t made it onto the radar of the mass media, this technology—consumer facial recognition on mobile—is moving fast. By last fall, many of the companies in this space had been snatched up in acquisitions.”<sup>13</sup> As a recent report on FR observed, “A key development in facial recognition is its integration into mobile phones and other consumer devices. Apple’s iOS 5, Windows Mango, and Google’s Android 4.0 mobile operating systems include face detection and recognition APIs. This will ultimately enable developers to incorporate facial recognition into a broad range of apps and provide developers with data gathered through facial recognition. Although consumers could already access free facial recognition software for their home computers and Internet services, the technology’s inclusion in mobile devices gives many consumers greater ability to quickly take a picture and apply facial recognition to individuals in public spaces.”<sup>14</sup>

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<sup>12</sup> See, for example, Sonya A. Grier, “African American & Hispanic Youth Vulnerability to Target Marketing: Implications for Understanding the Effects of Digital Marketing,” <http://digitalads.org/reports.php> (viewed 3 Jan. 2012).

<sup>13</sup> Chris Grayson, “Face Tracking & Face Recognitikon in AR,” presentation at Engage! Conference and Expo, Feb. 2011, [http://www.slideshare.net/Chris\\_G/face-tracking-face-recognition-in-ar](http://www.slideshare.net/Chris_G/face-tracking-face-recognition-in-ar). Among the FR-related acquisitions and investments that Grayson sites are Russian search engine Yandex investment of \$4.3 million in Israeli FR company Face.com (May 2010); Apple’s acquisition of FR company Polar Rose for a reported \$29 million (Sept. 2010); Qualcomm’s investment of \$10 million in Viewdle and moving the FR company’s headquarters from Ukraine to California (Oct. 2010); and RIM’ (Research in Motion) acquisition of TAT (The Astonishing Tribe), former partner of Polar Rose in developing Recognizr FR software (Dec. 2010). For video examples of mobile FR applications from Polar Rose and Viewdle, see “Mobile Face Recognition Coming Soon?” Augmented Planet, 28 July 2011, <http://www.augmentedplanet.com/2011/07/mobile-face-recognition-coming-soon/> (viewed 20 Jan. 2012).

<sup>14</sup> Center for Democracy & Technology, “Seeing Is ID’ing: Facial Recognition & Privacy,” p. 6.

This “democratization” of FR, however, will come at steep price, the report adds: “Facial recognition is no longer used just by entities with substantial technical and financial resources, such as government agencies or corporate actors; the sophisticated capability to detect unique facial characteristics is making its way into handheld consumer devices and free software packages, opening the door to many millions of users. With such a broad user base and wide variety of applications, facial recognition technology will be abused.”<sup>15</sup>

Efforts to influence consumers will employ “augmented reality” (AU) techniques that will incorporate FR technologies. “As mobile phones continue to develop, the improvements to geolocation features, video capabilities, and processor speed combined with APIs from various web services are helping to make augmented reality the next big thing in mobile applications.... Swedish software and design company The Astonishing Tribe is developing an AU concept called Augmented ID that ‘sees’ people and tells you who they are.... AugmentedID uses facial recognition and tracking technology from a company called Polar Rose, a photo tagging startup.”<sup>16</sup>

In another marriage of AU and FR technologies, Comverse demonstrated what it claimed to be the “the first ever socially augmented reality tool” at the 2010 Mobile World Congress in Barcelona.<sup>17</sup> “The application takes advantage of Face.com’s facial recognition algorithms and its huge database of faces to deliver such functionalities as friend recognition that links his or her face with an appropriate profile.”<sup>18</sup> Comverse also billed the application as a tool to be used for dealing with acquaintances, “practically connecting people before they even know each other’s names. If you bump into someone who you met before and he or she looks familiar but you can’t remember why, the app will locate that person’s online profile to put a name to the face.”<sup>19</sup>

As we discuss below, social media looms large in the world of FR, adding automation to the often laborious task of identifying and tagging one’s collection of online

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<sup>15</sup> Center for Democracy & Technology, “Seeing Is ID’ing: Facial Recognition & Privacy,” p. 1.

<sup>16</sup> Sarah Perez, “Augmented ID: Augmented Reality Facial Recognition for Mobile,” ReadWriteWeb, 10 July 2009, [http://www.readwriteweb.com/archives/augmented\\_id\\_augmented\\_reality\\_facial\\_recognition.php](http://www.readwriteweb.com/archives/augmented_id_augmented_reality_facial_recognition.php) (viewed 20 Jan. 2012).

<sup>17</sup> “When Facial Recognition Meets Check In,” MarketingVOX, 20 July 2010, <http://www.marketingvox.com/when-facial-recognition-meets-check-in-047373/> (viewed 20 Jan. 2012).

<sup>18</sup> Dusan Belic, “Comverse, Face.com demonstrate the first social augmented reality app which can recognize faces,” Intomobile, 21 Feb. 2010, <http://www.intomobile.com/2010/02/21/comverse-face-com-demonstrate-the-first-social-augmented-reality-app-which-can-recognize-faces/> (viewed 20 Jan. 2012).

<sup>19</sup> “When Facial Recognition Meets Check In.”

photos, but also adding immeasurably to the danger that such identified photos will become still more grist for the online marketing mill. As the commission recognizes, the mobile device is a very challenging environment to ensure consumers are effectively informed about data collection practices. Given the growing sophistication of mobile marketing applications and data collection, safeguards for FR-based approaches targeting youth in the mobile/location environment must be addressed by the FTC.

**4. Social Networks:** If Google is the “database of intentions,” Facebook may well become the “database of identifications.” Facebook’s “...facial recognition technology, which was announced in December [2010] but initially only introduced to a small test group, is basically Facebook’s way of creating a huge, photo-searchable database of its users....” The use of FR to identify social connections for targeting without effective user controls (such as opt-in) is a serious concern.

Every day, *PCWorld*’s Sarah Jacobsson Purewal points out, “Facebook’s members upload over 200 million photos, and Facebook currently hosts over 90 billion photos.... Right now Facebook is using this technology to help people tag photos. But once they have an accurate facial recognition database of several hundred million people? Hmm.... Facial recognition technology will ultimately culminate in the ability to search for people using just a picture. And that will be the end of privacy as we know it—imagine, a world in which someone can simply take a photo of you on the street, in a crowd, or with a telephoto lens, and discover everything about you on the internet.”<sup>20</sup>

Purewal is not alone in her concern about Facebook’s FR plans. Security firm Sophos issued a warning in response to the rollout, pointing out that Facebook had enabled facial recognition technology on accounts without informing users of the change.<sup>21</sup> “The onus should not be on Facebook users having to ‘opt-out’ of the facial recognition feature, but instead on users having to ‘opt-in,’” Sophos’ Graham Cluley argued. “It feels like Facebook is eroding the online privacy of its users by stealth.”<sup>22</sup>

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<sup>20</sup> Sarah Jacobsson Purewal, “Why Facebook’s Facial Recognition is Creepy,” *PCWorld*, 8 Jun. 2011, [http://www.pcworld.com/article/229742/why\\_facebooks\\_facial\\_recognition\\_is\\_creepy.html](http://www.pcworld.com/article/229742/why_facebooks_facial_recognition_is_creepy.html) (viewed 20 Jan. 2012).

<sup>21</sup> Graham Cluley, “Facebook Changes Privacy Settings for Millions of Users —Facial Recognition is Enabled,” *Naked Security*, 7 June 2011, <http://nakedsecurity.sophos.com/2011/06/07/facebook-privacy-settings-facial-recognition-enabled/> (viewed 20 Jan. 2012).

<sup>22</sup> Quoted in Ed Oswald, “Facebook Facial Recognition: Security Firm Issues Alert,” *PCWorld* 8 Jun. 2011, [http://www.pcworld.com/article/229689/facebook\\_facial\\_recognition\\_security\\_firm\\_issues\\_alert.html](http://www.pcworld.com/article/229689/facebook_facial_recognition_security_firm_issues_alert.html) (viewed 20 Jan. 2012).

PCWorld's Megan Geuss explains that

Technological advances in the last 10 years are making it possible for computers to match images and names with impressive accuracy. Though every company using the technology handles it a little differently, the president of Applied Recognition, Ray Ganong, shared some insight into how his company's product Fotobounce gets the job done: 'We scan each image as a bitmap and look for potential face images that qualify. We try to see the two eyes, and based on the eye location we reorient the face and then generate a digital signature, based on that face.' Many builders of facial recognition technology base their matches on 'faceprints' of people, where an engine synthesizes information using many photos of the same person from different angles or with different lighting to make a more accurate match. Given that Facebook users had uploaded 60 billion photos by the end of 2010 the prospects for accurate facial recognition on the social network are better now than ever before.

The much smaller Google+ social network (with 26 million members as of September 2011) recently introduced FR technology that it calls "Find my Face." Similar in many respects to Facebook's FR system, Google's Find my Face has thus far avoided controversy for one important reason: users are required to opt-in to the system before the FR service goes into effect.<sup>23</sup>

**5. Digital Signage:** With the emergence of digital out-of-home (DOOH) networks and advertising, FR technology is likely to show up anywhere, and more often than not without our knowledge or consent.<sup>24</sup> "In the labs of some tech-savvy advertising agencies," noted a report in the *Wall Street Journal* last year, "engineers are testing new ways to use advanced technologies to make ads that can recognize human gestures and facial expressions. Marketers envision billboards that could tell if a passerby is paying attention, and whether that person is male or female, then alter its images and message accordingly."<sup>25</sup> As another report explains, "By using

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<sup>23</sup> Tony Bradley, "Google+ Facial Recognition Uses Magic Words--'Opt-In,'" *PCWorld* 10 Dec. 2011, [http://www.pcworld.com/businesscenter/article/245999/google\\_facial\\_recognition\\_uses\\_magic\\_wordsoptin.html](http://www.pcworld.com/businesscenter/article/245999/google_facial_recognition_uses_magic_wordsoptin.html) (viewed 30 Jan. 2012).

<sup>24</sup>Pam Dixon, "The One-Way-Mirror Society: Privacy Implications of the new Digital Signage Networks," 2 Jan. 2010, <http://www.worldprivacyforum.org/pdf/onewaymirrorsocietyfs.pdf>; World Privacy Forum, "Digital Signage Privacy Principles: Critical Policies and Practices for Digital Signage Networks," 2 Feb. 2010, <http://www.worldprivacyforum.org/pdf/DigitalSignage-principlesfs.pdf> (both viewed 30 Jan. 2012).

<sup>25</sup> Steel, "Ad Firms Experiment With Recognition Technologies." The article also explains that "[t]he ad industry is creating other applications that would automatically analyze individual stores, similar to the way companies track where people click on websites, to

identification and interactivity technologies—such as facial recognition or detection—to log consumers’ location and activities in order to deliver advertising targeted to individual interests, the digital signage industry is building an offline version of the behavioral advertising that currently occurs online.”<sup>26</sup>

Among the leaders in bringing FR-empowered signage to market is Immersive Labs, whose “Artificial Intelligence Software for Digital Signs enables out-of-home networks, retailers and advertisers to deliver tailored messages to customers in real-time....

- Artificial Intelligence software makes existing digital signs smarter
- Using a standard web cam connected to any existing digital screen to determine age, gender, attention time and automatically schedule targeted advertising content
- Software learns and adapts advertising to provide the best results, increased CPM, and allows the best ad to be shown at the right time.<sup>27</sup>

Immersive promises its clients 90 percent accuracy in its FR analyses, along with ad selection within 100 milliseconds and coverage of crowds of up to 50 individuals at a distance up to 25 feet. “Immersive Labs software makes real-time decisions on what ads to display based on the weather, gender, age, crowd, and attention time of the audience. The technology can adapt to environments, multiple ads on a single screen, and works with both individuals and large groups.”<sup>28</sup>

YCD Multimedia, meanwhile, “is testing facial-recognition technology to enhance in-store screen messaging. A shopper’s facial features—nose size and shape, eyes, cheekbones, jawline—are analyzed to determine the shopper’s particular demographics, resulting in highly targeted advertisements.”<sup>29</sup> And Media Sign System’s (MSS) FR software includes aiSense:

An intelligent sensor that automatically detects human presence, counts people and distinguishes between male and female demographic groups through facial pattern recognition.

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determine which marketing messages worked best and which products drew the most interest.”

<sup>26</sup> Center for Democracy & Technology, “Seeing Is ID’ing: Facial Recognition & Privacy,” p. 5.

<sup>27</sup> Immersive Labs, “Technology,” <http://www.immersivelabs.com/technology> (viewed 20 Jan. 2012).

<sup>28</sup> Immersive Labs, “Technology.”

<sup>29</sup> Wheat, “The Empowered Shopper,” p. 4.

With aiSense, marketing campaigns efficiency can be objectively measured. It is a powerful tool for Digital Signage systems, traditional advertising billboards as well as for storefronts.

With aiSense you can:

- Increase the number of people inside your store.
- Send targeted and customized messages according to the audience (male/female) in real time.
- Optimize the efficiency of your marketing campaigns.
- Add interactivity to your installed Digital Signage systems.

aiSense will help you to send tailored messages to your target clients with an effective visual impact and customize your messages to male/female audience in real time.<sup>30</sup>

Implementations such as these are becoming increasingly common in the burgeoning world of facial recognition. And “...it is likely,” a recent report on FR concludes, “that digital signage media will one day routinely identify individuals for the simple reason that it will be profitable to do so.” Unfortunately, as that same report points out, “... the digital signage privacy standards cover only a niche in the broad commercial applications for facial recognition; the existing privacy standards are voluntary and—as demonstrated by the online behavioral advertising industry—self-regulation does not have a strong track record without broad adoption and an effective enforcement mechanism.”<sup>31</sup>

The danger to young people is particularly acute in the area of food and beverages, where digital marketing has played such a major role in contributing to the childhood obesity crisis.<sup>32</sup> New developments in FR threaten to exacerbate that crisis “Once the stuff of science fiction and high-tech crime fighting,” as the *Los Angeles Times* recently observed, “facial recognition technology has become one of the newest tools in marketing, even though privacy concerns abound...”<sup>33</sup>

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<sup>30</sup> MSS, “Face Recognition Detection Software for Digital Signage by MSS,” [http://www.mediasignsystems.com/face\\_recognition.htm](http://www.mediasignsystems.com/face_recognition.htm) (viewed 2 Jan. 2012).

<sup>31</sup> Center for Democracy & Technology, “Seeing Is ID’ing: Facial Recognition & Privacy,” pp. 8, 13.

<sup>32</sup> Kathryn Montgomery and Jeff Chester, “Interactive Food & Beverage Marketing: Targeting Adolescents in the Digital Age,” *Journal of Adolescent Health* 45, n. 3, Suppl. (Sept. 2009): S18–S29; Kathryn Montgomery and Jeff Chester, Digital Food Marketing to Children and Youth: Problematic Practices and Policy Interventions. National Policy & Legal Analysis Network to Prevent Childhood Obesity (NPLAN), Oct. 2011, <http://digitalads.org/reports.php> (viewed 2 Jan. 2012).

<sup>33</sup> Li and Sarno, “Advertisers Start Using Facial Recognition to Tailor Pitches.”

Inevitably, children themselves will be exposed to such devices, too, and the attraction will be all but irresistible. Such appears to be the case with “vending machine prototype ...being developed by Sanden, Okaya Electronics and Intel. The 65in HD display window attracts your attention with animations, the camera gives you the once-over when you step close, then targets you with ads based on you ‘physical attributes.’”<sup>34</sup>

Wall’s, one of Unilever’s several ice cream brands, has come up with a device explicitly designed to entice children—“the world’s first smile-activated vending machine—an ice cream truck for the digital age....

This ice cream vending machine is an industry-leading innovative brand experience and part of Unilever’s new ice cream mission to encourage people everywhere to share life’s small moments of happiness.... Here is how it works: An entertaining ‘attractor screen’ playfully immerses a passerby into the world of augmented reality, Wall’s-style. Once drawn closer to the machine, the person is prompted for a big smile and the ‘smile-o-meter’ measures his or her grin. A photo is then taken and with permission uploaded onto Facebook. The consumer can pick out his or her free ice cream by using the touch-screen interface on the vending machine.<sup>35</sup>

According to ad agency SapientNitro, which developed the vending machine for Unilever, “Passers-by were drawn to the interactive kiosk by an ‘attractor screen’ that superimposed their faces onto the heads of cute illustrated characters. Then, they just had to smile at the vending machine to receive free ice cream. Using facial recognition, the ‘smile-o-meter’ measured smiles and took pictures which were uploaded to Facebook. Users could browse the menu and select their ice cream via a touchscreen.”<sup>36</sup>

While smile-controlled frozen dessert dispensers might seem harmless enough, the power of FR should not be underestimated. And therein lies the danger of the new technology, especially if it is unleashed on the world in the absence of rigorous privacy safeguards.

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<sup>34</sup> Deborah Corn, “Concept Digital Vending Machine With Facial Recognition,” PrintMediaCentr, 2 Dec. 2011, [http://printmediacentr.com/2011/12/concept-digital-vending-machine-with-facial-recognition/#\\_jmp0\\_](http://printmediacentr.com/2011/12/concept-digital-vending-machine-with-facial-recognition/#_jmp0_) (viewed 20 Jan. 2012)

<sup>35</sup> “SapientNitro Unveils World’ First Ever Smile-Activated Ice Cream Vending Machine for Unilever,” 21 June 2010, <http://www.sapientindianews.com/PressReleaseDetail.aspx?article=1422> (viewed 2 Jan. 2012).

<sup>36</sup> “SapientNitro Unilever (Walls brand), ‘Smile-Activated Vending Machines,’” MediaPost, Dec. 2010, <http://www.mediapost.com/creativemediaawards/finalists/?event=2010> (viewed 10 Jan. 2012)

The very technology of FR, it seems, is as irresistible to advertisers as the messages they hope to deliver to the millions of consumers who may be wholly unaware that they have been identified, profiled, and targeted by FR applications. “The technology ‘actually recognizes faces,’” exclaims Jonathan Nelson, chief executive at Omnicom Digital. “If you raise your eyebrow, it can track that. We’re exploring the applications, and they are endless.”<sup>37</sup>

CDD urges the FTC to take the following actions:

1. The commission should issue a regulation, under the COPPA rule, stipulating that the results of facial recognition applications are inherently personally identifiable information, and thus cannot be collected or used without parental consent.
2. For teens, companies must have a clear opt-in structure in order to undertake FR.
3. The commission should oversee the development of a set of Fair Marketing Practices in which the overall use of facial recognition will be governed.

Respectfully submitted,

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<sup>37</sup> Quoted in Steel, “Ad Firms Experiment With Recognition Technologies.”