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THE MURKY ETHICS OF EMOJI: COMPARATIVE RESPONSES TO THE DIVERSITY QUESTION[+]

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INTRODUCTION

[1] The unassuming emoji was elevated to cultural icon in 2016 when New York's Museum of Modern Art purchased the original designs for its permanent collection.[1] The Museum praised those "humble masterpieces of design" as the seeds of a new visual language.[2] Growing academic interest in emoji as non-verbal punctuation in social media speech is generally supportive of such accolades. Interest is particularly keen in the disciplines of linguistics, semiotics, neurology, human cognition, anthropology, machine learning, human-computer interaction, artificial intelligence, and law.[3] Somewhat puzzling, however, are the contradictory functions being assigned to those cartoonish icons: they can inject clarity, but might also introduce deliberate ambiguity into our casual communications.

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[1] *See* Amanda Hess, *Look Who's Smiley Now: MoMA Acquires Original Emoji*, N.Y. TIMES (Oct. 26, 2016), http://www.nytimes.com/2016/10/27/arts/design/look-whos-smiley-now-moma-acquires-original-emoji.html [https://perma.cc/X3R3-T8XG]. *See generally*, *Unicode Technical Standards #51*, UNICODE EMOJI §1 (Mark Davis & Peter Edberg eds., 12th ed. 2019), http://www.unicode.org/reports/tr51/tr51-16.html [https://perma.cc/67XL-82LR] (attributing the rise of modern emoji to the Japanese: "絵 (e ≅ picture) 文字 (moji ≅ written character)"); *The Unicode Consortium*, http://www.unicode.org/consortium/consort.html [https://perma.cc/F3NZ-3VGW] (explaining the Unicode Consortium is a non-profit organization based in California since 1991 that standardizes traditional character code to enable wide usage across languages and so eliminates incompatibility due to language. It encodes the underlying characters, such as those that display as emoji designs, for universal use).

[2] *See* Paul Galloway, *The Original NTT DOCOMO Emoji Set Has Been Added to the Museum of Modern Art's Collection*, MOMA (Oct. 26, 2016), http://stories.moma.org/the-original-emoji-set-has-been-added-to-the-museum-of-modern-arts-collection-c6060e141f61 [https://perma.cc/L3W4-4FC9]; *see, e.g.*, SooJin Lee, *Emoji at MoMA: Considering the "Original Emoji" as Art*, 23 FIRST MONDAY, no. 9 (2018), http://firstmonday.org/ojs/index.php/fm/article/view/9401/7570 [https://perma.cc/Z9R4-YKMS] (discussing whether the emoji is a form of art or innovative design).

[3] *See* Elizabeth Kirley & Marilyn McMahon, *The Emoji Factor: Humanizing the Emerging Law of Digital Speech*, 85 TENN. L. REV. 517, 527 537, 540, 569 (2018), https://tennesseelawreviewdotcom.files.wordpress.com/2018/08/7-kirley_-mep-6-12.pdf [https://perma.cc/P7PY-4C3V].

[2] Understanding how emoji can humanize the first non-verbal language born of the digital world[4] was the focus of our previous article.[5] We concluded that emoji constitute the beginning of a non-verbal rebus-type language but that legal consequences of their use can be dire.[6] Texters are facing court summons for death threats, intimidation, or extortion; litigants are debating emoji-related defamation, breach of contract, and custody disputes.[7] Judges and lawyers are struggling with questions of best evidence and other requisites of proof posed by this novel pictography.[8] Social media companies are struggling too, as evidenced by the sheer variety in their graphic images of face tones, dress styles, and other design modifications emerging in recent years.[9] Also problematic are the invasive studies conducted by Facebook and other social media companies, which gleaned data that reveal our emotions, personalities, and other attributes.[10]

[3] This article examines recent complaints by the public and online media that the emoji design palette is becoming too white, too male, too sanitized, too political, overly youth-focused, and preoccupied with western

[4] *See* Arielle Pardes, *The Wired Guide to Emoji*, WIRED (Feb. 1, 2018), http://www.wired.com/story/guide-emoji [https://perma.cc/NE4N-P8EA].

[5] *See* Kirley & McMahon, *supra* note 3, at 517–70.

[6] *Id.* at 517.

[7] *See id.* at 551–58.

[8] *See* Marylin McMahon & Elizabeth Kirley, *When Cute Becomes Criminal: Emoji, Threats, and Online Grooming*, MINN. J. L. SCI. & TECH. (forthcoming 2019) (manuscript at 35–36) (on file with SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_ id=3451553 [https://perma.cc/YRM5-WMBA]).

[9] *See, e.g.*, Alex Hern, *Why Are Samsung's Emoji's Different from Everyone Else?*, GUARDIAN (Sept. 6, 2017), http://www.theguardian.com/technology/2017/sep/06/why-are-samsung-emojis-different-from-everyone-else [https://perma.cc/E4US-QACX].

[10] *See, e.g.*, Thomas Dimson, *Emojineering Part 1: Machine Learning for Emoji Trends*, MEDIUM: INSTAGRAM ENGINEERING (May 1, 2015), http://instagram-engineering.com/ emojineering-part-1-machine-learning-for-emoji-trendsmachine-learning-for-emoji-trends-7f5f9cb979ad [https://perma.cc/2Q6W-67LY].

cultures.[11] It examines the social media industry's response to those alleged excesses by social media giants and the non-profit standard-setting organization, the Unicode Consortium (the Consortium) that has been overseeing the character inventory of electronic text processing since 1991.[12] The article asks more broadly whether decision makers need to arrive at a progressive diversity policy regarding their images, and whether that action can be prescribed by law. This article explores two research questions: (1) in what ways are emoji changing to reflect human diversity; and (2) what important legal and ethical questions are raised by those new designs that might affect our data privacy, informational security, and human rights. Our methodology includes a comparative examination of academic and commercial studies that critically analyze new 'personalized' offerings by such internet companies as Facebook, Twitter, and Google, as well as new emoji released by the Consortium. We hypothesize that, through their graphic simplicity and broad accessibility, emoji are well placed as ambassadors of inclusion. They are also, unfortunately, expanding access to our personal data and threatening our security by third parties including hackers and data brokers. In addition, new emoji designs raise ethical questions about their political messaging and unspoken bias that hold potential to offend as well as to include. We conclude that both public and private sectors involved in emoji design have a responsibility to use ethical regulation to deliver "a Web that is truly inclusive and open," or in other words, "a Web for good."[13]

[4] It is beyond this Article's scope to canvass the full breadth of meanings attributed to 'ethical' decision making by either private industry or government. We accept the definition offered by information philosopher Luciano Floridi: the study of ethics within the frame of online behavior involves "values and their priorities, good behaviour, and what sort of innovation is socially preferable."[14] We deal primarily with emoji approved

[11] *See* discussion *infra* Part III (B)–(D).

[12] *See* discussion *infra* Part II (A).

[13] *About*, WEB CONFERENCE, http://www2019.thewebconf.org/about [https://perma.cc/DZM2-JLYD].

by the Consortium, not commercial stickers or similar graphics. Finally, we address only one aspect of the broader mandate of the Consortium: to make all languages universally accessible.

[5] The Article proceeds in four parts: in Part I we characterize the varieties and functions of emoji; Part 2 reveals the limitations and ethical landmines that emerge from emoji diversification; in Part 3 we consider legal and ethical initiatives in both the European Union and the United States to build an ethical web; Part 4 discusses how we can accept responsibility as social media subscribers to construct a Web for inclusion.

I. The Power of Emoji to Speak Our Minds

A. Do Emoji Form a New Digital Language?

[6] It is to be expected that, the more we gravitate to non-verbal messaging, the greater the need for digital speech tools to clarify our intentions. Emoji punctuate many of our communications needs, although not always in the same way for each of us.[15] For some, they offer a sense of 'delightfulness' or humor that motivates engagement.[16] For others, they satisfy a desire for play and amusement, even building trust among participants.[17] Emoji can feed our need for puzzle solving, mystery, and

[14] *See* Luciano Floridi, *Soft Ethics and the Governance of the Digital*, 31 PHIL. & TECH. 1, 1 (Mar. 2018), http://link.springer.com/article/10.1007/s13347-018-0303-9 [https://perma.cc/EH8X-WR5U].

[15] *See* Hannah Miller et al., *"Blissfully Happy" or "Ready to Fight": Varying Interpretations of Emoji*, UNIV. OF MINN. GROUPLENS RES. 1, 1 (2016), http://www-users.cs.umn.edu/~bhecht/publications/ICWSM2016_emoji.pdf [https://perma.cc/9KMH-FCEP] (explaining when viewing the same emoji design on the same platform, people disagreed twenty-five percent of the time on whether the emoji had a positive, neutral, or negative connotation. When viewing the emoji designs across different platforms, the study found that the disagreements only increase).

[16] *See* Shatha Ali A Hakami, *The Importance of Understanding Emoji: An Investigative Study*, UNIV. BIRMINGHAM SCH. COMPUTER SCI. §5.4 (2017).

intrigue.[18] They can also add an emotional component to demystify our intent, as can be achieved with question or exclamation marks.[19] Emoji are immensely popular, but a smaller constituency use them more cautiously, aware of their need for appropriate context to avoid coming off as frivolous, inappropriate, or too emotional.[20]

[7] Emoji also add tone of voice to online messaging. Compare, for example, the different inflection in the following comments: "Yes, the film was pretty good . . . 😒" and "Yes, the film was pretty good . . . 😍." Here, our choice of emoji can significantly reduce the ambiguity in our intentions; it also can communicate two very different messages.[21] Conversely, emoji

[17] *See* Liuba Y. Belkin & Naomi B. Rothman, *Do I Trust You? Depends on What You Feel: Interpersonal Effects of Emotions on Initial Trust at Zero-Acquaintance*, 10 NEGOT. & CONFLICT MGMT. RES. 3 (2017); *see also* J. Jobu Babin, *A Picture Is Worth a Thousand Words: Computer-Mediated Communication, Emojis, and Trust* 1–2, https://ssrn.com/abstract=2883578 [https://perma.cc/LV49-QWY7] (examining the role of emoji within the gaming context).

[18] *See generally* Xuan Lu et al., *Learning from the Ubiquitous Language: An Empirical Analysis of Emoji Usage of Smartphone Users*, UBICOMP 770–80 (2016) (demonstrating "the categories and frequencies of emojis used by these users provide rich signals for the identification and the understanding of cultural differences of smartphone users.").

[19] *See* John McWhorter, *Txting Is Killing Language. JK!!!*, TED2013 (Feb. 2013), http://www.ted.com/talks/john_mcwhorter_txtng_is_killing_language_jk?language=en [https://perma.cc/9FV8-P2NQ] (explaining the phrase "LOL" can be used as a pragmatic particle used to signal empathy).

[20] *See* Hannah Miller et al., *Understanding Emoji Ambiguity in Context: The Role of Text in Emoji-related Miscommunication*, UNIV. OF MINN. GROUPLENS RES. 9–10 (2017), http://www.brenthecht.com/publications/icwsm17_emojitext.pdf [https://perma.cc/DFD4-HTUH].

[21] *See* Gaël Guibon et al., *From Emojis to Sentiment Analysis*, WACAI 2016, §3.1, http://www.enib.fr/wacai/ [https://perma.cc/V9EH-CRPV]. *See generally* Matt Alt, *How Emoji got to the White House*, THE NEW YORKER (May 6, 2015), http://www.newyorker.com/culture/culture-desk/how-emoji-got-to-the-white-house [https://perma.cc/4W3V-CQUV]; *see generally* Raisa Bruner, *How Emojis Have Completely Revolutionized Communication from Tears of Joy to Bacon*, TIME (July 15,

can deliberately confuse or ambiguate, depending on the textual content. Again, consider the subtle but unclear tone injected to these messages: "Your idea sounds pretty radical 😉" where the Winking Face is adding a "just kidding" punctuation, and "Way to score on the exam 🤓," which may or may not be complimentary. Then there is the emoji that is deliberately ambiguous, sending an invitation at the same time it is setting a non-committal tone or offering a way out to a suggestion that might seem too forward: "Maybe we could meet over coffee? 🤪." Additionally, emoji can serve a phatic role with such designs as 👍 or 👌, functioning as a pause but without conveying meaning, graphic counterparts to such non-sequiturs as "Right!", "So…", "Indeed," or the American slang "Yo" used variously to greet someone, attract attention, or express excitement.

[8] Emoji popularity is reflected in their meteoric rise in use.[22] While the first publicly available icons were released by the J-phone in Japan in 1997,[23] it was only when a software team at Google petitioned in 2010 for emoji recognition by the Consortium[24] that the first array of emoji was released across platforms for all personal communication devices.[25] We can

2016), http://time.com/4408803/how-emoji-have-completely-revolutionized-communication-from-tears-of-joy-to-bacon [https://perma.cc/CUB9-ESE7].

[22] *See* Thomas Dimson, *Emojineering Part 1: Machine Learning for Emoji Trends*, INSTAGRAM ENGINEERING (May 1, 2015), http://instagram-engineering.tumblr.com/post/117889701472/emojineering-part-1-machine-learning-for-emoji/ [https://perma.cc/JY4C-PQYA] (reporting that in 2015, half of the texts posted on Instagram, an online mobile photo-sharing, video-sharing, and social-networking platform, contained emoji).

[23] *See* Alt, *supra* note 21.

[24] *See* Pardes, *supra* note 4. *See generally*, Mark Davis, *Unicode & Emoji*, http://unicodeconference.com/presentations-41/S9T2-Davis.pdf [https://perma.cc/Z4QT-LZHJ] ("On a laptop, server, or mobile phone every character you type, every character you see is Unicode"); Hakami *supra* note 16, at §2.3 ("The unseen coding skeleton for emoji is the Unicode standard, which is the foundation for text in all modern writing systems. Within Unicode, various code points, or numbers, transform characters into emoji. To parse these points and numbers and to make them machine understandable, a special encoding system is needed, called Unicode Transformation Format (UTF).").

grasp the extent of the icons' popularity when we learn that by March 2019, there were 3,019 emoji in the Unicode Standard.[26] Today, the Consortium works closely with the World Wide Web Consortium (W3C) and the International Organization for Standardization (ISO) to ensure that emoji are freely available to all major operating systems, search engines, and applications and accessible across the Web regardless of the user's location, gender, race, age, computing literacy, or culture.[27] With emoji evolving to true 'ubiquity,'[28] big data sets provide sufficient scale that behaviour can be confidently measured and analyzed.[29] The trade-off is the autonomous risk to the privacy of our personal data and security of our communications.[30]

[25] *See Full Emoji List, v5.0* (June 29, 2017), https://web.archive.org/web/20170629004751/http://unicode.org/emoji/charts/full-emoji-list.html [https://perma.cc/WM2V-FL28] (counting a total of 2623 emojis approved by the Unicode Consortium during the final days of June 2017).

[26] *See Approved Minutes of UTC Meeting 160* (July 23–26, 2019), https://www.unicode.org/L2/L2019/19270.htm [https://perma.cc/6GL3-JEY7] (indicating that members Adobe, IBM, Netflix, UCB, Microsoft, Apple, Google, and Facebook were represented at the July meeting of the Unicode Consortium Technical Board); s*ee also Emoji Counts, v12.0* (Mar. 28, 2019), https://web.archive.org/web/20190328113550/http://www.unicode.org/emoji/charts/emoji-counts.html [https://perma.cc/6779-8UKQ] (counting a total of 3019 emojis approved by the Unicode Consortium during the final days of March, 2019).

[27] *See* Unicode Consortium, *Emoji Images and Rights* (Feb. 5, 2019), http://unicode.org/emoji/images.html [https://perma.cc/C4VQ-6WFA] (stating that the Unicode inventory of emoji exists only in black and white; display of the icons in color is "[m]ade available by the respective vendors for use in Unicode emoji documents and charts or are marked as available for non-commercial reuse"); *see also* Pardes, *supra* note 4.

[28] *See* Lu et al., *supra* note 18, at 770.

[29] *See id.* at 772–73.

[30] *See id.* at 772–73, 779.

B. Do Emoji Speak for Me?

[9] Social sorting occurs whenever users choose an emoji to convey a different message than one chosen by their neighbors.[31] Disparities in emoji interpretation cover many diversity issues: race, age, gender, sexual identity, and language.[32] For example, in 2016, age discrepancies were highlighted in a short street poll conducted on the American talk show Jimmy Kimmel Show Live!.[33] A random sampling of people on the streets of Los Angeles were shown emoji with risqué alternative translations.[34] When shown the 👉👌emoji combination, for example, several younger adults saw it as representing a sex act, but such innuendo was missed by older adults of both genders.[35] Similar results fell along age lines when the eggplant (🍆) emoji was shown, interpreted as a penis for some younger interviewees but an eggplant for most older ones.[36] A similar age breakdown came with translating the taco (🌮) emoji: "vagina" suggested by young interviewees, "taco" for seniors.[37] Interestingly, those interviews aligned with the findings of a University of Minnesota research team that,

[31] *See id.* at 771–72.

[32] *See* Tyler Schnoebelen, *Do You Smile with Your Nose? Stylistic Variation in Twitter Emoticons*, 18 U. PA. WORKING PAPERS IN LINGUISTICS 117, 120 n.6 (2012), http://repository.upenn.edu/pwpl/vol18/iss2/14 [https://perma.cc/HYA5-9C3Q] (utilizing tweets of American English speakers).

[33] *See* Zahra Barnes, *Jimmy Kimmel Asked People What Emojis Mean, and It Went Exactly as You'd Expect*, SELF: CULTURE (Apr. 15, 2016), https://www.self.com/story/jimmy-kimmel-asked-people-what-emojis-mean-and-it-went-exactly-as-youd-expect [https://perma.cc/8KQ5-97JL].

[34] *See* Jimmy Kimmel Show Live!, *What Does This Emoji Mean?*, YOUTUBE (Apr. 15, 2016), https://www.youtube.com/watch?v=NUMl6S_KNj4 [https://perma.cc/U3PT-D632].

[35] *See id.*

[36] *See id.*

[37] *See id.*

while emoji might speak to everyone, they are not always saying the same thing.[38]

[10] Recently, there has been a surge of dissatisfaction with emoji graphics as too stereotypical. Standard emoji approved by the Consortium have been seen as too Caucasian, too male- and youth-focused.[39] Before 2016, for example, the Santa Claus icon came in one prototype: white-skinned and male.[40] Hair styles were short for men, longish for women.[41] Facial hair for men, facial veils for women, and turbans or other head coverings, were not represented.[42] There were no overweight or underweight images and no persons with disabilities of either gender.[43] If we were to review the available Consortium emoji palette from 2016, we would notice that women were portrayed in western dress, hairstyle, footwear, and choice of recreational pursuits;[44] doctors and lawyers, as well

[38] *See* Hannah Miller et al., *supra* note 20 at 9.

[39] *See* Colette Shade, *The Emoji Diversity Problem Goes Way Beyond Race*, WIRED (Nov. 11, 2015), https://www.wired.com/2015/11/emoji-diversity-politics-culture/ [https://perma.cc/LW2Z-QYL8].

[40] *See* Pardes, *supra* note 4 ("There were a growing number of emoji professionals—doctors, chefs, policemen—but why did they all appear to be men? And why, among the many different emoji representing humans, were all of them white people?").

[41] *See* Owen Williams, *Major Emoji Changes Will Allow You to Change Hair Color and Gender*, THE NEXT WEB (Mar. 1, 2016), https://thenextweb.com/insider/2016/03/01/major-emoji-changes-will-allow-changing-hair-color-and-gender/ [https://perma.cc/G4HA-ZGSP].

[42] *See Unicode* (Jun. 02, 2016), http://unicode.org/Public/emoji/3.0/emoji-data.txt [https://perma.cc/VL93-QJCQ]; Jasper Hamill, *New Right-On Emojis to Feature Hijabs, Long Beards, and Breastfeeding Women*, THE SUN (Apr. 4, 2017), https://www.thesun.co.uk/news/2163853/new-range-of-super-pc-emojis-to-feature-hijabs-long-beards-and-breastfeeding-icons/ [https://perma.cc/Z9DE-QT5A].

[43] *See Disability Emojis: Guide Dog and Wheelchair User Revealed*, BBC NEWS (July 17, 2019), https://www.bbc.com/news/newsbeat-48989950 [https://perma.cc/RA5Q-HTV9].

[44] *See Unicode*, *supra* note 42.

as construction workers, skiers, surfers, and golfers, were primarily male, young, white, and fit;[45] and women did not play sports, breastfeed, hold children, or menstruate.[46] Likewise, men did not appear to cook, parent, or garden.[47]

[11] Those restrictions, as noted by those who did not see themselves mirrored in emoji choices, raise a fundamental question about the ethics of using emoji for social sorting: what makes stereotypical representation so offensive? Could you not simply ride on the benefits of social assumptions that, because you are a woman, you excel at bake-offs and spelling bees, or because you are Asian you are a math whiz? What is so wrong with taking advantage? As one author posed the question: "If you can get people to believe you're a good source without actually being one, you get the benefits without having to put in the work."[48] Is she right 😐? 🙄? 😣?

[12] Not so, argues Aaron Kay of Duke University: positive stereotypes are tied to negative ones.[49] Believing that all black people excel at sports complements their physical prowess but can undermine their "high-level cognitive side."[50] Kay, a neuropsychologist, points to the incremental effects of stereotypical thinking.[51] Once you buy into the idea that there is

[45] *See id.*

[46] *See id.*

[47] *See id.*

[48] Julie Beck, *This Article Won't Change Your Mind*, ATLANTIC (Mar. 13, 2017), https://www.theatlantic.com/science/archive/2017/03/this-article-wont-change-your-mind/519093/ [https://perma.cc/A77F-2MGG].

[49] *See* Kumari Devarajan, *'Strong' Black Woman? 'Smart' Asian Man? The Downside to Positive Stereotypes*, NPR (Feb. 7, 2018), https://www.npr.org/sections/codeswitch/2018/02/17/586181350/strong-black-woman-smart-asian-man-the-downside-to-positive-stereotypes [https://perma.cc/4ZCP-ZUKM].

[50] *Id.*

a connection between race and ability, "it's a slippery slope to the bad stuff: [assuming] black people are lazy, Jewish people are cheap."[52] The belief that we know people based on what we know about their group has another detriment: it sets up members of that group for a variety of emotions from the guilt of being a phony to the despair of feeling a failure.[53]

[13] Skin tone homogeneity was one of the first emoji features to undergo scrutiny by the Consortium in order to address the lack of racial diversity.[54] Originally, the default selection for emoji faces was the generic Bart Simpson yellow.[55] While skin tone choice for emoji is determined by the makers of our various devices (such as Apple for iOS phones), the Consortium determined that 'modifiers' like hair colour and skin shade should be as neutral as possible: dark hair for the former and a generic, non-realistic skin tone for the latter.[56] By 2015, as more and more images proposed to the Consortium digressed from that model, modifier codes were introduced that defaulted skin tint to six tones from 'pale white' to 'darkest brown', following the Fitzpatrick scale standard.[57] Those modifications

[51] *See* Aaron C. Kay, et al., *Inequality, Discrimination, and the Power of the Status Quo: Direct Evidence for a Motivation to See the Way Things Are as the Way They Should Be*, 97 J. PERSONALITY & SOC. PSYCHOL. 421, 422 (2009).

[52] *See* Devarajan, *supra* note 49.

[53] *See id.*

[54] *See* Damon Beres, *This Is Why Some of Apple's New Emoji People Are Yellow*, HUFFPOST (Feb. 24, 2015), https://www.huffpost.com/entry/yellow-emoji_n_6744962 [https://perma.cc/ZVW4-RTRQ].

[55] *See id.*

[56] *See* Lucia Peters, *Why Are Emoji Yellow? An Exploration of Default Options and Arbitrary Color Choices*, BUSTLE (Apr. 14, 2015), https://www.bustle.com/articles/76283-why-are-emoji-yellow-an-exploration-of-default-options-and-arbitrary-color-choices [https://perma.cc/CX4B-AKAT]; *see also Unicode Technical Standard #51*, *supra* note 1 (explaining how the consortium assigns standardizing codes to its modifiers and assigned the code RGB #FFCC22 to the yellow skin tone).

were immediately criticized for continuing to apply white frames on racialized others, thereby raising the question, "who gets to represent marginalized peoples and who gets to decide when that representation is enough[?]"[58]

[14] In addition, inter-racial relationships were recognized by the Consortium, standardized in icons such as  and  , after a 50,000-signature lobbying campaign by the dating application Tinder aimed at more accurately reflecting its membership composition.[59]

[15] Gender followed race as the next barrier addressed by those seeking diverse representation.[60] Binary decisions reflected population demographics that showed that the percentage of male and female population in the world is reaching equilibrium. [61] Emoji arrays, meanwhile, did not reflect that pattern. For example, one study shows that 92% of the

[57] *See* Lana Burgess, *Which Fitzpatrick Skin Type Are You?*, MEDICALNEWSTODAY (Jan. 17, 2018), https://www.medicalnewstoday.com/articles/320639.php [https://perma.cc/QE3K-Z6HJ] (explaining the Fitzpatrick scale is a recognized classification tool setting six skin types according to their reaction to ultraviolet rays).

[58] Andy Li & Ivy Sokol, *The Burden of Representation: A Post-Structural Analysis of the Emoji Update*, BLUESTOCKINGS MAG. (May 12, 2015), http://bluestockingsmag.com/2015/05/12/the-burden-of-representation-a-post-structural-analysis-of-the-emoji-update/ **[**https://perma.cc/5M4P-VGNS] (emphasis in original).

[59] *See* Laura Byager, *The Interracial Couple Is Finally Here Following a Tinder Campaign*, MASHABLE MIDDLE EAST, https://me.mashable.com/culture/2857/the-interracial-couple-emoji-is-finally-here-following-a-tin [https://perma.cc/VE2T-MFC4].

[60] *See* Rena Bivens, *The Gender Binary Will Not Be Deprogrammed: Ten Years of Coding Gender on Facebook*, 19 NEW MEDIA & SOC'Y, 880, 880, 882 (2017) ("The programmatic possibility of stretching outside of the binary has always been materialized in the code, but as this analysis will show, the binary continues to dominate and regulate 10 years later, and it is Facebook's business model that."); *see also* Megan Molteni, *Designing Genderless Emoji? It Takes More Than Just Losing the Lipstick*, WIRED (June 30, 2017), https://www.wired.com/story/designing-first-genderless-emoji/ [https://perma.cc/4MRD-TXRX].

[61] *See World Population*, COUNTRY METERS, https://countrymeters.info/en/World#population_2019 [https://perma.cc/5TP5-RG4E].

online communicators in 2015 were estimated to be emoji users:[62] approximately 78% of women and 60% of men.[63] So, where were the voices advocating inclusion of women in professions, sports, and other identifiers?

[16] Mainstream media for one. A 2016 New York Times op-ed column asked, "Where . . . [is] the fierce professor working her way to tenure?" and, "How [is] there space for both a bento box and a single fried coconut shrimp and yet women [are] restricted to a smattering of tired, beauty-centric roles?"[64] See as illustration the emoji 💄, 👄, 💃, 💅 and 💇, while images featuring men primarily focus on more organized sports and professional success messaging. Google was one of the first to spot that discrepancy and, along with other software companies, to suggest to the Consortium that it promote gender equality by including women in their all-male 'professional' icons.[65] The new collection, although not exhaustive, marked a beginning for gender balanced emoji choices.[66] Software companies such

[62] *See* Brandy Shaul, *Report: 92% of Online Consumers Use Emoji (Infographic)*, ADWEEK (Sept. 30, 2015), http://www.adweek.com/digital/report-92-of-online-consumers-use-emojiinfographic/ [https://perma.cc/9EHM-RYAC]; *see also* Selina Jeanne Sutton, *Emoji Are Becoming More Inclusive, but Not Necessarily More Representative*, PHYS ORG, (Feb. 8, 2019), https://phys.org/news/2019-02-emoji-inclusive-necessarily.html [https://perma.cc/85ES-9593].

[63] *See* Leanna Garfield, *These Emojis from Google Show Women in Powerful Careers Instead of Doing Their Nails*, BUS. INSIDER (May 13, 2016), https://www.businessinsider.com/google-designers-create-empowering-emoji-representations-of-women-2016-5 [https://perma.cc/T37A-4ETC].

[64] Amy Butcher, *Emoji Feminism*, N.Y. TIMES (Mar. 11, 2016), https://www.nytimes.com/2016/03/13/opinion/sunday/emoji-feminism.html [https://perma.cc/6BDA-3RT6].

[65] *See* Rachel Been et al., *Expanding Emoji Professions: Reducing Gender Inequality*, UNICODE, https://unicode.org/L2/L2016/16160-emoji-professions.pdf [https://perma.cc/AG8G-PJPH] ("We believe an egalitarian, sensitive, and compelling representation of gender in emoji is extremely important.").

[66] *See* Andrew Cunningham, *Now All of Your Emoji Can Be Either Male Or Female*, ARS TECHNICA (July 12, 2016), https://arstechnica.com/gadgets/2016/07/now-all-of-your-emoji-can-be-either-male-or-female/ [https://perma.cc/MU5Y-HA2H].

as Google, Apple, and Microsoft claim they are committed to integrating those diversified emoji into their operating systems, with the objective of moving consumer thinking beyond the binary when it comes to gender.[67]

[17] One researcher for Microsoft Inc., Kate Miltner, spent a few years investigating why such a limited worldview dominates emoji approval decisions by the Consortium and their partner, the ISO.[68] She, and her coauthor Sarah Banet-Weiser, concluded that there was no overt aim to actively exclude certain prototypes;[69] rather, the original emoji inventory emerged from a particular value system that promoted fixed images and thus inadvertently marginalized those who did not reflect that typology.[70] The Consortium's basic error was perceiving that the emoji creation process was both nontechnical and apolitical, and that belief systems of companies and individuals build on normative values but exclude anomalies.[71] As Rotterdam internet researchers Roel Roscam Abbing et al. noted, "[T]he very companies that provide the infrastructures for on-line expression . . . avoid engaging in the issue by employing an a-politicised and egalitarian

[67] *See* Jon Porter, *Google Is Adding 53 Gender-Fluid Emoji to Android Q*, THE VERGE (May 9, 2019), https://www.theverge.com/2019/5/9/18538001/google-android-q-gender-fluid-emoji-yellow-diversity-inclusivity [https://perma.cc/46GL-K9TY]; *see also* Josh Magness, *Identify as Something Other Than Male or Female? Apple Has Some New Emojis for You.*, THE STATE (Oct. 6, 2017), https://www.thestate.com/news/nation-world/national/article177408471.html (last visited February 4, 2020).

[68] *See* Sarah Banet-Weiser & Kate M. Miltner, *#MasculinitySoFragile: Culture, Structure, and Networked Misogyny*, 16 FEMINIST MEDIA STUD. 171 (2016); *see also* Olivia Solon, *Emoji Diversity: How 'Silly Little Faces' Can Make a Big Difference*, THE GUARDIAN, (Nov. 7, 2016), https://www.theguardian.com/technology/2016/nov/07/emoji-diversity-texting-emojicon-san-francisco [https://perma.cc/XW24-KPHK].

[69] *See* Solon, *supra* note 68.

[70] *See id.*

[71] *See* Bethany Berard, *I Second That Emoji: The Standards, Structures, and Social Production of Emoji*, FIRST MONDAY, (Sept. 3, 2019), https://firstmonday.org/article/view/9381/7565 [https://perma.cc/U9WW-ZG3H].

discourse of diversity" with increasing ease.[72] As the concepts of neutrality and uniformity in representation were being challenged, ethical questions raised by emoji selection expanded in their variety.[73] As Abbing et al. explain, "In times of Black Life Matters . . . the emoji case shows how we might need to radically rethink what it means to say 'everyone.'"[74]

[18] The debate on emoji stereotypes raises gnarly ethical questions for each of us. For example, should I choose an emoji similar to my own skin tone, or to reflect that of the intended recipient? If the latter, will I be perceived as unable or unwilling to speak my mind in my own skin?[75] If an Asian person is making the choice, could selecting a white or dark skin tone be interpreted as cultural appropriation?[76] If so, which culture is singled out for insult, the dark-skinned population, the Asian one, or white?[77] Would choosing a dark-skinned dancing woman play into historical stereotypes? Does it make a political statement and, if so, for which political constituency?[78] Was the choice of default yellow for a face emoji just

[72] Roel Roscam Abbing et al., *Modifying the Universal* 33, http://constantvzw.org/verlag/IMG/pdf/db06_executing_practices_modifiying_the_universal_pierrot_roscam_abbing_snelting.pdf [https://perma.cc/LC6W-RLYU].

[73] *See id.* at 39–40.

[74] *Id.* at 33.

[75] *See* Kumari Devarajan, *White Skin, Black Emojis?*, NPR (Mar. 21, 2018, 6:00 AM), https://www.npr.org/sections/codeswitch/2018/03/21/425573955/white-skin-black-emojis [https://perma.cc/J75X-BBBD].

[76] *See generally* Megan Rose Dickey, *Thoughts on White People Using Dark-skinned Emoji*, TECHCRUNCH (Sept. 29, 2017), https://techcrunch.com/2017/10/01/thoughts-on-white-people-using-dark-skinned-emoji/ [https://perma.cc/4DS7-NSK9].

[77] *See id*. (raising the issue of a lack of correlation between skin tone and cultural or racial make-up).

[78] *See* George Tinari, *These New iOS Emojis Are the Boldest Social & Political Statement Apple Has Ever Made*, GUIDING TECH (Aug. 10, 2016), https://www.guidingtech.com/60828/apple-bold-statement-ios-10-emojis/ [https://perma.cc/66GC-KSQT].

perpetuating the status quo or revealing an entrenched intolerance of the new skin tone palette?[79]

[19] While journalists and bloggers are exploring the need for difference in emoji's graphic representation, academics are responding as well.[80] Researchers from the Institute for Language, Computation and Cognition School of Informatics at the University of Edinburgh took up the gauntlet in 2018 by studying the use of skin tone modifiers on Twitter to see whether skin colour could negatively represent other user groups.[81] They found, by conducting a quantitative analysis of skin modifiers for emoji chosen by dark-skinned users and comparing those with skin modifiers chosen by white skinned users, that tone choice "represented the self, rather than the other."[82] The researchers could find no evidence of negative racial sentiment even where users preferred opposite-toned emoji, so they concluded that the introduction of skin tone choices seems to meet the goal of better representing human diversity.[83] If true, software companies are now listening to increasing demands by users to see their diversity reflected in devices and platforms.[84]

[79] *See* Andrew McGill, *Why White People Don't Use White Emoji*, ATLANTIC: POL. (May 9, 2016), https://www.theatlantic.com/politics/archive/2016/05/white-people-dont-use-white-emoji/481695/ [https://perma.cc/KCE6-CW3X].

[80] *See* Hakami, *supra* note 16, at § 3.1.2.

[81] *See* Alexander Robertson et al., *Self-Representation on Twitter Using Emoji Skin Color Modifiers*, PROC. 12TH INT'L. AAAI CONF. ON WEB & SOC. MEDIA (ICWSM 2018), 680, 680 (claiming to be the first quantitative study on the usage of tone-modifiable emoji (TME) on Twitter and proposing a future study that examines" the relationship between a user's majority/minority status within their real-life community . . . and their use of skin tone modifiers.").

[82] *Id.*

[83] *See id.* at 680–83.

[84] *See* Solon, *supra* note 68.

[20] Industry leaders are slow to take responsibility for any negative repercussions from their attempts to address the diversity question.[85] Twitter, for example, has conducted independent research, and the results showed that, "fears that a range of skin colour options for the social media icons might be used . . . [to] provoke[e] antagonistic racial sentiment -- have been unfounded since their introduction in 2015."[86]

C. What Do Emoji Reveal About Me?

1. Personality Detection

[21] Social media data sets are so abundant and freely accessible to researchers that they are the preferred quantitative resource in business, academia, politics, and even diplomacy.[87] As will be developed later in this paper, the personal information they hold is rarely subject to institutional legal or ethical safeguards.[88] As early as 2016, online marketing reporting revealed emoji targeting, or the practice of mining our emoji footprints to "drive deep engagement and better performance for brands."[89] One practice,

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[85] *See, e.g.*, Marie C. Baca, *Why Emoji Are – Finally – Becoming More Diverse*, WASH. POST (July 17, 2019, 10:32 PM), https://www.washingtonpost.com/technology/2019/07/18/why-emoji-are-finally-becoming-more-diverse/ [https://perma.cc/N9U2-ES7F].

[86] *Darker Emoji Skin Tones Promote Diversity, Twitter Study Shows*, SCIENCE DAILY (Apr. 11, 2018), www.sciencedaily.com/releases/2018/04/180411111042.htm [https://perma.cc/K2VA-K6CF].

[87] *See, e.g.*, Social Media Research Group, *Using Social Media for Social Research: An Introduction*, GOV'T SOC. RES. PROF.: SOC. SCI. GOV'T, 2, 5–8 (2016), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/524750/GSR_Social_Media_Research_Guidance_-_Using_social_media_for_social_research.pdf [https://perma.cc/9WTQ-5NLW]; *see also* Paige Leidig, *What Is Social Media Analytics & Why Is It Important?*, NETBASE (July 16, 2018), https://www.netbase.com/blog/what-is-social-media-analytics-why-is-it-important/ [https://perma.cc/Z99B-GKBW].

[88] *See infra* Part IV (A); *see also* infra Parts II (B), (D).

for example, is that of Twitter, Facebook, and Google profile workers' emoji choice in order to target their devices with advertisements.[90]

[22] How personal data can be used to correlate emoji choice with personality type is of growing research interest. For example, a research team from the University of Rochester used computational methods to analyze emoji-laden tweets to find that connection.[91] The research team chose five personality traits, known in personality studies as the Big Five: openness, conscientiousness, extraversion, agreeableness, and neuroticism.[92] The research team found that users with low extroversion scores (i.e., introverts) used emoji most frequently as did those showing neuroticism traits (such as emotional instability and lack of control).[93] Those showing high agreeableness used more emoji than those registering low on that trait.[94] In terms of specific emoji preferences, those displaying conscientiousness preferred positive emoji such as the sun, thumbs up, and a Winking Face;[95] extroverts expanded those preferences to the thumbs up

[89] Neil Shah (@npshah), *Introducing Emoji Targeting*, TWITTER: MARKETING (June 15, 2016), https://blog.twitter.com/marketing/en_us/a/2016/introducing-emoji-targeting.html [https://perma.cc/DQ8Y-2B4P]; *see also* Jack Wallen, *The Not-So-Cute Side of Emojis: Potential Security, Privacy, and Bandwidth Issues*, TECHREPUBLIC (June 22, 2016), https://www.techrepublic.com/article/the-not-so-cute-side-of-emojis-potential-security-privacy-and-bandwidth-issues/ [https://perma.cc/8XZZ-9KCU].

[90] *See* Wallen, *supra* note 89.

[91] *See, e,g.*, Weijian Li et al., *Mining the Relationship Between Emoji Usage Patterns and Personality*, 112TH INT'L. AAAI CONF. ON WEB & SOC. MEDIA (ICWSM 2018), https://arxiv.org/abs/1804.05143 [https://perma.cc/2AZ6-KWH6] (relying on 350,000 Tweets collected from March 2016 to June 2016).

[92] *See id.*; *see also* OLIVER P. JOHN & SANJAY SRIVASTAVA, *The Big Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives*, HANDBOOK OF PERSONALITY: THEORY AND RESEARCH 102–38 (Lawrence A. Pervin & Oliver P. John 2d ed. 1999).

[93] *See* Li et al., *supra* note 91.

[94] *See id.*

[95] *See id.*

image, clinking beer mugs, and both Winking Face and Grinning Face.[96] Those most agreeable showed a preference for images with hearts in a wide variety of styles;[97] those identified as possessing neuroticism selected predominantly negative images, such as face emoji Loudly Crying Face, Weary Face, Unamused Face, Upside Down Face, and a skull.[98] No surprises there, but findings for those with the openness trait, usually associated with a willingness to accept new things, used the negative skull icon more than any other emoji.[99] Two other results are of interest for their clues to personality: the See-No-Evil Monkey Face was selected frequently by the conscientious and extroverted, and the pistol was chosen by those with the openness trait and those with neurotic tendencies.[100] The legal and ethical questions posed by those results remind us just how invasive such tracking procedures have become and the myriad uses industry can make of those choices without the user's knowledge.

[23] A team of European psychologists have found that emoji truly constitute a textless, digital language.[101] In 2017, Davide Marengo et al., from the University of Turin and Uppsala University in Sweden conducted a personality assessment that used the Big Five personality questionnaire to study 234 adults with a mean age of 24.7 years, concluding that emoji choice in text messaging can easily be employed to develop a language-free assessment tool for personality.[102] The study advances the concept that, within our texting endeavors at least, we are what we emoji.[103]

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[96] *See id.*

[97] *See id.*

[98] *See id.*

[99] *See, e,g.*, Li et al., *supra* note 91.

[100] *See id.*

[101] *See id.*

[102] *See* Davide Marengo et al., *Assessing Personality Using Emoji: An Exploratory Study*, 112 PERSONALITY & INDIVIDUAL DIFFERENCES 74, 74 (2017).

[24] Today's marketing campaigns build on those findings that emoji use is a strong indicator of personality type.[104] The end goal of those campaigns has broadened, however. Twitter's current emoji tracking tool enables advertisers to isolate and monitor people's emotional states, a clear intrusion on privacy unless those people consent.[105] Now a texter's emoji selection can activate commercial messaging that speaks directly to the user's age bracket, gender, and "real-time emotions."[106] Ambiguous emoji do not impair this process because advertisers can use artificial intelligence to de-code the mood of puzzling graphic images and decipher whether an emoji is used in a positive, negative, or neutral context.[107] That finding can lead to placement of an appropriate advertisement with near-surgical precision.

2. Revelations of Sentiment and Mood

[25] Social media companies have a marketing goldmine in the emotions, sentiments, and affect of their subscribers. Messages can be searched for indicators of mood, dissatisfaction, preferences and consumer needs.[108] However, fully understanding the nuanced range of emotions that render us vulnerable to commercial influence remains a challenge. For social media companies, attaining that knowledge is the brass ring of marketing

[103] *See* Hanifah Rahman, *We Know Exactly Which Emoji Matches Your Personality*, BUZZFEED (JAN. 5, 2019), https://www.buzzfeed.com/hanifahrahman/what-emoji-are-you [https://perma.cc/2GAH-4QR2].

[104] *See* Alexandra Cardinale, *Why Advertisers Are Tracking Your Emojis*, VOX (Dec. 12, 2018, 12:33 PM), https://www.vox.com/videos/2018/12/12/18127379/advertisers-tracking-emojis-ads [https://perma.cc/94HY-SMKV].

[105] *See id.*

[106] *Id.*

[107] *See id.*

[108] *See generally* Catherine M. Bohn-Gettler & David N. Rapp, *Depending on My Mood: Mood-Driven Influences on Text Comprehension*, 103 J. EDUC. PSYCHOL. 562, 572 (2011) (offering empirical evidence that mood influences the processes that readers rely on during comprehension and can influence postreading memory).

prediction.[109] Take the basic challenge of distinguishing between four interrelated concepts that drive us online to communicate in the first place: affect (the conscious subjective aspect of an emotion); feeling (unreasoned opinion or belief); emotion (a conscious mental subjective reaction); and sentiment (an attitude or judgment prompted by a feeling).[110] This variation in user response to online stimuli quadruples the ways that Twitter or Facebook can get to know our state of mind and heart.[111] Although social media companies couch their personalization message in terms of 'service,' 'community,' and 'friends,' commodification of our personal data for commercial gain is the ultimate destination.[112]

[26] Facebook has shown a uniquely focused persistence over the past decade in accessing and analyzing our online behaviors. One 2014 study[113] was heavily criticized for manipulating nearly 700,000 users' news feeds to observe changes to user emotions, without first obtaining their informed consent as required by research ethical guidelines for human subjects.[114] The Facebook team hid a percentage of emotional words from peoples'

[109] *See* Andrew McStay, *Empathic Media: The Rise of Emotion AI* 14 (Arts & Humanities Research Council, Working Paper, 2016).

[110] *See* Myriam Munezero et al., *Are They Different? Affect, Feeling, Emotion, Sentiment, and Opinion Detection in Text*, 5 IEEE TRANSACTIONS ON AFFECTIVE COMPUTING, 101, 102 (2014).

[111] *See id.*

[112] *See* Ronald Wahome, *This Is How Twitter Sees the World: Sentiment Analysis Part One*, MEDIUM (Sept. 7, 2018), https://towardsdatascience.com/the-real-world-as-seen-on-twitter-sentiment-analysis-part-one-5ac2d06b63fb [https://perma.cc/HM68-5ZGH].

[113] *See* Adam D. I. Kramer et al., *Experimental Evidence of Massive-Scale Emotional Contagion Through Social Networks*, 111 PROC. NAT'L ACAD. SCI. 8788, 8788 (2014).

[114] *See* Charles Arthur, *Facebook Emotion Study Breached Ethical Guidelines, Researchers Say*, GUARDIAN (June 30, 2014), https://www.theguardian.com/technology/2014/jun/30/facebook-emotion-study-breached-ethical-guidelines-researchers-say [https://perma.cc/LC5E-V7JP]; *see also* Alexander Morgan Capron, *Where Did Informed Consent for Research Come From?*, J. L. MED. & ETHICS 1, 1 (Mar. 17, 2018), https://doi.org/10.1177/1073110518766004 [https://perma.cc/S7VW-2MXX].

news feeds, without their knowledge, to test what effect that had on the status or "Likes" that they posted in reaction to news stories.[115] The researchers read those postings for negative emotions and concluded that *emotional contagion*, or influence, can occur without direct interaction between communicators.[116] Put simply, positive postings by one's friends can cause that person to feel "negative or left out."[117] Michael Stefanone, co-author of similar study from the University of Buffalo SUNY that examined "our relationship with these corporations and these social networking platforms," concluded that "[t]hey do not have our best interests in mind."[118] Merely logging onto these platforms increases the probability that we will view postings by our friends from which we are excluded.[119] Participants with the tendency to devote cognitive resources to understanding their social networks, or those possessing what the study authors call "network attention," were particularly sensitive to feelings of exclusion.[120]

[115] *See* Jillian D'Onfro, *Facebook Researcher Responds to Backlash Against 'Creepy' Mood Manipulation Study*, BUS. INSIDER (June 29, 2014), https://www.businessinsider.com/adam-kramer-facebook-mood-manipulation-2014-6 [https://perma.cc/3N59-B545].

[116] *See* Kramer et al., *supra* note 113.

[117] *See* Vindu Goel, *Facebook Tinkers with Users' Emotions in News Feed Experiment, Stirring Outcry*, N.Y. TIMES (June 29, 2014), https://www.nytimes.com/2014/06/30/technology/facebook-tinkers-with-users-emotions-in-news-feed-experiment-stirring-outcry.html [https://perma.cc/L73K-KBQ5].

[118] *See* Bert Gambini, *Your Facebook Friends Don't Mean It, but They're Likely Hurting You Daily*, UBNOW (Sept. 27, 2018), http://www.buffalo.edu/ubnow/stories/2018/09/stefanone-facebook-rejection.html [https://perma.cc/GH6S-R9CR].

[119] *See* Goel, *supra* note 117.

[120] *See* Jessica Covert & Michael Stefanone, *Does Rejection Still Hurt? Examining the Effects of Network Attention and Exposure to Online Social Exclusion*, SOC. SCI. COMP. REV. 1, 1 (2018), https://doi.org/10.1177/0894439318795128 [https://perma.cc/EM3L-H46A].

[27] The researchers found unusually alarming the fact that friends' posts were not aimed at social exclusion; users were not callously manipulating their friends' emotions, but Facebook was.[121] Today's increasing emoji use, with its high social valence, could add considerably to those feelings of exclusion.

[28] In 2017, news broke of yet another emotion study by Facebook, this time specifically targeting the young.[122] A report of that study spoke of how the company promotes advertising campaigns "that exploit Facebook users' emotional states," some as young as 14 years of age.[123] Always in search of more granular science on emotional triggers and needs, Facebook found ways to mine online behaviours for consumers' behavioural patterns and was able to make personalized observations, such as, "earlier in the week teens post more about 'anticipatory emotions' and 'building confidence,'" and compare them to weekend teen posts containing "more 'reflective emotions' and 'achievement broadcasting.'"[124]

[29] The 2017 study was similar to one in 2014 with Facebook once again creating the psychological phenomenon of emotional contagion, or the need for connectedness among subscribers.[125] Researchers continue to work on understanding the advantages of a face-to-face exchange where connectedness can be achieved through automatic mimicry and synchronization of our expressions, vocalizations, postures, and movements with those of another person.[126]

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[121] *See* Gambini, *supra* note 118.

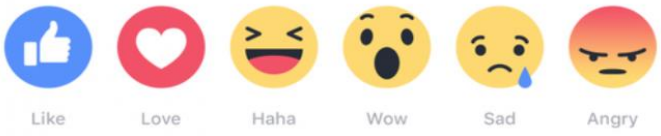
[122] *See* Sam Moshkovech, *Report: Facebook Helped Advertisers Target Teens Who Feel "Worthless" [Updated]*, ARS TECHNICA (May 1, 2017, 3:00 AM), https://arstechnica.com/information-technology/2017/05/facebook-helped-advertisers-target-teens-who-feel-worthless/ [https://perma.cc/6B59-QRD4].

[123] *Id.*

[124] *Id.*

[125] *See* Elaine Hatfield et al., *Emotional Contagion*, 2 CURRENT DIRECTIONS PSYCHOL. SCI., 96, 96.

[30] The controversy engendered by those studies began with Facebook's 2016 expansion of the 'Like' emoji to six in number to elicit more specific opinions from subscribers. Under pressure from a contingent of users to design a more nuanced response to another person's news where 'Like' would be inappropriate (such as job losses, death of a loved one, or a natural disaster) Facebook researchers introduced the following emoji array:



Facebook's Expansion of the 'Like' function in 2016.[127]

Users were still dissatisfied, complaining of the reduction to a mere six of a possible 20 emotional reactions and Facebook's rejection of negative emotional responses such as disgust, embarrassment, and contempt.[128] That foray into user expectations told Facebook designers that there was a market for a more granular communication tool for emotional responses and confirmed that social media subscribers were looking to emoji to provide it.

3. Indications of Cognitive Thinking with Emoji Use

[31] The following experiments illustrate how researchers and digital journalists are exploring the suitability of emoji to accommodate the more

[126] *See id.* at 99.

[127] *See* Natasha Lomas, *Facebook Expands Downvote Tests on Comments*, TECHCRUNCH (May 1, 2018), https://techcrunch.com/2018/05/01/facebook-expands-downvote-tests-on-comments/ [https://perma.cc/5GY7-4D7V] (Explaining that 'reaction' testing was expanded to Australia and New Zealand with 'up' and 'down' arrows to indicate acceptability or rejection of readers' comments; similar testing of United States subscribers offered the additional option of expressing "Offensive", "Misleading" or "Off Topic" responses).

[128] *See* Amanda Hess, *Facebook Reactions Are Not Wow*, SLATE (Feb. 25, 2016), https://slate.com/technology/2016/02/facebook-reactions-are-not-wow.html [https://perma.cc/BD29-3KLS].

conceptually difficult linguistic devices of sarcasm and irony. This section concludes with an account of the creation of an emoji lexicon, or dictionary, using emoji sentiment ranking. The innovation is promoted as a prototype for automated sentiment analysis in future. More complex brain functions are associated with the expression of sarcasm and irony.[129] Beginning in 2015, two emoji designs were proposed by linguistic scholars as a sarcastic indicator or text modifier.[130] The Upside Down Face emoji (🙃)[131] and the Eye Roll Face emoji (🙄)[132] were created to address persistent interpretation challenges when dealing with intended sarcasm.[133] In addition, a sarcasm font has been suggested using left-leaning text (ABCDEFGabcdefg).[134] Still, sarcasm is proving to be one of the more elusive sentiments to represent graphically, perhaps because it is a form of figurative language, like dry wit or droll commentary, where one typically says or writes the opposite of what one means.[135]

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[129] *See* Laura Geggei, *Why You Get the Joke: Brain's Sarcasm Center Found*, LIVE SCIENCE (Apr. 8, 2015), https://www.livescience.com/50412-sarcasm-brain-sagittal-stratum.html [https://perma.cc/RE98-MWVY].

[130] *See* Dominic Thompson & Ruth Filik, *Sarcasm in Written Communication: Emoticons Are Efficient Markers of Intention*, 21 J. COMPUTER-MEDIATED COMM. 105, 117.

[131] *See Upside-Down Face*, EMOJIPEDIA, https://emojipedia.org/upside-down-face/ [https://perma.cc/AU9G-CKP5] (explaining the "Upside-Down Face" was approved as part of Unicode 8.0 in 2015 and added to Emoji 1.0 in 2015).

[132] *See* Ashley Fetters, *In Praise of the Eye-Roll Emoji, the Sarcasm Indicator We've Always Needed*, GQ (Apr. 4, 2016), https://www.gq.com/story/three-years-for-the-eye-roll-emoji [https://perma.cc/ZE3T-BFTF].

[133] *See id.*

[134] *See* Drew Olanoff, *Finally Sarcasm Has a Voice in Print with Its Own Font*, NEXT WEB (Dec. 12, 2011), https://thenextweb.com/dd/2011/12/12/finally-sarcasm-has-a-voice-in-print-with-its-own-font/ [https://perma.cc/SZ52-CLJA].

[135] *See* Shereen Oraby et al., *Are You Serious? Rhetorical Questions and Sarcasm in Social Media Dialog*, PROC. SIGDIAL 2017 CONF., 310, 310–319 (Aug. 15-17, 2017), https://aclweb.org/anthology/W17-5537 [https://perma.cc/5GVC-5545].

[32] In 2017, researchers at the MIT Media Lab developed a program called Deepmoji to aid human study of graphic sarcasm through the use of machine learning.[136] As MIT associate professor Iyad Rahwan explains, '"Because we can't use intonation in our voice or body language to contextualize what we are saying [through texting], emoji are the way we do it online."'[137] Rahwan's team trained algorithms to predict which emoji would be chosen by the author to accompany a particular message, based on whether the intended mood could be read as sad, angry, or humorous.[138] They found that the cognitive subtleties of sarcasm could be learned by computers.[139] In addition, the researchers compared those results with the efforts of human volunteers who proved to be less proficient at spotting sarcasm and other emotions on Twitter than their algorithmic counterparts.[140] In the interim, several benign uses for such machine proficiencies with emoji have been suggested: tracking attitudes toward brands and products, identifying signals and trends in the financial markets, helping computers automatically detect and quash online abuse and hate speech, aiding academics in understanding how information and influence flows through the network, and generally refining human-to-machine communications.[141] The finding that machine learning algorithms could outperform humans at detecting more nuanced language is troubling due to

[136] *See* Will Knight, *An Algorithm Trained on Emoji Knows When You're Being Sarcastic on Twitter*, MIT TECH. REV., (Aug. 3, 2017), https://www.technologyreview.com/s/608387/an-algorithm-trained-on-emoji-knows-when-youre-being-sarcastic-on-twitter/ [https://perma.cc/PL9G-RCYJ].

[137] *Id.* (finding that Deepmoji was 82 percent accurate at identifying sarcasm correctly, compared with an average score of 76 percent for the human volunteers); James Walker, *Emoji Analysis Helps AI Detect Sarcasm in Tweets*, DIGITAL J. (Aug. 7, 2017), http://www.digitaljournal.com/tech-and-science/technology/emoji-analysis-helps-ai-detect-sarcasm-in-tweets/article/499431 [https://perma.cc/8H4T-7UX7].

[138] *See* Knight, *supra* note 136.

[139] *See id.*

[140] *See id.*

[141] *See id.*

future possibilities in perpetuating bias, as will be discussed below in Part III.[142]

[33] Irony presents a form of figurative language that poses similar issues about how we process emoji through cognition,[143] according to a recent study at the University of Illinois at Urbana, in which linguists were interested in whether we resort to the same neural processing in using emoji as when we use word-generated irony.[144] Correlating the use of emoji to brain receptors, researchers Benjamin Weissman and Darren Tanner found that, in fact, the processes are similar.[145] They asked participants to read sentences that ended in either a congruent, incongruent, or ironic (Winking Face) emoji and then to state the overall message in their own words.[146] Results across three experiments clearly demonstrated that participants tended to treat the emoji as a marker of irony in the same way as words.[147] Moreover, unexpected emoji (that were a mismatch or that added irony to an otherwise non-ironic message) provoked some participants to allow the ironic emoji to override the literal meaning of the words in the sentence.[148]

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[142] *See* discussion *infra* Part III.

[143] *See* Benjamin Weissman & Darren Tanner, *A Strong Wink Between Verbal and Emoji-based Irony: How the Brain Processes Ironic Emojis During Language Comprehension*, PLOS ONE 2, 23 (Aug.15, 2018), https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0201727 [https://perma.cc/39XF-N7PY] (explaining other types of figurative language that could pose similar challenges for emoji creation include indirect questions, idioms, metaphors, similes, hyperbole, understatement, and rhetorical questions).

[144] *See id.*

[145] *See id.* at 23.

[146] *See id.* at 1.

[147] *See id. See generally* Kara D. Federmeier et al., *Multiple Effects of Sentential Constraint on Word Processing*, 1146 BRAIN RES. 75 (2006) (explaining in linguistic terms that frontal late positivity arises for plausible but unexpected words in highly constraining contexts).

[148] *See* Weissman & Tanner, *supra* note 143, at 12.

Those results are significant for confirming that emoji go beyond complementing text to actually changing the overall emotional tone and meaning of the message.[149] Moreover, the results confirm the importance of emoji in neural messaging.[150]

[34] The task of sarcasm and irony detection is particularly challenged with the proliferation of internet trolls and the vast number of platforms in which they operate.[151] Thus, it becomes increasingly useful to devise autonomous systems that can detect those sarcastic and ironic intentions in texts and emoji.[152] One such system, Novak research project from eastern Europe, describes the first emoji sentiment lexicon, called the Emoji Sentiment Ranking.[153] It was constructed from over 1.6 million tweets in 13 European languages, manually annotated for sentiment by 83 human interpreters.[154] The purpose of such a ranking system is to assign each emoji a sentiment value: negative, neutral, or positive.[155] Using quantitative methodology, the project determined, for example, that the thumbs down

[149] *See id.* at 10–11 (terming this occurrence "monitoring and/or reanalysis processes associated with updating the conceptual or semantic meaning of [a] sentence").

[150] *See* discussion, *supra* Part I (C)(3).

[151] *See* Laura Moss, *What Drives Internet Trolls (And How They Affect Us)*, MOTHER NATURE NETWORK (Aug. 23, 2017, 12:41 PM), https://www.mnn.com/green-tech/computers/stories/what-drives-internet-trolls-and-how-they-affect-us [https://perma.cc/2UNC-YWG4].

[152] *See, e.g.*, Shereen Oraby, et al., *Creating and Characterizing a Diverse Corpus of Sarcasm in Dialogue*, SIGDIAL: PROC. 17TH ANN. MEETING SPECIAL INT. GROUP DISCOURSE & DIALOGUE, Sept. 2016, at 31–41, https://www.aclweb.org/anthology/W16-36.pdf [https://perma.cc/D2ZP-R5B6] (describing a process creating a "novel method[] for operationalizing classes of sarcasm in the form of rhetorical questions and hyperbole").

[153] *See* Petra Kralj Novak et al., *Sentiment of Emojis*, PLOS ONE 1, 2 (Dec. 7, 2015), https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0144296 [https://perma.cc/A8QM-WLRA].

[154] *See id.* at 2–3, 13 (stating that the lexicon contains 751 emoji).

[155] *See id.* at 3.

sign (👎) indicates negative sentiment with high confidence; the flushed face (😳) is neutral or a balance of negative and positive sentiments; and the chocolate bar (🍫) is positive or, more accurately in Novak's terms, just not negative.[156] The study further determined that the majority of emoji used in the data set were positive, especially the most popular ones; the sentiment distribution of the tweets with and without emoji was significantly different; and emoji tended to be placed at the end of the tweets, possibly for emotional emphasis.[157] The team observed no significant differences in the emoji sentiment rankings among the 13 languages.[158] The authors propose their Emoji Sentiment Ranking as a prototype for automated sentiment analysis,[159] and predict the interplay between emoji and text will be "one of the most promising directions" for digital research in the future.[160]

II. Landmines and Limitations in Expanding Emoji Prototypes

A. Should We Regulate Diversity on Social Media Platforms?

[35] Proscribing diversity by fiat is a controversial, methodologically clunky mechanism.[161] Nations have generally dealt with diversity

[156] *See id.* at 16–17; *see also Twitter*, EMOJIPEDIA.ORG, https://emojipedia.org/twitter/ [https://perma.cc/PF6M-HWZH].

[157] *See* Novak, *supra* note 153, at Abstract (originally stating "their sentiment polarity increases with the distance").

[158] *See id.* at 11.

[159] *See id.* at 12.

[160] *See id.* at 13; *see also* Ameta Agrawal, Enriching Affect Analysis Through Emotion and Sarcasm Detection, at 110–11 (March 2018) (unpublished Ph.D. dissertation, York University) (on file with the York University Library), https://yorkspace.library.yorku.ca/xmlui/bitstream/handle/10315/34985/Agrawal_Ameeta_2018_PhD.pdf?sequence=2&isAllowed=y [https://perma.cc/XN4P-2VQJ] (examining the relationship between text and emojis in relation to emotions).

[161] *See* Hannah Rosefield, *The Politics of Emoji Diversity*, VICE (Nov. 25, 2014, 10:30 AM), https://www.vice.com/en_us/article/3dk57k/the-politics-of-emoji-diversity

obligations by regulating against discrimination.[162] In the employment field, for example, we have the UK Equality Act 2010;[163] Canada's Employment Equity Act;[164] and the U.S. Title VII Acts (Americans With Disabilities Act; Age Discrimination in Employment Act, Civil Rights Act of 1964 and Genetic Information Nondiscrimination Act of 2008).[165] Discrimination is also the target of most civil rights legislation.[166] Corporations became particularly alerted to their diversity responsibilities after a series of high-profile lawsuits rocked the financial industry in the 1990s and early 2000s.[167] In American industries, diversity training and policies were preferred to regulation. Those tactics were temporary, however, as naming

[https://perma.cc/TAW5-ADN8] (indicating that, in 2014, "the yellow faces are far more popular than the racially-specified humans anyway . . . . ").

[162] *See, e.g.*, Equality Act 2010 c. 15 (Eng.), http://www.legislation.gov.uk/ukpga/2010/15 [https://perma.cc/L595-X9QF] (seeking to "prohibit victimization" and to "increase equality of opportunity"); Employment Equity Act, S.C. 1995, c. 44 (Can.), https://laws.justice.gc.ca/eng/acts/E-5.401/page-1.html [https://perma.cc/6D2C-JB7V] (seeking to "achieve equality in the workplace"); Civil Rights Act of 1964, Pub. L. No. 88–652, 78 Stat. 241 (seeking to "prevent discrimination in federally assisted programs").

[163] *See* Equality Act 2010 c. 15, §§ 4, 39-40 (Eng.), http://www.legislation.gov.uk/ukpga/2010/15 [https://perma.cc/8U3Q-FBX6].

[164] *See* Employment Equity Act, S.C. 1995, c. 44 (Can.), https://laws-lois.justice.gc.ca/eng/acts/e-5.401/page-1.html [https://perma.cc/AT4Z-Z775].

[165] *See* Americans With Disabilities Act, 42 U.S.C.A. § 12101 (Westlaw through Pub. L. No. 116-65); 29 U.S.C.A. § 621 (Westlaw through Pub. L. No. 116-65); Civil Rights Act of 1964, Pub. L. No. 88–652, 78 Stat. 241; Genetic Information Nondiscrimination Act of 2008, Pub. L. No. 110–233, 122 Stat. 881.

[166] *See* Civil Rights Act of 1964, Pub. L. No. 88–652 ("[C]onfer[ring] jurisdiction upon the district courts of the United States to provide injunctive relief against discrimination in public accommodations, to authorize the Attorney General to institute suits to protect constitutional rights . . . , to extend the Commission on Civil Rights . . . . ").

[167] *See* Frank Dobbin & Alexandra Kalev, *Why Diversity Programs Fail*, HARV. BUS. REV. (Jul., Aug. 2016), https://hbr.org/2016/07/why-diversity-programs-fail [https://perma.cc/2KVM-4D7].

and shaming were found to be ineffective to alter the workplace discrimination statistics.[168]

[36] Today in the United States, most diversity programs are not increasing diversity.[169] "Despite a few new bells and whistles, courtesy of big data, companies are basically doubling down on the same approaches they've used since the 1960s," note researchers Frank Dobbin & Alexandra Kalev, who studied over 30 years of data from the United States' financial industry.[170] They delineate the thinking behind the corporate preference for softer tactics than top-down regulation: "[E]ngage managers in solving the problem, increase their on-the-job contact with female and minority workers, and promote social accountability [in order to] look fair-minded."[171] Such tokenism to diversity is too often the norm in the social media industry, as evidenced by persistent labour complaints by both Google and Facebook of monoculture hiring and biased working standards.[172]

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[168] *See id.* (reporting that in the 1990s and early 2000s Bank of America Merrill Lynch paid out nearly half a billion dollars in sex and race discrimination suits).

[169] *See* Divua Sundar, *Diversity Lacking at Federal Regulator*, AMER. BANKER (Mar. 12, 2012), https://www.americanbanker.com/opinion/diversity-lacking-at-federal-regulators [https://perma.cc/6KRG-CLT8] (noting that "People of color are now the majority in California and several other states and are on the way to being the majority nationwide."); *see also* Justine Nolan, *The Corporate Responsibility to Respect Rights: Soft Law or Not Law?*, HUMAN RIGHTS OBLIGATIONS OF BUSINESS: BEYOND THE CORPORATE RESPONSIBILITY TO RESPECT?, at 1, 6-7 (Surya Deva & David Bilchitz eds., 2013), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2338356 [https://perma.cc/2QLG-PD7X].

[170] Dobbin & Kalev, *supra* note 167 (stating that "Although the proportion of managers at U.S. commercial banks who were Hispanic rose from 4.7% in 2003 to 5.7% in 2014, white women's representation dropped from 39% to 35%, and black men's, from 2.5% to 2.3%. The numbers were even worse in investment banks").

[171] *See id*. (observing that in spite of the fact that nearly half of midsize companies use diversity training, and nearly all the *Fortune* 500, the positive effects rarely last beyond a day or two).

[172] *See* Daisuke Wakabayashi, *Google is Trying Too Hard (or Not Hard Enough) to Diversify*, N.Y. TIMES (Mar. 9, 2018), https://www.nytimes.com/2018/03/09/technology/

[37] In Europe, the regulation of diversity in social media content and machine learning seems to have taken a more definitive turn over the past year. Germany, for example, is contemplating the first diversity regulation in Europe, and perhaps the world, with binding diversity obligations on social media platforms' ranking and sorting algorithms.[173] The country's new law proposes to regulate "algorithmic diversity and transparency in two categories of services: (1) 'video platforms' such as Netflix and Hulu and (2) so-called 'media intermediaries,'" which include social media platforms and search engines.[174] The legislation was prompted by "numerous regulators, NGOs and academics [who] have argued that social media platforms should incorporate diversity into their algorithms."[175]

[38] Germany also passed new speech legislation, effective May 2019, that has resulted in successfully forcing the world's largest social media platform, Facebook, after years of refusals, to quickly launch several new anti-hate speech deletion programs.[176] The new rules contain steep fines and

google-diversity-lawsuits.html [https://perma.cc/Q9PZ-Y9PY] (highlighting that companies like Google and Facebook are still having issues diversifying their workforces).

[173] *See Germany Proposes Europe's First Diversity Rules for Social Media Platforms*, LONDON SCH. ECON. & POLI. SCI.: MEDIA POL'Y PROJECT BLOG (May 29, 2019), https://blogs.lse.ac.uk/mediapolicyproject/2019/05/29/germany-proposes-europes-first-diversity-rules-for-social-media-platforms/ [https://perma.cc/W9YZ-NPVL] (explaining that the legislation is called *Staatsvertraglicher Neuregelungen zu Rundfunkbegriff / Zulassungspflicht, Plattformregulierung und Intermediäre – or "Medienstaatsvertrag" for short).*

[174] *Id.*

[175] *Id.* For a comprehensive examination of those efforts, *see* Robert Hunt & Fenwick McKelvey, *Algorithmic Regulation in Media and Cultural Policy: A Framework to Evaluate Barriers to Accountability*, 9 J. INFO. POL'Y 307, 309-10 (2019).

[176] *See* Katrin Bennhold, *Germany Acts to Tame Facebook, Learning from Its Own History of Hate*, N.Y. TIMES, (May 19, 2018), https://www.nytimes.com/2018/05/19/technology/facebook-deletion-center-germany.html [https://perma.cc/BQB2-6C95] ("Every day content moderators in Berlin, hired by a third-party firm and working exclusively on Facebook, pore over thousands of posts flagged by users as upsetting or

a 24-hour window for making decisions.[177] Currently, Europe, and particularly Germany, are seen to be the "de facto regulators" of the social media industry.[178]

[39] The Council of Europe has also recently defined media diversity in its Recommendation on Media Pluralism as promoting "the availability, findability and accessibility of the broadest possible diversity of media content as well as the representation of the whole diversity of society in the media."[179] The Council has issued guidelines to its 47 member states regarding similar state legislation.[180] It is arguable that emoji, as a form of non-verbal speech, would come within the parameters of such policy guidelines.

[40] Parallel initiatives that look to government to mediate diversity awareness in social media content are not evident in the United States, where the majority of the world's social media corporate titans are headquartered.[181] Protecting innovation and broad speech freedoms is

potentially illegal and make a judgment: Ignore, delete or, in particularly tricky cases, 'escalate' to a global team of Facebook lawyers with expertise in German regulation"); *see also* Billy Cheung, *Who are Facebook's Main Competitors?*, INVESTOPEDIA (MAY 7, 2019), https://www.investopedia.com/ask/answers/120314/who-are-facebooks-fb-main-competitors.asp [https://perma.cc/5ZVC-F5M7] (suggesting that Facebook continues to outpace its competitors).

[177] *See* Bennhold, *supra* note 176.

[178] *See id.*

[179] COUNCIL OF EUROPE, RECOMMENDATION CM/REC (2018)1 OF THE COMMITTEE OF MINISTERS TO MEMBER STATES ON MEDIA PLURALISM AND TRANSPARENCY OF MEDIA OWNERSHIP (2018), https://search.coe.int/cm/Pages/result_details.aspx?ObjectId=0900001680790e13 [https://perma.cc/W5B5-29VS] (emphasis added).

[180] *See id.*; *see also 47 Member States*, COUNCIL OF EUROPE, https://www.coe.int/en/web/portal/47-members-states [https://perma.cc/WZK3-KDH9] (showing that there are 47 member states that the Council's guidelines affect).

[181] *See* VALERIE C. BRANNON, CONG. RESEARCH SERV., R45650, FREE SPEECH AND THE REGULATION OF SOCIAL MEDIA CONTENT 3–4 (2019), https://fas.org/sgp/crs/misc/

preferred to regulation, even for online speech. In legal terms, two principles dominate debates over liability of internet providers' decisions in presenting user content, which would include emoji designs. First, courts tend to hold that "the First Amendment, which provides protection against state action, is not implicated by the actions of these private companies."[182] "Second, courts have concluded that many non-constitutional claims are barred by Section 230 of the Communications Decency Act, . . . which provides immunity to providers of interactive computer services, including social media providers, . . . for certain decisions to host [third party] content and for actions taken "voluntarily" and "in good faith" to restrict access to "objectionable" material."[183] In other words, to avoid politicizing tech, it is vital that private content moderators be able to ignore explicit or implicit threats to their independence from government officials.[184]

[41] Those principles might be changing, however slightly.[185] As social media platforms infiltrate nearly every country on earth, they are becoming "modern lightning rods for the global tension between America's historical adherence to communicative freedoms" and the tighter censorship demands

R45650.pdf [https://perma.cc/S9LZ-H87E]; *see e.g.*, Claire Brenner, *15 Most Popular Social Media Networks and Sites [+160 Data Points]*, G2 (July 18, 2018), https://learn.g2.com/social-media [https://perma.cc/LST2-AYFT] (showing that most of the headquarters are located in the United States).

[182] Brannon, *supra* note 181, at Summary.

[183] *Id.* (referencing 47 U.S.C. § 230 (2018)). *See generally* Eric Goldman, *Large and Diverse Coalition Issues a Statement of Principles to Help Evaluate UGC Liability Reform Proposals*, TECH. & MARKETING L. BLOG (July 11, 2019), https://blog.ericgoldman.org/archives/2019/07/large-and-diverse-coalition-issues-a-statement-of-principles-to-help-evaluate-ugc-liability-reform-proposals.htm [https://perma.cc/4QTG-C5LQ] (reviewing section 230 jurisprudence).

[184] John Samples, *Why the Government Should Not Regulate Content Moderation of Social Media*, CATO INSTITUTE (Apr. 9, 2019), https://www.cato.org/publications/policy-analysis/why-government-should-not-regulate-content-moderation-social-media [https://perma.cc/EU5L-LU6Z].

[185] *See, e.g.*, Elonis v. United States, 135 S.Ct. 2001, 2016–2017, 192 L.Ed.2d 1 (2015) (arguing for the accused's violent social media posts to be designated as hate speech).

of the rest of the world.[186] A turning point might have been the about-face by Twitter when it began filtering postings by terrorists and their followers from its platform.[187] Facebook has likewise committed to increased scrutiny of such objectionable material as nudity and pornography, although filtering posts promoting hate speech and bullying are proving more difficult.[188] Regarding diversity issues, both Twitter and Facebook decisionmakers have adapted the Consortium's face tone changes to their own designs, although both companies continue to highlight the "complexity" involved in further design diversification.[189]

[42] The Consortium has provided an online accounting of its decisions regarding expanding the emoji palette to include diversity images.[190] As early as 2014, it acknowledged that people all over the world want to have emoji that reflect more human diversity, especially for skin tone.[191] The skin tone has expanded considerably in the interim, although no statement about

[186] Kalev Leetaru, *History Tells Us Social Media Regulation is Inevitable*, FORBES (Apr. 22, 2019, 4:01 PM), https://www.forbes.com/sites/kalevleetaru/2019/04/22/history-tells-us-social-media-regulation-is-inevitable/#1665328f21be [https://perma.cc/VRX2-TA3S].

[187] *See* Twitter Public Policy, *Expanding and Building #TwitterTransparency*, TWITTER BLOG (Apr. 5, 2018), https://blog.twitter.com/official/en_us/topics/company/2018/twitter-transparency-report-12.html [https://perma.cc/7U6G-DABN].

[188] *See* Tom Simonite, *AI Has Started Cleaning Up Facebook but Can It Finish?* WIRED (Dec. 18, 2018), https://www.wired.com/story/ai-has-started-cleaning-facebook-can-it-finish/ [https://perma.cc/XU5P-TKUU].

[189] *See, e.g.*, Devin Coldewey, *Facebook Adds Skin Tones to Family Emoji but It's Complicated*, TECHCRUNCH (Aug. 24, 2017), https://techcrunch.com/2017/08/24/facebook-adds-skin-tones-to-family-emoji-but-its-complicated/ [https://perma.cc/D7CG-FAS5]**;** McGill, *supra* note 79 (commenting on his observation that choice of white skin toned emoji lagged behind all other skin tones: *"*The folks I talked to before writing this story said it felt awkward to use an affirmatively white emoji; at a time when skin-tone modifiers are used to assert racial identity, proclaiming whiteness felt uncomfortably close to displaying "white pride," with all the baggage of intolerance that carries.").

[190] *See* Unicode Technical Standards #51, *supra* note 1.

[191] *See id.*

racial inclusion can be found on the Consortium website.[192] The Consortium has stressed its aim for neutrality in its images[193] and warns that patience is required, as "[t]here is a long development cycle for characters."[194]

[43] There are indications that we might be arriving at the tipping point where "societal change collides with technological scapegoat."[195] While it is a mistake to conflate terrorist hate propaganda with availability of diversified emoji designs, it is clear that opinions are changing to broaden accountability demands on the social media industry.[196] Such change would hopefully involve deliberations about the rationale behind the expanding emoji palette.

B. The Myth of Technological Neutrality

[44] Artificial intelligence (AI) increasingly assists in life altering decisions such as who qualifies for a mortgage, who is hired or fired, and "whether we are good credit risks . . . or deadbeats [and] shirkers."[197] As

[192] *See id.*

[193] *See id.* ("[T]he general recommendation is to be as neutral as possible regarding race, ethnicity, and gender.").

[194] *Id.* at 4.

[195] Leetaru, *supra* note 186.

[196] *See* Brannon, *supra* note 181. *Contra* John Samples, *Why the Government Should Not Regulate Content Moderation of Social Media*, CATO INSTITUTE, Apr. 9, 2019, at 1, https://www.cato.org/sites/cato.org/files/pubs/pdf/pa_865.pdf [https://perma.cc/RA6Y-M367]; Niam Yaraghi, *Regulating Free Speech on Social Media is Dangerous and Futile*, BROOKINGS INST.: TECHTANK (Sept. 21, 2018), https://www.brookings.edu/blog/techtank/2018/09/21/regulating-free-speech-on-social-media-is-dangerous-and-futile/ [https://perma.cc/4NTB-5EL3].

[197] *See* Danielle Keats Citron & Frank Pasquale, *The Scored Society: Due Process for Automated Predictions*, 89, WASH. L. REV. 1, 1 (2014), http://digital.law.washington.edu/dspace-law/bitstream/handle/1773.1/1318/89WLR0001.pdf?sequence=1 [https://perma.cc/RK8D-SAHH]; *see also* Frank Pasquale, *Restoring Transparency to Automated Authority*, 9 J. TELECOMM. & HIGH TECH. L. 235, 246 (2011),

seen above, AI based on machine learning is integrally involved in the world of emoji. We know, for example, that the Apple 'auto-suggestion' feature prompts particular emoji selections when we type certain words.[198] AI also assists Google in converting our selfies into personalized emoji.[199] So, while selfies use photographs to create "idealizations of yourself," emoji are fashioned around the emotion factor because they show more "distillations and exaggerations of how [we] feel."[200] Once again, we discover that social media giants continue to probe for our emotional affect, now generated not by their researchers but through our own choice of features that represent the way we wish others to see us.

[45] The technological landmine in this innovation is that we feed our personal information, including those contained in our facial image, into the bank of data that can be put to unlimited and undisclosed uses.[201] It also

https://digitalcommons.law.umaryland.edu/cgi/viewcontent.cgi?article=2357&context=fac_pubs [https://perma.cc/EH5F-LB6M].

[198] *See* Edwina Oliver, *Emojis in Law: Making a Mess of Messaging*, THOMSON REUTERS: LEGAL INSIGHT (May 4, 2018), http://insight.thomsonreuters.com.au/posts/emojis-in-law [https://perma.cc/HG45-7HCT]; *see also* Gail Sullivan, *Can Google Be Sued for a Mere Search Suggestion? A Hong Kong Judge Says Yes*, WASH. POST (Aug. 7, 2014, 4:19 AM), https://www.washingtonpost.com/news/morning-mix/wp/2014/08/07/can-google-be-sued-for-a-search-suggestion-a-hong-kong-judge-says-yes/ [https://perma.cc/7SLL-5RF3] (explaining several lawsuits have been launched over claims that autocorrection or autosuggestion prompts are prejudicial, racially discriminating, or otherwise defamatory).

[199] *See* Cliff Kuang, *Exclusive: Google's New AI Tool Turns Your Selfies into Emoji*, FAST COMPANY (May 11, 2017), https://www.fastcompany.com/90124964/exclusive-new-google-tool-uses-ai-to-create-custom-emoji-of-you-from-a-selfie [https://perma.cc/38GY-QHSF].

[200] *See id*.

[201] *See* Amanda Zelauskas, *Mirror AI is an App That Transforms Selfies into Emojis That Look Like You*, KNOWTECHIE (Dec. 14, 2017), https://knowtechie.com/turn-yourself-into-emoji-characters-with-mirror-emoji-keyboard/ [https://perma.cc/3L8T-SJND]; Will Nicol & David Cogen, *Does This Look Like Me? How to Use AR Emoji on the Samsung Galaxy S9*, DIGITALTRENDS (Mar. 11, 2018), https://www.digitaltrends.com/mobile/how-to-use-ar-emoji/ [https://perma.cc/5SY2-HXHW].

'codifies,' or integrates, emoji into our messaging, rather than adding them to text characters.[202] The following example illustrates the difference that AI adds. The message "Did you see the game last night? 🔥🏀💯🍻😜🔥" uses emoji as modifiers to the message. However, in the text "Did you 👀 the 🏀 last night?" the emoji become the message.[203] With that functional shift, emoji enter the textual alphabet as more integral to our communication of meaning. Unfortunately, as ready reservoirs of our personal data, they also present privacy risks.

[46] That potential landmine in data privacy need not be reliant on words in order to prompt machine learning. A cancer detection study by a multidisciplinary Stanford University team found that simple computational neural networks can be trained to detect melanoma from images inputted only with pixels and disease labels and using mobile phones as detection devices.[204] The study found that AI can identify dark skin tones with accuracies as high as those of humans.[205] Such algorithmic capacity is technologically impressive. Consider the ethically worrisome implications when indiscriminate use is made of mobile phones in unauthorized hands and the risk that personal health information could reach the hands of non-approved third parties, from potential employers to reputation data brokers. Hackers also create havoc by stealing such data reservoirs, as allegedly occurred with the recent "'state actor-sized' cyberattacks" on the encrypted messaging app Telegram during the 2019 political demonstrations in Hong Kong.[206] Such manipulation of AI assisted methodologies presents

[202] *See* Cara Rose DeFabio & Michael Rosen, *The Problem with Apple's New Emoji Software, and How AI Could Solve It*, SPLINTER (June 17, 2016, 7:41 AM), https://splinternews.com/the-problem-with-apples-new-emoji-software-and-how-ai-1793857615 [https://perma.cc/BYR8-69AN].

[203] *See id.*

[204] *See* Andre Esteva et al., *Dermatologist-level Classification of Skin Cancer with Deep Neural Networks*, 542 NATURE 115, 115–17 (Feb. 2, 2017), https://www.nature.com/articles/nature21056 [https://perma.cc/J6SJ-ZLWB].

[205] *See id.* at 118.

sufficiently high privacy and security risks that it has recently been characterized as "the [p]lutonium of AI," thereby underscoring its volatile possibilities.[207]

[47] One such possibility is that AI technology is not without bias. AI is built by people making small programming decisions that can embed their prejudices in code that becomes very difficult to remove.[208] When we feed machines with data that reflects our biases, the machines mimic our preferences through various devices such as anti-Semitic chatbots and racially biased software.[209] Several examples emerge from recent experimental uses of AI. For example, statisticians Kristian Lum, working with doctoral candidate William Isaac, examined a predictive policing model, Predpol, in Oakland, California, that used AI to predict hotspots where crime might occur in the future.[210] They found that the locations that

[206] *See* Cate Cadell & Josh Horwitz, *Messaging Service Telegram CEO Points to China as Likely Origin of Cyber Attack*, REUTERS (June 13, 2019, 3:34 AM), https://www.reuters.com/article/us-telegram-cyber/messaging-service-telegram-ceo-points-to-china-as-likely-origin-of-cyber-attack-idUSKCN1TE0S5 [https://perma.cc/H2PM-P6YA] (stating the attacks involved Distributed Denial of Service (DDoS) attacks causing full-service interruptions).

[207] *See* Luke Stark, *Facial Recognition is the Plutonium of AI*, 25 CROSSROADS: THE ACM MAGAZINE FOR STUDENTS 50, 50-52 (2019), https://xrds.acm.org/article.cfm?aid=3313129 [https://perma.cc/4FVF-2B36] (commenting that facial recognition is "dangerous, racializing, and has few legitimate uses" and recommending "regulation and control on par with nuclear waste").

[208] *See* Harni V, *A.I. 'Bias' Could Create Disastrous Results, Experts Are Working Out How to Fight It*, CNBC (Dec. 14, 2018, 12:49 AM), https://www.cnbc.com/2018/12/14/ai-bias-how-to-fight-prejudice-in-artificial-intelligence.html [https://perma.cc/VM7Q-HEB8].

[209] *See* Stephen Buranyi, *Rise of the Racist Robots – How AI is Learning All Our Worst Impulses*, GUARDIAN (Aug. 8, 2017, 2:00 AM), https://www.theguardian.com/inequality/2017/aug/08/rise-of-the-racist-robots-how-ai-is-learning-all-our-worst-impulses [https://perma.cc/3ZXF-2SHL].

[210] *See* Kristian Lum & William Isaac, *To Predict and Serve?*, INDETAIL, Oct. 07, 2016, at 15, 16-18 https://rss.onlinelibrary.wiley.com/doi/epdf/10.1111/j.1740-9713.2016.00960.x [https://perma.cc/48ZF-AY37].

were flagged for targeted policing were those that were already over-represented in the historical police data.[211] In terms of the percentage of the population experiencing targeted policing for drug crimes broken down by race, black people would be targeted by predictive policing at roughly twice the rate of whites.[212] Individuals classified as a race other than white or black would receive targeted policing at a rate 1.5 times that of whites.[213] In effect, Lum and Isaac showed that police AI programming had become stuck in a feedback loop that resulted in over-policing black and brown-dominated neighbourhoods.[214] Algorithms were reportedly learning from previous crime reports.[215] Such errors can be nefarious because police can say: "We're not being biased, we're just doing what the math tells us."[216] That thinking encourages the public perception that algorithms are impartial when, in fact, they are recycling programmer bias.

[48] The Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) program has been examined for similar predictive bias.[217] It was designed to assist judicial decisions regarding terms of bail, sentencing and parole.[218] One quantitative assessment has found predictability and validity in COMPAS methodology,[219] but several other

[211] *See id.* at 14, 18.

[212] *See id.* at 18.

[213] *See id.*

[214] *See id.* at 16.

[215] *See id.*

[216] Buranyi, *supra* note 209 ("[A] Google image recognition program [that] labelled the faces of several black people as gorillas; a LinkedIn advertising program [that] showed a preference for male names in searches, and a Microsoft chatbot called Tay [that] spent a day learning from Twitter and began spouting antisemitic messages.").

[217] *See* Tim Brennan et al., *Evaluating the Predictive Validity of the Compas Risk and Needs Assessment System*, 36 CRIM. JUST. & BEHAV. 21 (2009).

[218] *See id.* at 22–23.

analysts show black defendants are twice as likely as white defendants to be labelled as high risk, thereby replicating systemic social biases.[220] COMPAS has been described as "remarkably unreliable" in forecasting violent crime[221] and "somewhat more accurate than a coin flip."[222] An examination of the analyzed data used to build the system originated from "a criminal justice system plagued by racial disparities," and other factors "like income [that] act as proxies for race and lead to discriminatory results."[223] As Harvard researchers found, "blindness to race often does not mitigate bias — and may make algorithmic decisions worse."[224] American Congress representative Alexandria Ocasio-Cortez suggests more broadly that algorithms "are just automated assumptions. And if you don't fix the bias, then you are just automating the bias."[225] When that happens, such datasets have the potential to create unintended

[219] *See* Anthony W. Flores et al., *False Positives, False Negatives, and False Analyses: A Rejoinder to "Machine Bias: There's Software Used Across the Country to Predict Future Criminals. And It's Biased Against Blacks."*, 80 FED. PROB. 38, 41 (2016).

[220] *See* Brennan *supra* note 217, at 27, 32, 34; *see also* Alexandra Wood & Micah Altman, *Ocasio-Cortez is Right, Algorithms Are Biased – but We Can Make Them Fairer*, THE HILL (Feb. 13 2019), https://thehill.com/opinion/technology/429883-ocasio-cortez-is-right-algorithms-are-biased-but-we-can-make-them-fairer [https://perma.cc/DL5J-LW48]; Deborah Raji, *That's Not Fair! Why We Need to Study Machine Learning Fairness, Even in an Increasingly Unfair World*, 25 XRDS: CROSSROADS 44, 46 (2019).

[221] Julia Anguin et al., *Machine Bias*, PRO PUBLICA (May 23, 2016), https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing [https://perma.cc/Q2HL-GX55].

[222] *Id.*; *see also* Jeff Larson et al., *How We Analyzed the COMPAS Recidivism Algorithm*, PRO PUBLICA (May 23, 2016), https://www.propublica.org/article/how-we-analyzed-the-compas-recidivism-algorithm [https://perma.cc/WEE7-YP7P] ("[E]ven when controlling for prior crimes, future recidivism, age, and gender, black defendants were 77 percent more likely to be assigned higher risk scores than white defendants.").

[223] Anguin et al., *supra* note 221; Larson et al., *supra* note 222.

[224] Wood & Altman, *supra* note 220.

[225] *Id.*

harmful effects, including contributions to systematic inequality of opportunity for socially disadvantaged individuals and communities.

[49] It takes public vigilance and push back to hold technology companies accountable until those elements are fixed sufficiently to make lasting change. Blogger Samantha Zucker provides a case in point: she recently dissected the AI-based bug in Twitter messages that caused more characters to be used with female emoji images, thereby exhausting the 140-character limit more quickly.[226] "It turns out more female emojis are being 'taxed' by requiring more characters," Zucker concluded. She found a similar disproportion when emoji are used to depict race, noting that "[t]here's an overall tax on emoji having any race on Twitter. When I tested this with the other skin tones, all paid a price for using a color, regardless of the color selected."[227] Like Zucker, we need to call to account those social media giants that create racial disparities and gender assumptions and that presume our ignorance of algorithms or trust in technology will silence us.

C. Politics and Politesse

[50] The pending approval of a menstruation emoji by the Consortium in early 2019 has raised an important debate around which constituency the organization represents in the standardization of its icons.[228] In other words, we need to figure out when ethical concerns of inclusion and equality, as

[226] *See* Samantha Zucker, *Twitter's Discriminating Emojis, and What It Shows About Tech*, MEDIUM (Aug. 8, 2017), https://medium.com/@schwam_z/twitters-discriminating-emojis-and-what-it-shows-about-tech-ed702a9763bc [https://perma.cc/C8XH-455P] (noting Twitter was assigning more character use to female characters but changed their emoji policy on Oct. 11, 2018 to address this issue).

[227] *Id.*

[228] *See* Malaka Gharib, *Why Period Activists Think the 'Drop of Blood' Emoji is a Huge Win*, NPR (Feb. 8, 2019), https://www.npr.org/sections/goatsandsoda/2019/02/08/692481425/why-period-activists-think-the-drop-of-blood-emoji-is-a-huge-win [https://perma.cc/JRV7-QLZU].

seen in the release of accessibility emoji ( and ),[229] swing into the optics of the politically charged, as suggested by climate change emoji (),[230] interracial couple images (), child abuse icons (), and social welfare messaging ().[231] Public advocacy seems to have great influence here: the withdrawal of a rifle emoji () mere days before its release by the Consortium raised questions about the possible role of political advocacy in that decision.[232] An important preliminary question would be "Who comprises the delete squad," and "Does the non-profit Consortium have accountability responsibilities to emoji users that would call for policy guidelines?"[233]

[229] *See, e.g.*, Apple Inc., *Proposal for New Accessibility Emoji*, UNICODE (Mar. 2018), https://www.unicode.org/L2/L2018/18080-accessibility-emoji.pdf [https://perma.cc/54Y8-T7C5].

[230] *See, e.g.*, Sidney Pereira, *Feel Like the World is Ending? Climate Change Emoji Are Here to Help*, NEWSWEEK, (Jan. 12, 2018), https://www.newsweek.com/feel-world-ending-climate-change-emojis-here-help-779586 [https://perma.cc/X4LR-FRH6] (clarifying these images are *not* the creation of Unicode Consortium, but rather of Climoji); *see also* Allyson Chiu, *Anxious About Climate Change? There's a Cow-Farting-Methane Emoji for that*, WASH. POST (Jan. 30, 2018), https://www.washingtonpost.com/news/energy-environment/wp/2018/01/30/anxious-about-climate-change-theres-a-cow-farting-methane-emoji-for-that/?utm_term=.472b5f4e98f0 [https://perma.cc/CS7P-D5U6].

[231] *See, e.g.*, Megan Logan, *These Emoji Make It Easier for Kids to 'Talk' About Abuse*, WIRED (June 2, 2015), https://www.wired.com/2015/06/abused-emoji/ [https://perma.cc/9ETQ-W9KL].

[232] *See* Lauren O'Neil, *Apple Stops Unicode From Releasing a Rifle Emoji, Gun Advocates Get Mad*, CBC (June 22, 2016), https://www.cbc.ca/news/trending/rifle-emoji-dropped-unicode-9-0-update-apple-microsoft-1.3645884 [https://perma.cc/YL6H-PKCW].

[233] *See, e.g.*, Charlie Warzal, *Thanks to Apple's Influence, You're Not Getting a Rifle Emoji*, BUZZFEED NEWS (June 17, 2016), https://www.buzzfeednews.com/article/charliewarzel/thanks-to-apples-influence-youre-not-getting-a-rifle-emoji#.ciOadJGL2 [https://perma.cc/H8A5-7Y77].

[51] The Consortium has reportedly acquired the services of a gatekeeper to provide guidance with the notable surge in emoji proposals.[234] Those proposals include graphics of such politically charged concepts as suffering depression, experiencing bullying, and being exposed to physical abuse,[235] in addition to addressing autism;[236] talking about suicide;[237] representing self-harm;[238] and venturing into such cultural minefields as whether to accept an emoji family with same-gendered parents, genderless couples,[239] or with one male husband and four female wives.[240] Although parameters for emoji acceptance, as stated on the Consortium website, are quite specific (no deities, logos, or specific persons living, dead, or fictional),[241] making choices requires "political and cultural finesse."[242] That task falls to "twelve dues-paying members with full voting rights," including representatives from several corporate enterprises such as Oracle, IBM, Microsoft, Adobe,

[234] *See* Virginia Heffernan, *The Delicate Art of Creating New Emoji*, WIRED (June 28, 2018), https://www.wired.com/story/the-delicate-art-of-creating-new-emoji/ [https://perma.cc/9GRY-9LL5]

[235] *See* Logan, *supra* note 231.

[236] *See generally* Jeff Chiu, *Google Glass App Helps Kids with Autism 'See' Emotions*, NBC NEWS (June 23, 2016), https://www.nbcnews.com/health/kids-health/google-glass-app-helps-kids-autism-see-emotions-n597641 [https://perma.cc/7WZ2-NZQC] ("When the device's camera detects an emotion such as happiness or sadness, Julian sees the word 'happy' or 'sad' - or a corresponding 'emoji' - flash on the glass display.").

[237] *See, e.g.*, @twittersafety, *Working Together to Prevent Suicide*, Twitter Blog (Sept. 10, 2018), https://blog.twitter.com/official/en_us/topics/company/2018/wspd2018.html [https://perma.cc/GW3S-ZMH6] (mentioning the launching of a special emoji in the shape of an orange and yellow ribbon in partnership with the International Association for Suicide Prevention).

[238] *See, e.g.*, Logan, *supra* note 231.

[239] *See* Molteni, *supra* note 60.

[240] *See* Heffernan, *supra* note 234.

[241] *See id.*

[242] *See id.*

Apple, Google, Facebook, Shopify, Netflix, the German software company SAP, and the Chinese telecom company Huawei, as well as the government of Oman.[243]

[52] An important feature of the widening emoji palette of the Consortium is the growth in joint proposals by the corporate sector and charitable organizations.[244] For example, Apple has partnered with numerous non-profit organizations on the submission of disability-friendly emoji.[245] In Europe, a Swedish non-profit children's rights organization, Children's Rights in Society, has joined forces with private interests to produce the Abused Emoji proposal.[246]

[53] Finally, what to do with emoji designs that are creepy 😱 to some, rude 🤮 to others, or that carry more than a whiff of impropriety (💩) so offensive to more refined sensibilities? According to "shadowy emoji overlord," Mark E. Davis, co-founder and President of the Consortium, the original intent was to keep emoji as neutral and limited in number as possible.[247] A broader mandate has evolved, however: "Our goal is to make sure that all of the text on computers for every language in the world is represented."[248]

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[243] *See id.* (noting that UC Berkeley, as well as the governments of India and Bangladesh, appear to have lower-level memberships).

[244] *See* Matthew S. Schwartz, *Interracial Couples and Disability-Friendly Emoji Coming Soon to Smartphones*, NPR **(**Feb. 7, 2019), https://www.npr.org/2019/02/07/692260599/interracial-couples-and-disability-friendly-emojis-coming-soon-to-smartphones [https://perma.cc/FYP4-E5A5].

[245] *See* Apple Inc. Proposal, *supra* note 229 ("Developed in collaboration with internationally respected community organizations such as American Council of the Blind, the Cerebral Palsy Foundation and the National Association of the Deaf.").

[246] Logan, *supra* note 231.

[247] Victor Luckerson, *Meet the 63-Year-Old in Charge of Approving New Emojis*, TIME (Mar. 2, 2016), http://time.com/4244795/emoji-consortium-mark-davis/ [https://perma.cc/8MR7-H9H9].

[248] NPR Staff, *Who Decides Which Emojis Get the Thumbs Up?*, NPR (Oct. 25, 2015),

D. The Privacy and Interpretative Perils of Facial Recognition

[54] The market in AI-driven emotion analysis, once dominated by Facebook's user studies, gained momentum in 2016 when Apple Inc. purchased the startup company, Emotient Inc., fuelling speculation that users of social media would henceforth have their online behavior read to gauge their interest in advertised products.[249] Apple announced its Face ID on its iPhone one year later, using AI scanning of individual facial gestures for users to gain access.[250] Apple rivals Facebook Inc., Google, and Amazon have developed similar facial recognition technologies to collect user facial coordinates and other personal data in the basic functioning of its products.[251] Since Apple Inc.'s 2016 purchase of the AI startup, Emotient Inc. that specialized in facial recognition technology, the race to use our personal data to access our laptops, phones, and other digital devices has moved into high gear.[252] While fingerprint scans to open our devices signalled a major coup for Apple, Google, et al. in amassing our personally identifying information, the marketing rationale for adding AI-enabled facial recognition technology is that it offers far more than physically

https://www.npr.org/sections/alltechconsidered/2015/10/25/451642332/who-decides-which-emojis-get-the-thumbs-up [https://perma.cc/X95U-EKTC].

[249] *See* Rolf Winkler et al., *Apple Buys Artificial-Intelligence Startup Emotient*, WALL STREET J. (Jan. 7, 2016), https://www.wsj.com/articles/apple-buys-artificial-intelligence-startup-emotient-1452188715 [https://perma.cc/H7U4-GPAZ].

[250] *See The Future is Here: iPhone X*, APPLE: NEWSROOM (Sept. 12, 2017), https://www.apple.com/newsroom/2017/09/the-future-is-here-iphone-x/ [https://perma.cc/QW2K-VZTQ].

[251] *See* Matt Haber, *Why Google, Facebook, and Amazon Really Want You to Have a Screen-Based Smart Device in Your House*, INC. (Sept. 25, 2019), https://www.inc.com/matt-haber/why-google-facebook-amazon-really-want-you-to-have-a-screen-based-smart-device-in-your-house.html [https://perma.cc/L7AP-FE5U] (asking rhetorically, "Serious question: Who besides the most tech-besotted among us would invite Google, Facebook, or Amazon deeper into their lives in 2019?").

[252] *See* Lia Kokalitcheva, *Apple Acquires Startup That Reads Emotions from Facial Expressions*, FORTUNE (Jan. 7, 2016), https://fortune.com/2016/01/07/apple-emotient-acquisition/ (last visited Feb. 4, 2020).

identifying coordinates; it can extend better customer service because it can accurately read our human emotions to determine whether we are satisfied with the service they provide, sometimes despite what we might be saying.[253]

[55] The development of emoji has benefitted from facial recognition technologies as well: with Apple's 2017 release of facial recognition software, whenever we "smile, frown, or sneer" at the Apple iPhone X, the phone's facial sensors can create expressive 3D animal emoji to mimic our own faces.[254] The personal privacy implications of those capabilities of such innovation is alarming. The hardware behind those "Animoji" track over 50 idiosyncratic muscle movements in our brows, cheeks, lips, jaws, and mouths.[255] The cumulative movement of those facial features into frowns or dimples gives the mobile phone the facial data it needs to create our personalized emoji.[256] Some users likely willingly submit to such profiling of their every facial movement for the convenience and entertainment value it offers. Others might fear the personal intrusion and interpretative bias inherent in those images.

[56] Other facial recognition developers are working with retailers on such predictive tasks as preventing shoplifting in real time, and deciphering shoppers' non-verbal responses to online displays of merchandise.[257] From the developer's perspective, "[t]he idea is to help humans interact with computers that are otherwise oblivious to certain subtleties" involved in

[253] *See* Stacey Higginbothom, *Computers That Understand Your Emotions Are Coming Next Year*, FORTUNE (Dec. 23, 2015), https://fortune.com/2015/12/23/computers-understand-emotions/ (last visited Feb. 4, 2020).

[254] *See* Mark Kaufman, *This iPhone X Emoji Innovation Will Copy Your Facial Expressions*, MASHABLE (Sept. 12, 2017), https://mashable.com/2017/09/12/animoji-iphonex-face-sensing-tech/#pVMUuiNXriqU [https://perma.cc/K4MH-5TRQ].

[255] *See id.*

[256] *See* Winkler, *supra* note 249.

[257] *See id*.

reading a person's expressions.[258] From the shopper's viewpoint, prediction by algorithm represents a significant intrusion into private actions, and unquantifiable risks that his or her motives will be misread.[259]

[57] In 2018, Apple expanded on Animoji with the creation of Memoji, a personal avatar amalgam of camera images available to users of iOS 12 phones that add our distinctive facial expressions in human images rather than animal form.[260] With that personalization feature, we can design an image in our likeness not only replicating our skin tone, hairstyle and eye colour, but lip and nose shape, features that can more closely suggest our genetic, racial, and cultural makeup.[261]

[58] Public reception to self-personalized emoji is mixed. While the biometrics of Memoji is exciting in its possibilities, it raises legal and ethical concerns should the technology not perform as anticipated. In a retail store for example, emotion-reading computers could be used to misidentify nervous shoppers as people with a propensity for theft or violence.[262] Similarly, facial recognition software could be installed for use in moving vehicles to detect a driver's eye movement from the road onto a cell phone or radio dial.[263] As early as 2013, it was revealed that law enforcement

[258] *See id*.

[259] *See* Jaclyn Jeffrey-Wilensky, *Here's How AI Could Help Catch Shoplifters in the Act*, NBC NEWS (Mar. 18, 2019), https://www.nbcnews.com/mach/science/here-s-how-ai-could-help-catch-shoplifters-act-ncna984566 [https://perma.cc/KXD9-52FA].

[260] *See* Troy Wolverton, *Apple is Bringing Personalized Emojis to the iPhone So You Can Create an Avatar That Looks Just Like You – Here's How It Works*, BUS. INSIDER (June 4, 2018), https://www.businessinsider.com/apple-memoji-animoji-wwdc-2018-6 [https://perma.cc/3YQS-QM6D].

[261] *See id*.

[262] *See* Jeff John Roberts, *Walmart's Use of Sci-fi Tech to Spot Shoplifters Raises Privacy Questions*, FORTUNE (Nov. 9 2015), http://fortune.com/2015/11/09/wal-mart-facial-recognition/ (last visited Feb. 4, 2020).

officers in San Diego were using such technology developed by the military to indiscriminately build a photo data profile of those with a propensity for crimes, without solid proof and without their permission.[264]

[59] While such experiments foment legal and ethical debates about privacy creepiness and bias risks, they also show an impressive step towards the power of emoji to clarify puns, inside jokes, sarcasm, irony, and "emotional communication that feels more heartfelt because each emoji is individually, carefully selected."[265]

E. Are Emoji Predictable?

[60] Those who research the social aspect of human computer interaction are increasingly aware that human bias and predilections infuse the algorithms we build. For example, in a 2018 study of the use of the dermatologist-approved Fitzpatrick Skin Type classification system to test for gender and skin type distribution in facial imaging, researchers from MIT and Microsoft found that the datasets were "overwhelmingly composed of lighter-skinned subjects."[266] They evaluated three classification systems used in the commercial social media industry and found that darker-skinned females are the most misclassified group with error rates up to almost 35%, while the maximum error rate for lighter-

[263] *See generally Eye Motion Analysis*, EYEDA RECOGNITION, https://www.eyedea.cz/eye-motion-analysis/ [https://perma.cc/4KRD-NLKD] (showing the existence of technology that tracks and analyses eye motion).

[264] *See San Diego County Quietly Scanning Faces for Its Growing Surveillance Database*, ALL GOV CAL. (Nov. 18, 2013), http://www.allgov.com/usa/ca/news/top-stories/san-diego-county-quietly-scanning-faces-for-its-growing-surveillance-database?news=851681 [https://perma.cc/F4M7-7TT4] ("The Tactical Identification System (TACIDS) was used by 25 local, state and federal law enforcement agencies, including U.S. Immigration and Customs Enforcement (ICE) . . .").

[265] Hess, *supra* note 128.

[266] Joy Buolamwini & Timnit Gebru, *Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification*, 81 PROC. OF MACHINE LEARNING RES. 1, 1 (2018).

skinned males was a mere 0.8%.[267] The researchers urge correction of such disparities in the accuracy of classifying skin if commercial companies are to build genuinely fair, transparent and accountable facial analysis algorithms.[268]

[61] Those findings lead us to wonder whether emoji icons are truly predictable. In a 2017 study from Barcelona, a research team was interested in comparing the ability of an artificial agent and a human to correctly predict which emoji would best complement text selections.[269] Barbieri et al. examined the relationship between words and emoji in Twitter messaging to determine which text-based tweets most commonly evoke which emoji.[270] They removed all emoji from a thousand tweets that contained one of the following five ideograms: 😀, ❤️, 😍, 💯, and 🔥.[271] They then asked both human and artificial agents to choose which emoji corresponded to texted messages.[272] The research team found computational models using AI are able to better capture the underlying semantics of emoji that humans.[273] In other words, algorithms were able to predict with greater accuracy which words in a tweet triggered a particular emoji. That discovery means that autonomous systems are better than people at correlating a word with a particular icon to convey a particular meaning.[274] A similarly constructed study of a Swiss German Whatsapp

[267] *See id*.

[268] *See id.* at 1, 12 (recommending rigorous reporting on the performance metrics on which algorithmic fairness debates are based as well as increasing phenotypic and demographic representation in face datasets and algorithmic evaluation).

[269] *See* Barbieri et al., *Are Emojis Predictable?*, 2 PROC. OF THE 15TH CONF. OF THE EUROPEAN CHAPTER OF THE ASS'N. FOR COMPUTATIONAL LINGUISTICS 105, 105 (2017).

[270] *See id.*

[271] *See id.*

[272] *See id.* at 107.

[273] *See id.* at 105, 109.

body of texts found that emoji are not sufficiently predictive to replace words entirely, just to clarify them as any graphic sign would do.[275]

F. Emoji as Hate

[62] Although emoji are distributed worldwide, domestic laws determine the regulative level of tolerance for hate speech.[276] Hate symbols, including emoji, are readily available online, many comprised of adaptations of the Consortium's inventory of approved icons.[277] As many exist primarily on the dark web or within localized chatrooms,[278] their precise meaning can be obscured by innuendo. For example, claims that the 👌 hand emoji represents white power is difficult to establish or disprove, given the activity of trolls and the irresistible urges of detractors to bait white nationalists or supremacists.[279] Whether truth or hyperbole, such claims involve the

[274] *See id.* at 109 (stating the authors now propose to study how to forecast the position of emoji relative to words that trigger it).

[275] *See* Christa Dürscheid & Christina Margrit Siever, *Beyond the Alphabet – Communication of Emojis*, RESEARCHGATE (Mar. 29, 2017), https://www.researchgate.net/publication/315674101_Beyond_the_Alphabet_-_Communication_with_Emojis [https://perma.cc/NK8Y-EUHV].

[276] *See generally*, Eugene Volokh, *Supreme Court Unanimously Reaffirms: There Is No 'Hate Speech' Exception to the First Amendment*, WASH. POST (June 19, 2017), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/06/19/supreme-court-unanimously-reaffirms-there-is-no-hate-speech-exception-to-the-first-amendment/ [https://perma.cc/DSD2-4DQA] (explaining that hate speech enjoys broad protection under the First Amendment in order to encourage robust public debate); Sam Sanders, *Free Speech Vs. Hate Speech*, NPR (June 5, 2018), https://www.npr.org/2018/06/01/616085863/free-speech-vs-hate-speech [https://perma.cc/6XMT-BX9V] (noting that hate speech is only criminalized if it directly incites imminent violent criminal acts).

[277] *See Full Emoji List, v12.0*, UNICODE CONSORTIUM (Sept. 24, 2019), http://unicode.org/emoji/charts/full-emoji-list.html [https://perma.cc/G9HH-ZC8J] (displaying the Consortium's list of approved icons).

[278] *See id*. (showing the differing variations of emojis across platforms).

adoption of certain emoji such as 💯, used by some as a sports symbol meaning going all out for a team win,[280] but reportedly now adopted by trolls, neo-Nazis, Klansmen, and other purveyors of internet message boards to indicate a person's racial makeup that is less than 100 percent Caucasian.[281]

[63] Another online constituency that is increasingly well known for its hate messaging is comprised of 'incels', or woman haters, who "see themselves as 'involuntarily celibate.'"[282] Emblematic emoji have been adopted by the self-identifying group, such as Frog Face (also referred to as Pepe the Frog) (🐸), the eggplant (🍆), and the hotdog (🌭).[283] Pepe the Frog was publicly identified as a hate symbol in 2016 by the American Anti-Defamation League.[284] The adoption of emoji by hate-related groups truly

[279] *See* Anti-Defamation League, *Okay Hand Gesture*, ADL, https://www.adl.org/education/references/hate-symbols/okay-hand-gesture [https://perma.cc/E9MP-K4LW].

[280] *See* Madison Malone Kircher, *These Tweets Roasting Student Athletes Are [Insert 100 Emoji]*, NYMAG: INTELLIGENCER, (Mar. 13, 2017), https://nymag.com/intelligencer/2017/03/stay-grinding.html [https://perma.cc/Z6ZS-664C]; *see also* 💯, DICTIONARY.COM, https://www.dictionary.com/e/emoji/100-emoji/ [https://perma.cc/7LTS-627M] (identifying the emoji as introduced in Unicode 6.0 in 2010 and originating from "teachers' use of 100 to indicate a perfect score on an assignment," and "commonly used on social media for an excellent performance, especially by professional athletes").

[281] *See* Anti-Defamation League, *Numeric Hate Symbols*, ADL, https://www.adl.org/education/references/hate-symbols/100 [https://perma.cc/2NKX-BYCG].

[282] *See* Lauren McKeon, *How Everyday Misogyny Feeds the Incel Movement*, THE WALRUS (May 7, 2018, 10:23 AM), https://thewalrus.ca/how-everyday-misogyny-feeds-the-incel-movement/ [https://perma.cc/E35D-8EKH].

[283] *See* What does Pepe the Frog Mean?, DICTIONARY, https://www.dictionary.com/e/memes/pepe-the-frog/ [https://perma.cc/58ZC-MTAE]; *See generally* Incel Emojis, Emoticons, Smileys, FASTEMOJI, https://www.fastemoji.com/Search/?order=newest&q=incel [https://perma.cc/H4WP-LZS7] (suggesting the penis and masturbation, respectively).

demonstrates the murkier side of emoji, more an affront to our ethical values than liable to prosecution for violating speech freedoms.

III. DESIGNING AN ETHICAL WEB

[64] If we resist the distractions of the latest toys in this technological revolution, and focus more broadly on the ethics of their use, we can think about our "values and their priorities, good behaviour, and what sort of innovation is socially preferable," in this online-offline infosphere we have created.[285] Luciano Floridi of the Oxford Internet Institute suggests that we should be asking ourselves, "[W]hat kind of mature information societies do we want to build? What is our human project for the digital age?"[286]

[65] Web users have galloped from one technological innovation to the next over the last 30 years, with limited formal consideration of how those inventions represent their best social and political values. Each year since 1994, the Web Conference brings together researchers, policy makers, developers, users and commercial ventures in a different location to provide the world with a premier forum for discussion and debate about the evolution of the Web, the standardization of its associated technologies, and the impact of those technologies on society and culture.[287] The conference program suggests that emoji hold a central place in such conversations to "rethink a Web that is truly inclusive and open, a Web for good."[288]

[66] One paper on the 2019 program stresses the challenges that lie ahead if emoji proposals are to make an impact on society through their

[284] *See* Jessica Roy, *How 'Pepe the Frog' Went from Harmless to Hate Symbol*, L. A. TIMES (Oct. 11, 2016, 6:00 AM), https://www.latimes.com/politics/la-na-pol-pepe-the-frog-hate-symbol-20161011-snap-htmlstory.html [https://perma.cc/PEY2-RGZL].

[285] Floridi, *supra* note 14, at 1.

[286] *Id.* at 2.

[287] *See* The Web Conference, *supra* note 13.

[288] *Id.*

contributions to "equity, diversity, and fairness."[289] The researchers, primarily from the University of Tennessee, determined that a frequent rationale for proposing new emoji is a sense of unfairness projected when the Consortium approves one emoji image but not another with a similar function.[290] For example, the paper notes that, while a Republican elephant is part of the approved inventory, a Democrat donkey is not; the acceptance of a United States flag does not suggest a corresponding Confederate flag; a flag of the island of Jersey is included but not one for Scotland or Wales; blonde hair is included but red hair is not; and a breastfeeding woman is not accompanied by a man holding a baby, while a man in tuxedo does not inspire a woman in tuxedo.[291] The paper notes that proposals from social activists, accompanied by endorsement from non-profit corporations, are more likely to receive Consortium approval,[292] such as the joint proposal by Johns Hopkins Bloomberg School of Public Health researchers and the Bill & Melinda Gates Foundation for a mosquito emoji to better explain insect-borne pandemics.[293]

A. Emoji for Good

[67] Commercial users of emoji are faced with technical choices too, as they formulate business models and policies. Those choices are now being closely scrutinized for their interaction with user rights and public interests. This section explores those standards with two vulnerable populations: the

[289] *See* Feng et al., *The World Wants Mangoes and Kangaroos: A Study of New Emoji Requests Based on 30 Million Tweets*, *in* PROCEEDINGS OF THE 2019 WORLD WIDE WEB CONFERENCE 2722, 2722–73 (May 2019) (collecting more than thirty million English tweets containing the keyword "emoji" from October 2017 to October 2018 and filtering out bot-generated tweets).

[290] *See id.* at 2726.

[291] *See id.* Table 2.

[292] *See id.* at 2727.

[293] *See* Marla Chaivitz and Jeff Chertack, *Proposal for Mosquito Emoji*, UNICODE (June 30, 2017), http://www.unicode.org/L2/L2017/17268-mosquito-emoji.pdf [https://perma.cc/XB4Z-Z8FP].

young and the elderly. The potential beneficence of emoji is impressive when giving a voice to children and the elderly.[294] The following examples not only illustrate the facility of emoji to engage people with particular social welfare vulnerabilities, but also pose ethical questions.

[68] In 2016, the British Broadcasting Corporation (BBC) announced a local project in the Midlands of England to find out how its radio and television programming could better reflect that community.[295] BBC researchers commissioned a local artist to prepare several emoji designs aimed at representing the lifestyles of the older generation, including:

 [296]

Included in the designs eventually submitted to the Consortium were "memory pills" (center) and "spending the kids' inheritance money" (right).[297] The images, while attempting humor, also play on stereotypes of older populations: that they are forgetful or doddery and that they are careless or even self-centered.

[69] In another community in Mid-Atlantic America, a similarly upbeat project was offered by a senior care service to inform older residents about how to choose emoji wisely when messaging their children and other

[294] *See The Principle of Beneficence in Applied Ethics*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (2008), https://plato.stanford.edu/entries/principle-beneficence/ [https://perma.cc/J4WY-XU7S].

[295] *See* Rachel Thompson, *Grandmother Creates Emoji to Better Reflect Older People*, MASHABLE (Oct. 28, 2016), https://mashable.com/2016/10/28/emoldji-emoji-older-people/#hzL0EmB1yiqZ [https://perma.cc/P5XM-YKR4].

[296] *See id.*

[297] *See id.*

youngsters.[298] The non-profit organization posted a Senior's Guide to Emojis on its website, alerting seniors to the double entendre carried by some emoji: that the 🔥 is more accurately used to indicate something is sexy, "hot", or trending; and that 💁 might represent someone who is helpful, but is just as likely to show "sass or sarcasm."[299] This service shows a welcome initiative to educate older social media users to emoji slang and innuendo when texting family and friends.

[70] In the area of child well-being, emoji have been used to measure emotional status. A study from Flinders University encouraged 78 children, between the ages of 3 and 5 years, to use emoji to indicate their own sense of well-being beyond their verbal language skills.[300] The results showed that emoji were a catalyst for self-expression among the young about their emotional status.[301] Some concepts, however, were more difficult for the children to explain, such as the difference between "frustrated" and "bored" and a more precise explanation of the feeling of "sad."[302] Children also tended to reveal emotionally difficult or harmful situations that had occurred at home, which left interviewers without recourse to establish the veracity of such claims.[303] The researchers also discovered that emoji designs with increased ambiguity, such as 😐,[304] generated a great number

[298] *See* Stephen Juliano, *A Senior's Guide to Emojis*, PRESBYTERIAN SENIOR LIVING (Jan. 26, 2017), https://www.presbyterianseniorliving.org/blog/a-seniors-guide-to-emojis [https://perma.cc/K9U2-75DY].

[299] *See id.*

[300] *See* Fane, Jennifer, *Using Emoji as a Tool to Support Child Wellbeing from a Strengths-Based Approach*, 21 LEARNING COMMUNITIES 96, 97-98 (2018).

[301] *See id.* at 104-05.

[302] *See id.* at 100, 103.

[303] *See id.*

[304] *See Full Emoji List, v12.0*, UNICODE.ORG, http://unicode.org/emoji/charts/full-emoji-list.html [https://perma.cc/WQN2-ATL4] (identifying this emoji on the iOS keyboard as "neutral face").

of ideas, but caused more disagreement and negotiations among the children.[305] The ethical question raised here is whether the cuteness appeal and accessibility of emoji can lead children as a vulnerable population to try to verbalize their emotions, particularly as they might involve personal family relations at home, with educational workers when their language skills are rudimentary.

B. Correcting for Gender Bias

[71] Despite research that shows that properly designed algorithmic programs can be more fair, transparent, and efficient than those conducted by humans,[306] algorithmic bias can skew our hopes for gender equality. Such was the case in 2016, when a Stanford University researcher posed the following analogy problem to a machine learning algorithm: "Man is to Computer Programmer as Woman is to X."[307] The answer returned by the machine was "Homemaker," suggesting that computer programming was a man's pursuit, not a woman's.[308] Further man-woman analogies produced in the same experiment proposed 'doctor' and 'architect' to which the algorithm suggested 'nurse' and 'interior designer' as female counterparts.[309] Researcher James Zou and his Stanford team then tackled how to devise a de-biasing system. They manually identified examples of the types of connections that are normatively appropriate (brother/sister, king/queen) and those they determined should be removed.[310] Using those human-generated distinctions, they quantified the degree to which gender was a factor in those word choices and instructed their machine-learning algorithm to remove the gender factor from the connections in the

[305] *See* Fane, *supra* note 300, at 100.

[306] *See* Wood & Altman, *supra* note 220.

[307] TOLGA BOLUKBASI ET AL., MAN IS TO COMPUTER PROGRAMMER AS WOMAN IS TO HOMEMAKER? DEBIASING WORD EMBEDDINGS 2–3 (2016).

[308] *See id*.

[309] *See id*.

[310] *See id*. at 13–14.

embedding and, thus, the biased stereotypes.[311] The team found that the algorithm had significantly reduced blatant gender stereotypes.[312] That exercise suggests similar methods might be applied for other biases, such as with physical, mental, racial, and cultural stereotypes.

[72] From China comes important research that finds "a considerable difference in emoji usage by female and male users,"[313] noting that the difference is sufficiently broad that it can be utilized to infer the user's gender, without any text or further information about the user.[314] An empirical study from Brigham Young University in 2014 examined text messaging for gender differences and found several areas of gender discrepancy: in gathering information, seeking entertainment, ending relationships, seeking privacy and exclusion, using text shorthand and slang, and using text messaging for dating.[315] In the sample group of 27 participants ages 18 to 35, one man identified one use of emoji as "full-on flirting" while a woman commented that some use smiley faces for buttering her up.[316] Significantly, only women in this study mentioned using text messaging to maintain privacy by communicating one on one. [317]

[73] Chen's study addressed current privacy risks more broadly. One participant worried, "Even though user IDs can be anonymized, such

[311] *See id*.

[312] *See id*. at 14.

[313] Zhenpeng Chen et al., *Through a Gender Lens: Learning Usage Patterns of Emojis from Large-Scale Android Users*, 27 PROC. WORLD WIDE WEB CONF. 763, 763 (2018).

[314] *See id*. at 769–70.

[315] *See* Sara R. Shawcroft, Gender Differences in Text Messaging (unpublished Masters' Thesis, Brigham Young University) (Mar. 3, 2014) (on file with Scholar's Archive, Brigham Young University) (sampling from a group consisting of 27 participants ages 18–35; 14 were female and 13 were male, separated into four groups (two of each sex)).

[316] *Id*. at 44.

[317] *See id*. at 32, 36.

[natural language processing] techniques are still at the risk of . . . leaking sensitive, private information of the users that are encoded in free text."[318] Such concerns have merit; sharing user profile data has become a popular practice between Internet-based applications. For example, mobile phone applications routinely ask users to list their other social networking accounts for compatibility and enhanced interconnectedness.[319] Indeed, when the gender, age, and other metric points are revealed, the application promotes several technical benefits for the user: better interface design, personalization, and recommender systems.[320] However, such convenience has a flip side: the brokering of a user's personal information beyond our imaginations or informed consent.[321]

[74] In summary, getting computer experts to publicly admit that algorithms can discriminate is critically important for correcting for gender bias.[322] A quick Google image search can illustrate that point,[323] as was explored in a University of Washington study of images related to 45

[318] *See* Chen, *supra* note 313, at 771. The authors remind us that there is sensitive information in our free text messages, "such as "$" (transactions), "@yahoo.com" (email addresses), "http" (Websites), dates, time, and many numbers (age, phone numbers, personal identifiers, financial information, etc.)." *Id.*

[319] *See id.* at 771.

[320] *See id.*

[321] *See id.*

[322] *See* Jeremy Kun, *Big Data Algorithms Can Discriminate, and It's Not Clear What to Do About It*, THE CONVERSATION (Aug. 13, 2015, 1:56 AM), https://theconversation.com/big-data-algorithms-can-discriminate-and-its-not-clear-what-to-do-about-it-45849 [https://perma.cc/2C4G-3GXR]. *See generally* BOLUKBASI, *supra* note 307 (describing the process and results of their case study regarding algorithms and gender bias).

[323] *See* Matthew Kay et al., *Unequal Representation and Gender Stereotypes in Image Search Results for Occupations*, *in* PROCEEDINGS OF THE 33RD ANNUAL ACM CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS 3819, 3822 (April 2015), http://www.mjskay.com/papers/chi_2015_gender-bias-in-image-search.pdf [https://perma.cc/3UMT-6PME].

different occupations.[324] It found significant underrepresentation of women images across all professions.[325] Matthew Kay et al. found evidence for both stereotype exaggeration and systematic underrepresentation.[326] Regarding the former, the research team noted search results can be biased even when their gender is well represented.[327] For example, they identified sexualized depictions of women, such as "the sexy construction worker."[328] The corresponding tendency was not found with male participants.[329]

[75] The studies outlined above show that most gender disparities in emoji and other coding sources are technically correctible. Bias and other attitudes can be programmed out for a more equitable representation of men and women. If equality messaging dominates search results, people's perceptions about real-world gender distributions can become more realistic.

C. Correcting for Age Differences

[76] In 2016, New York Times CEO Mark Thompson was sued for discrimination in hiring: his advertising staff had allegedly become "increasingly younger and whiter."[330] As we progress towards the midpoint of the 21st century, when the population age distribution in the world is predicted to reach a point where the number of over-60s approximate the number of under-15s, such hiring practices will appear even more

[324] *See id.*

[325] *See id.* at 3819.

[326] *See id.* at 3827.

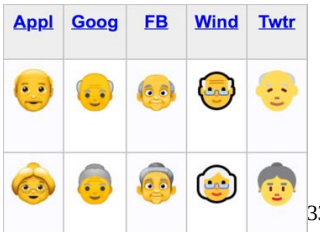
[327] *See id.* at 3820.

[328] *Id.* at 3823.

[329] *See* Kay, *supra* note 323, at 3823.

[330] *Lawsuit Against New York Times Boss for Ageism Racism Sexism*, TELESUR (Apr. 28, 2016), https://www.telesurenglish.net/news/Lawsuit-Against-New-York-Times-Boss-for-Ageism-Racism-Sexism--20160428-0046.html [https://perma.cc/ET7L-JL2R].

disproportionate and unfair.[331] A more equitable and realistic representation is beginning to emerge in the emoji palette with the inclusion of more mature images. The 'older man' (👴) and 'older woman' (👵) icons produced by Google[332] attempt to address that gap, but the currently available graphics, unfortunately, perpetuate stereotypes: both images appear disappointingly outdated and graphically drab, highlighting weakening abilities (eyeglasses), and other stereotypes (baldness for men, hair in bun for women). Google's competitors do not improve much on those graphics, as seen below left; the Unicode graphic of 'older person', below right, is an improvement although the skin and hair tones appear to be available only in default yellow:



[333]  [334]

[77] It is not just the optics of those icons that are misleading. As American author and ageism activist Ashton Applewhite points out, Americans over the age of 50 control approximately 70% of their country's disposable income, and "marginalising the old through stigma is

[331] *See* U.N. DEP'T OF ECON. AND SOC. AFFAIRS, WORLD POPULATION PROSPECTS, 12–13 (2017), https://population.un.org/wpp/Publications/Files/WPP2017_KeyFindings.pdf [https://perma.cc/8ZKM-KVC2] (reporting that 13 percent of the world population was over 60 in 2017, while 26 percent was under age 15).

[332] *See Google*, EMOJIPEDIA, https://emojipedia.org/google/ [https://perma.cc/CRL2-QY5X].

[333] *See Full Emoji List*, UNICODE, http://unicode.org/emoji/charts/full-emoji-list.html [https://perma.cc/AY7R-NKJT].

[334] *See Older Person*, EMOJIPEDIA, https://emojipedia.org/older-adult/ [https://perma.cc/8F5F-Y6UH] ("'Older Person' was approved as part of Unicode 10.0 in 2017 . . . and added to Emoji 5.0 in 2017").

unacceptable from an ethical point of view and dumb from a financial and social one too."[335] As a corrective, emoji designers and entrepreneurs would do well to heed Applewhite's admonition that "employment structures and institutions need to adapt and catch up to the evolutionary shadow of the new era in which human beings have never lived so long."[336]

[78] An interesting corrective can be seen with two studies that used emoji for feedback on various foods, which found that emoji interpretation can be calculated independent of age.[337] The first, by Marianne Swaney-Stueve et al., found that consumers of different genders and ages used emoji similarly to comment on food quality.[338] The second study by Sara Jaeger et al., used a web-based survey with 33 emoji to comment on food quality and found that gender and age did not influence consumer ability to describe and discriminate between stimuli; rather, the level of experience with emoji was the significant factor.[339] Finally, Ian Hosking of Cambridge University's Engineering Design Centre urges researchers to avoid lumping together all senior digital learners: "There are seniors who embrace technology, they love technology, they find it liberating. And there are those who are literally scared of it."[340] Hoskins finds it more equitable to focus on

[335] Trisha De Borchgrave, *Ashton Applewhite on Ageism and the Bias Against our Future Prosperity*, THE BIG SMOKE (Aug. 18, 2018), https://thebigsmoke.com.au/2018/08/18/ashton-applewhite-on-ageism-bias-against-future-prosperity/ [https://perma.cc/9PKB-KAU5].

[336] *Id.*

[337] *See infra* notes 339–40 and accompanying text.

[338] *See* Marianne Swaney-Stueve et al., *The Emoji Scale: A Facial Scale for the 21st Century*, 68 FOOD QUALITY & PREFERENCE 183 (2018).

[339] *See* Sara R. Jaeger, et al., *Emoji Questionnaires Can Be Used with a Range of Population Segments: Findings Relating to Age, Gender and Frequency of Emoji/Emoticon Use*, 68 FOOD QUALITY & PREFERENCE 397 (2018).

[340] Spark, *Designing Tech for 'Seniors' Should Mean Designing Tech for Everyone*, CBC RADIO (Mar. 22, 2019), https://www.cbc.ca/radio/spark/spark-431-1.5058858/designing-tech-for-seniors-should-mean-designing-tech-for-everyone-1.5058862 [https://perma.cc/3N9M-QED9]; see *Ian Hosking*, UNIVERSITY OF CAMBRIDGE:

"inclusive design" or "empathetic engineering" of digital devices and programming to accommodate all ages.[341]

D. Correcting for Cultural and Ability Differences

[79] With novel access to our genetic ancestry offered by the Human Genome Project since 2003, we are learning that the older truism that world population was based on "five races" is no longer sustainable.[342] That wisdom held that each race is categorically distinct and, as well, individual races are composed of a relatively uniform genetic identity.[343] A closer look at patterns of genetic variation in all humans tells us that, although populations cluster into geographical regions, the actual variation between regions is small and genetic lines between populations are becoming progressively blurred. On the other hand, with the large variation within a single region, there is no uniform identity.[344] In other words, race cannot be precisely biologically defined due to genetic variation among human individuals.[345]

ENGINEERING DESIGN CENTRE, https://www-edc.eng.cam.ac.uk/people/imh29.html [https://perma.cc/6TNU-84FX].

[341] Ian Hosking, et al., *Empathic Engineering: Helping Deliver Dignity Through Design*, 39 J. MED. ENG'G & TECH. 388, 390 (2015).

[342] Vivian Chou, *How Science and Genetics are Reshaping the Race Debate of the 21st Century*, HARV. U. GRADUATE SCH. ARTS & SCI. BLOG (Apr. 17, 2017), http://sitn.hms.harvard.edu/flash/2017/science-genetics-reshaping-race-debate-21st-century/ [https://perma.cc/H6FS-PRZH] (identifying the original five races as African, Asian, European, Native American, and Oceanian).

[343] *Id.*

[344] *See Your Genome Could Help Medical Research. It Could Also Be a Privacy Nightmare*, CBC RADIO (Mar. 22, 2019), https://www.cbc.ca/radio/spark/spark-431-1.5058858/your-genome-could-help-medical-research-it-could-also-be-a-privacy-nightmare-1.5058866 [https://perma.cc/C4WM-RXJQ] (quoting Catalina Lopez-Correa of Genome BC, saying: "Your genome is your barcode. It's your identifier. More than your bank account . . . [P]eople that will have access to that will have access to myself, basically.").

[80] Those conclusions tell us that using non-verbal graphics to convey the idea of race will not give a true picture for all observers. An American team of researchers tested that thesis in 2013 with facial emoticons.[346] Their research focused on whether emoticons are socially transmitted, diffusing through the social network of Twitter users as rumors would be transmitted through a social group.[347] The team examined tweets of 54 million users from 2006, the first year of Twitter availability, to 2009 to determine which emoticons are most popular and how broad their appeal might be in a new cultural setting.[348]

[81] The researchers found that emoticons come in two styles, either horizontal (:-)) or vertical (^_^) and preference for those styles is determined by one's language, not necessarily by geographic region.[349] English and 'European' language speakers preferred the horizontal format;[350] speakers from eastern countries such as Japan, China, and Korea opted for the vertical.[351] Research also found that people from different cultures employ facial expressions in unique ways, with easterners smiling

[345] *See* Sara A. Tischoff & Kenneth K. Kidd, *Implications of Biogeography of Human Populations for 'Race' and Medicine*, 36 NATURE GENETICS 521 (Oct. 26, 2004), https://www.nature.com/articles/ng1438 [https://perma.cc/D6QG-5XUL].

[346] *See* Jaram Park, Vladimir Barash, Clay Fink & Meeyoung Cha, *Emoticon Style: Interpreting Differences in Emoticons Across Cultures*, INT'L CONF. WEBLOGS & SOC. MEDIA (July 2013), https://www.researchgate.net/publication/261995763_Emoticon_Style_Interpreting_Differences_in_Emoticons_Across_Cultures (last visited Feb. 5, 2020). Emoticons are the typographical precursors of the more graphic emoji. *See The Illustrated History of Emojis*, APP INSTITUTE, https://appinstitute.com/history-of-emojis/ [https://perma.cc/3999-JYAL].

[347] *See* Park, *supra* note 346.

[348] *See id.*

[349] *See id.*

[350] *See id.*

[351] *See id.*

and frowning with their eyes,[352] whereas westerners do so with their mouths.[353] That discrepancy affirms that facial expressions are not universal in presentation. It also suggests that emoticon diffusion is not simply cross-cultural.[354]

[82] Recent growth in the tribalism mentality, fueled by isolation policies and right-wing politics within certain nations, forecloses universal understanding and encourages what can be described as "secondary meanings" that flourish as a backlash in local contexts.[355] Cultural scholar Alisa Freedman cites the clasped hands emoji (🙏), meaning "thanks" or "please" in Japan, "namaste" in India, but more likely to symbolize prayer or pleading in western nations.[356] She provides another example from the Japanese New Year's decoration of three pieces of bamboo, the middle one higher than the other two (🎍).[357] The icon has been adopted as the obscene middle-finger gesture by cultures outside of Japan, suggesting that when cultural literacy is absent, personal interpretations will fill the void.[358] An example of the cross-cultural distribution of emoji that can cause offence can be seen in the predilection of United States president Donald Trump for using the 👍 icon, signalling 'success' in America but conveying 'get stuffed' in various cultures.[359]

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[352] *See id.*

[353] *See* Park, *supra* note 346.

[354] *See id.*

[355] Alisa Freedman, *Cultural literacy in the empire of emoji signs: Who is Crying with Joy?*, FIRST MONDAY (Sept. 3, 2018), https://firstmonday.org/ojs/index.php/fm/article/view/9395/7567 [https://perma.cc/7PPX-PFTN].

[356] *See id.*

[357] *See id.*

[358] *See id.*

[359] *See generally* Gayle Cotton, *Gestures to Avoid in Cross-Cultural Business: In Other Words, 'Keep Your Fingers to Yourself?'*, HUFFPOST (Aug. 13, 2013),

[83] An important ethical question has been raised by a Northumbrian University researcher that goes to the heart of the process employed to diversify emoji design: does the fact that the technology giant Apple Inc. led the movement to increase accessibility emoji images work against the Consortium's claim that it is listening to the needs of its users?[360] After all, Apple executives have a seat on the Consortium board that is the final arbiter of the Unicode emoji collection.[361]

IV. MOVING TOWARD GREATER PROTECTIONS

A. The Legal Status of Emoji

[84] As discussed above in Part II (A), neither emoji design nor use is regulated by government.[362] Consortium release of approved emoji pictographs, unlike commercial stickers, is self-regulated as determined by its social media industry-dominated Board.[363] As a result, the Consortium has been called the de facto digital language regulator, "much like the L'Academie Francaise in France or the Academy of the Hebrew Language in Israel."[364] The Consortium and the computing industry are co-dependent:

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https://www.huffpost.com/entry/cross-cultural-gestures_b_3437653 [https://perma.cc/EG32-K7V4] (reporting that the "thumbs up gesture" in Australia, Greece, or the Middle East means essentially "Up yours!" or "Sit on this!").

[360] *See* Selina Jean Sutton, *Emoji Are Becoming More Inclusive, But Not Necessarily More Representative*, THE CONVERSATION, (Feb. 8, 2019, 6:46 AM), https://theconversation.com/emoji-are-becoming-more-inclusive-but-not-necessarily-more-representative-111388 [https://perma.cc/PS83-97K8].

[361] *See* Bethany Berard, *I Second That Emoji: The Standards, Structures, and Social Production of Emoji*, FIRST MONDAY (Sept. 3, 2018), https://firstmonday.org/article/view/9381/7565 7565 [https://perma.cc/KW86-TD5Q].

[362] *See* Floridi, *supra* note 14, at 3 (defining digital regulation as "a system of rules elaborated and enforced through social or governmental institutions to regulate the behavior of the relevant agents in the infosphere.").

[363] *See* Berard, *supra* note 361.

users can only access newly created and existing emoji if computing platform manufacturers choose to make them available on keyboards.[365] In turn, manufacturers can only develop images for emoji code that are compatible across platforms as coded by the Consortium.[366]

[85] Under that arrangement, the Consortium is the gatekeeper to a more ethical and diverse emoji representation. Its Unicode Standards system includes the following criteria: emoji must be high-use in popular existing systems such as Twitter and Snapchat; they must be used frequently within a very large community; they should have "multiple usages" as shown in metaphorical references or symbolism; they should represent something new and different from emoji already in the Unicode collection; they should present a clear image of a physical object; and they should have been frequently requested by outside advocates.[367] The Consortium will reject proposed emoji that are overly specific (such as a snowy owl), too general (such as bird), or too graphically similar to images already covered in the Unicode collection.[368] Fads or faulty comparisons are also discouraged.[369]

[86] The transfer, handling, and storage of data belonging to European Union citizens by internet companies bring the General Data Protection Regulation (GDPR) into play.[370] Also involved are the norms set by Article

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[364] Rachel Scall, 😀 © 📕*: Emoji as Language and Their Place Outside American Copyright Law*, 5 N.Y.U. J. INTELL. PROP. & ENT. L. 381, 403 (2016) (arguing that the grouping of emoji might rise to the level of originality necessary for copyright protection or warrant trademark protection if used in short strings of icons to identify and distinguish one's goods from those manufactured or sold by others).

[365] *See* Berard, *supra* note 361.

[366] *See id.*

[367] *See Submitting Emoji Proposals*, UNICODE, https://www.unicode.org/emoji/proposals.html#Selection_Factors_Compatibility [https://perma.cc/Z4G4-WB4A].

[368] *See id.*

[369] *See id.*

8 of the European Convention on Human Rights (ECHR) which are central to judgments on the right to "private life."[371] The definition of 'data' in the GDPR does not specify emoji codes but is sufficiently broad to encompass them.[372] The GDPR does not apply to anonymized data or pseudonymized data unless the latter can lead to identification of a natural person through additional information.[373] An emoji code could come under GDPR protection if generated in the EU and it contains a name, an identification number, location data, an online identifier, or other factors that would lead to the physical, physiological, genetic, mental, economic, cultural or social

[370] *See* Regulation 2016/679, of The European Parliament and of the Council of Apr. 27, 2016, on the Protection of Natural Persons with regard to the Processing of Personal Data and on the Free Movement of Such Data and Repealing Directive 95/46/EC, 2016 O.J. (L 119) 1.

[371] Convention for the Protection of Human Rights and Fundamental Freedoms as Amended by Protocols No. 11 and No. 14, C.O.E., Nov. 4, 1950, 213 U.N.T.S. 221 (article 8(1) reads, "Everyone has the right to respect for his private and family life, his home and his correspondence"; article 8(2) reads, "There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others"). *See also* CENTER FOR RESEARCH LIBRARIES, HUMAN RIGHTS ELECTRONIC EVIDENCE STUDY 2 (2012), http://www.crl.edu/sites/default/files/d6/attachments/pages/HREES_Final_Report_Public.pdf [https://perma.cc/2QY7-FAPH] (study on the impact on human rights).

[372] *See* Regulation 2016/679, 2016 O.J. (L 119) 1, at art. 4(1) ("'personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person"); *Id*. art. 4(12) ("'personal data breach' means a breach of security leading to the accidental or unlawful destruction, loss, alteration, unauthorized disclosure of, or access to, personal data transmitted, stored or otherwise processed").

[373] *See id*. at Recital 26.

identity of a natural person.[374] Data collected for research purposes are exempt, and natural persons can waive protection through consent.[375]

[87] There is no equivalent federal legislation in the US to protect citizens' personal data, nor are there enforcement mechanisms similar to EU Data Protection Authorities.[376] A mosaic of different federal and state regulations prevails in America, some varying widely in protection measures. The self-regulatory model prevails over consumer access to software products,[377] and most U.S. social media subscribers are aware of their ability to 'opt out' of data collection practices and of their responsibility under Terms of Use provisions.[378] Consumers might also be

[374] *See id*. at art. 4(11).

[375] *See id*. at art. 4(1) (defining consent as "any freely given, specific, informed and unambiguous indication of the data subject's wishes by which he or she, by a statement or by a clear affirmative action, signifies agreement to the processing of personal data relating to him or her").

[376] Derek Hawkins, *The Cybersecurity 202: Why a Privacy Law Like GDPR Would Be a Tough Sell in the U.S.*, WASH. POST (May 25, 2018), https://www.washingtonpost.com/news/powerpost/paloma/the-cybersecurity-202/2018/05/25/the-cybersecurity-202-why-a-privacy-law-like-gdpr-would-be-a-tough-sell-in-the-u-s/5b07038b1b326b492dd07e83/?utm_term=.369ff7e27acb [https://perma.cc/642U-MS64] (GDPR standards "require[] companies that collect data . . . to use simple language to explain how they handle it. Companies must get explicit consent from consumers before doing anything with their information and allow them to request copies of their data or delete it entirely. The law also mandates that companies report data breaches on strict timelines. Fines for violations could cost them 4 percent of their global profits."); *see* Children's Online Privacy Protection Rule, 76 Fed. Reg. 187 (proposed Sept. 27, 2011) (to be codified at 16 C.F.R. pt. 312) (issues related to updating the Children's Online Privacy Protection Rule (COPPA) regarding children's online privacy).

[377] *See, e.g.*, PRIVACY SHIELD OVERVIEW, https://www.privacyshield.gov/Program-Overview [https://perma.cc/32NQ-KTTE] (EU-US Privacy Shield launched Aug. 1, 2016, regulates the transmission of data from the European Union to the United States for commercial purposes (compliance is voluntary)); Clarifying Lawful Overseas Use of Data Act, Pub. L. No. 115-141, 132 Stat. 1213 (enacted March 23, 2018) (establishing procedures for US cloud-based data storage companies that offer electronic data services to turn data stored in other countries over to U.S. authorities).

aware of the duty of social media companies to warn them of any massive data breaches, although publicity around the most prominent data breaches show very little liability, other than fines, should the company be found a contributor to those leaks, as was the case with Facebook's interactions with Cambridge Analytica.[379]

[88] There are indications, however, that American policymakers are preparing to launch their own federal AI law which will highlight privacy concerns and might bring increased scrutiny of encoded prejudice and bias.[380] One impetus for increased oversight could be AI technology's alarming surveillance capabilities. A political factor could be the reported fall in world dominance by the United States in AI research, innovation, and markets, a development that could have key implications for the dynamics of informational, economic, and military superiority.[381] A preliminary report from the United States Congress regarding the internet privacy bill comes with an agenda: more investment in AI and funding to be made available to more agencies, from NASA to the National Institute of Health, and a caution to legislators against stepping in too soon, creating too many regulatory hurdles for innovative technologies that are still developing.[382]

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[378] *See* Vivian Adame, Comment, *Consumers' Obsession Becoming Retailers' Possession: The Way that Retailers are Benefiting from Consumers' Presence on Social Media*, 53 San Diego L. Rev. 653, 687 (2016).

[379] *See* Jon Brodkin, *Facebook may face multi-billion dollar fine for Cambridge Analytica scandal*, ARS TECHNICA (Feb. 15, 2019, 12:43 PM), https://arstechnica.com/tech-policy/2019/02/facebook-may-face-multi-billion-dollar-fine-for-cambridge-analytica-scandal/ [https://perma.cc/HW84-F8W9] (explaining that the FTC reported that Facebook "'deceived consumers by telling them they could keep their information on Facebook private, and then repeatedly allowing it to be shared and made public.'").

[380] *See* Ana Santos Rutschamn, *Congress Takes First Steps Toward Regulating Artificial Intelligence*, GOV'T TECH. (Oct. 19, 2018), https://www.govtech.com/products/Congress-Takes-First-Steps-Toward-Regulating-Artificial-Intelligence.html [https://perma.cc/3HLJ-28QM].

[381] *See* Ecatarina Garcia, *The Artificial Intelligence Race: U.S., China, and Russia*, MOD. DIPL. (Apr. 19, 2018), https://moderndiplomacy.eu/2018/04/19/the-artificial-intelligence-race-u-s-china-and-russia/ [https://perma.cc/9DB4-B8DW].

[89] Individual states are also moving quickly to construct data privacy laws that assign more responsibility to internet companies and that move away from the opt-out and other self-regulatory mechanisms that have burdened the American consumer so far.[383] The most expansive state privacy law model is the California Consumer Privacy Act passed in 2018; other state initiatives are following, in Washington State, Hawaii, Maryland, and New Mexico.[384]

B. Emoji as Evidence

[90] Emoji are not yet best evidence in courts of law, although their submission during a trial is increasingly accepted within the common law system as well as in some civil system jurisdictions, notably in France.[385] Generally, emoji are assessed on an ad hoc basis by the judiciary, and the major determinants for their use are that emoji be authentic,[386] relevant, probative, and not based on hearsay.[387]

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[382] U.S. GOV'T ACCOUNTABILITY OFF., INTERNET PRIVACY: ADDITIONAL FEDERAL AUTHORITY COULD ENHANCE CONSUMER PROTECTION AND PROVIDE FLEXIBILITY (2019), https://www.documentcloud.org/documents/5736212-GAO-privacy-report.html [https://perma.cc/MVD5-J4MJ] (initiated in the wake of an announcement in April 2018 that Facebook had released personal data belonging to approximately 87 million subscribers to the political consulting firm Cambridge Analytica. National privacy issues regarding individual protections of personal data are currently addressed under section 5 of the Federal Trade Commission Act (1914), the federal authority for unfair and deceptive practices, in addition to a variety of industry-specific legislation).

[383] *See generally* Jackson Lewis PC, *Washington State's GDPR-Like Bill Passes Senate*, LEXOLOGY (Mar. 29, 2019), https://www.lexology.com/library/detail.aspx?g=b8176356-29c6-49cd-bbae-0d61bbb8c28b [https://perma.cc/YTR9-KM32] (discussing individual state privacy law legislations being passed to increase privacy protections).

[384] *See id*.

[385] *See generally: Emoji as Evidence*, MICH. ST. U.C.L. KING SCHOLAR PROGRAM (2017) (suggesting that emoji can be admitted as evidence under the United States Federal Rules of Evidence, provided they follow its recommended eight steps).

[386] It is important to establish that the person in question owns the account and posted the information.

[91] Overall, there seems to be little consistency in the reported case law regarding evidentiary standards and procedural steps.[388] Emoji took a significant step towards legal legitimacy in 2015 within the United States with the high-profile trial of Ross Ulbricht.[389] The defendant was the creator of Silk Road, an online illicit drug marketing enterprise whose principals used emoji as code in communications among themselves.[390] The judge instructed counsel that text messaging in exhibits should be shown to jury members with emoji intact as evidence of the accused's intentions.[391] The face emoji gained notice in the High Court of Lancashire County, England, when a justice incorporated a 🙂 into his family law judgment to better communicate to the children of the defendant about access arrangements.[392]

[387] *See* Berels, *supra* note 385, at 28–32.

[388] *See id*. at 21–27. *See generally* McMahon, *supra* note 8 (discussing inconsistent case decisions involving emoji and threats).

[389] *See* Kirley *supra* note 5, at 549.

[390] *See id.*

[391] *See* McMahon, *supra* note 8, at 30–31; Benjamin Weiser, *At Silk Road Trial, Lawyers Fight to Include Evidence They Call Vital: Emoji*, N.Y. TIMES (Jan. 28, 2015), https://www.nytimes.com/2015/01/29/nyregion/trial-silk-road-online-black-market-debating-emojis.html [https://perma.cc/C6HA-RUPX]; Olivia Marshall, *Your Emoji May be Used Against You in a Court of Law*, VAND. J. ENT. & TECH. L. (Nov. 22, 2016), http://www.jetlaw.org/2016/11/22/your-emoji-may-be-used-against-you-in-a-court-of-law/# [https://perma.cc/Q68G-KMUX]. *See generally* United States v. Ulbricht, 858 F.3d 71 (2nd Cir. 2017) (discussing the collection and admission of evidence demonstrating that Ulbricht was Dread Pirate Roberts and in control of the website).

[392] *See* Lancashire County Council v. M, [2016] EWFC 9 [27] (Eng.). The happy faced emoji as entered into evidence in the Lancashire court was not included in the reported judgment. *See id.* at [13] ("The mother left a message in the caravan for the father's sister, who I will call the aunt. It told her how to look after the family's pets. The message said that the family would be back on 3 August. It has a [*] beside the date. After the family left, the police searched the caravan. They found the message and say that the [*] is winking, meaning that the mother knew they wouldn't be coming back. I don't agree that the [*] is winking. It is just a [*]. The police are wrong about that, and anyhow they didn't find anything else when they searched the caravan.") This discrepancy illustrates the importance of including the emoji image and selecting the same image as in the evidence for clear communication of the original writer's intent.

In the majority of cases, however, judges are reluctant to include emoji icons in written exhibits, possibly due to the technical issues involved in reproducing them in a reported judgment.[393] That omission makes online case searches problematic; one suggestion is to include the Unicode code points for any emoji involved.[394]

[92] In 2018, Erasmus University, Rotterdam, conducted a systematic review on the admissibility of emoji in eleven jurisdictions worldwide and found that, in some countries, electronic evidence is confined to the area of criminal law (Belgium and the Netherlands)[395] and has received scant attention under civil law and procedure (China).[396] In common law countries (United States, England, and Wales), electronic discovery and disclosure are the focus of the discussion.[397] The Rotterdam study emphasizes that licensing bodies in some jurisdictions view technological literacy as an obligatory part of a lawyer's ethical duties.[398]

[93] Standardization of evidentiary procedure involving non-verbal emoji would assist considerably in bring legitimacy to the language contributions of non-verbal icons. It would also educate lawyers and jurists to the diversity significance of emoji and the more nuanced messaging that could offend privacy and human rights.

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[393] *See* Eric Goldman, *Displaying Emoji Evidence in Judicial Opinions*, TECH. & MARKETING L. BLOG (Jan. 30, 2018), https://blog.ericgoldman.org/archives/2018/01/displaying-emoji-evidence-in-judicial-opinions.htm [https://perma.cc/DVU7-97QW].

[394] *See id.* (comment by James Grimmelmann proposing that code be displayed "[e]xplicitly or by publishing in a file format that retains this information even after glyph selection").

[395] *See* Xandra E. Kramer, *Challenges of Electronic Taking of Evidence: Old Problems in a New Guise and New Problems in Disguise*, *in* LA PRUEBA EN EL PROCESO. EVIDENCE IN THE PROCESS, 391, 393–394 (2018) (Spain).

[396] *See id.* at 394–95.

[397] *See id.*, *passim*.

[398] *See id.* at 409.

C. Emoji and an Ethical Web

[94] Diversity as an ethical challenge must be thought through at all levels: government, industry, individual innovators, and consumers. In answering our first research question, in what ways are emoji changing to reflect human diversity, we have presented various examples of private industry and the Consortium engaging designers to modify or expand designs to reflect public calls for more granular reflection of their differences. In arriving at those designs, however, social media companies are using emotion and sentiment studies, data collection methods, and AI algorithms that intrude without authorization on our informational privacy and security. We have also detailed how the standard setting Consortium has opened its array to more diversified designs, although the organization's explanations for design acceptance could be clearer for applicants. At best, the Consortium standardization process gives visibility to ideas and images that counter discrimination by expanding our literacy about culture, gender, and ageism. At worst, if more representational emoji designs are not accepted, the process can erase a vast potential to disseminate symbols that validate our cultural, gender, and age-related identities.[399]

[95] In response to our second research question, whether the new images raise important legal and ethical questions about inclusion and diverse representation, we have raised risks to privacy, security, and human rights posed by internet companies. We have provided numerous examples of private companies handling data in a way that would counter data protection legislation and ethical standards regarding data access, collection, retention, and dissemination. Emoji use, at present, does not come within the definition of 'data' or 'personal information' in the data protection legislation of either the GDPR for European Union internet users, or various state privacy legislation in the United States.[400] We have also

[399] *See* Colette Shade, *The Emoji Diversity Problem Goes Way Beyond Race*, WIRED (Nov. 11, 2015, 7:00 AM), https://www.wired.com/2015/11/emoji-diversity-politics-culture/ [https://perma.cc/H8R8-VF5U].

[400] The GDPR is not concerned with citizenship. Rather it addresses data of internet users located in covered countries, whether they be citizens, visitors, or expats. Similarly, EU citizens are not protected by GDPR when conducting data transactions abroad. *See Is the*

discussed the fundamental issue that challenges the effectiveness of such legislation: the built-in bias that threatens the political neutrality of internet technology and the erosion of data privacy.[401]

[96] The broader remedial question raised by public demand that internet companies reflect their diversity can be summarized as: how do we ensure that AI systems serve the public good rather than exacerbate existing inequalities and biases?[402] One suggestion is for nations to commit to an AI strategy that takes the ethics route to inclusion. Beginning in 2017, various nations have announced AI strategies that would position them as global leaders.[403] The EU has committed to the European AI Alliance that encourages public participation and a new set of AI ethical guidelines to address issues such as fairness, safety, and transparency.[404] China's

GDPR About Location or Citizenship? And Should You Care?, DYSPATCH (May 2, 2018), https://www.dyspatch.io/blog/gdpr-location-or-citizenship/ [https://perma.cc/LV45-WG9N].

[401] *Cf.* Adam Segal et al., *Is an Iron Curtain Falling Across Tech?*, FOREIGN POL'Y (Feb. 4, 2019), https://foreignpolicy.com/2019/02/04/is-an-iron-curtain-falling-across-tech/ [https://perma.cc/Z9EP-RXKF] (reporting the indictments against Huawei, the 5G tech giant, have worsened already tense relationships with China, on the grounds that it could pose a threat to national security).

[402] *See Ethics and Governance of AI*, BERKMAN KLEIN CENTER, https://cyber.harvard.edu/topics/ethics-and-governance-ai [https://perma.cc/34PZ-68J5].

[403] *See* Tim Dutton, *An Overview of National AI Strategies*, MEDIUM (Jun. 28, 2018), https://medium.com/politics-ai/an-overview-of-national-ai-strategies-2a70ec6edfd [https://perma.cc/VNU2-GPYL] (noting that Canada was the first to commit and listing the additional nations promoting AI strategies as of June 2018: China, Denmark, the EU Commission, Finland, France, India, Italy, Japan, Mexico, the Nordic-Baltic region, Singapore, South Korea, Sweden, Taiwan, the UAE, and the U.K.; in July 2018 additions included Italy, Kenya, New Zealand, the Nordic-Baltic Region, Mexico, Sweden, Taiwan, Tunisia, Malaysia, Poland, and Russia).

[404] *See The European AI Alliance*, EUROPEAN COMM'N, https://ec.europa.eu/digital-single-market/en/news/communication-artificial-intelligence-europe [https://perma.cc/LW5K-WSCL].

leadership strategies for technology must also be more carefully studied given its rise in AI world dominance.

[97] The United States has not announced an AI strategy and would seem to be taking a free market approach. Notably, in February of 2019 the President signed an Executive Order promoting AI research but committing no funding.[405] The Order has been criticized as limited in scope and detail. While it calls on the American companies to "drive technological breakthroughs in AI across the Federal Government, industry, and academia in order to promote scientific discovery, economic competitiveness, and national security," there is no mention of either ethics or diversity.[406] The Order does commit, promisingly, to reducing barriers to the use of AI technologies to promote their innovative application, within the context of "protecting American technology, economic and national security, civil liberties, privacy, and values."[407]

[98] The European Union puts the role of ethics front and center by creating the Ethics Advisory Group (EAG) to better understand the ancillary role of ethics in mandatory compliance with the GDPR that is required of internet companies.[408] That model emphasizes the "intertwining of ethics and data protection," and how their convergence allows the EAG "to put the human being, their experience and dignity at the centre of our deliberations."[409] This article urges that, now more than ever, ethics have

[405] *See* Exec. Order No. 13,859, 84 Fed. Reg. 3967 (Feb. 11, 2019).

[406] *Id.* (highlighting the norms driving the country's AI policies: "Maintaining American leadership in AI requires a concerted effort to promote advancements in technology and innovation, while protecting American technology, economic and national security, civil liberties, privacy, and American values and enhancing international and industry collaboration with foreign partners and allies.").

[407] *Id.* at § 1.

[408] *See* EUROPEAN DATA PROTECTION SUPERVISOR ETHICS ADVISORY GROUP, TOWARDS A DIGITAL ETHICS 3 (2018), https://edps.europa.eu/sites/edp/files/publication/18-01-25_eag_report_en.pdf [https://perma.cc/3GB5-6F9S].

[409] *See id* at 1.

an important role in ensuring that our regulations steer us towards the "Web for good" that we might envision.[410]

[99] In America, one such initiative shows that academics are reaching out to the technology industry to address ethical issues posed by AI.[411] The Assembly Project at Harvard University's Berkman Klein Center for Internet and Society encourages participants from designers to policymakers to put their heads together over how AI is straining our notions of human autonomy and democratic norms.[412] This can be seen in several areas where AI technology exceeds human effort in such undertakings as sustaining repetitive tasks, anticipating customer needs, and enhancing customer experiences with voice and visual interfaces.[413] Assembly Project participants are optimistic that corporate ethics will prove to be one of AI's most supportive frontiers.[414]

[100] At the research and design level, an emerging innovation holds considerable promise to solve the AI bias and prejudice problem: self-training AI.[415] True, that process can still perpetuate the bias of the original encoders, but the difference is that those algorithms can be subject to audit,

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[410] *See* WEB CONFERENCE, *supra* note 13.

[411] *See Inside The R&D of AI Ethics*, FORBES (Mar. 27, 2019, 1:24 PM), https://www.forbes.com/sites/insights-intelai/2019/03/27/inside-the-rd-of-ai-ethics/#18b474147dbc [https://perma.cc/3H4H-9HZY] (describing the launch by Harvard University's Jonathan Zittrain of the Assembly Project, a collaborative brainstorming exercise with MIT focusing on AI and ethics).

[412] *See id.*

[413] *See Can AI Help Companies Do the Right Thing?*, FORBES (Mar. 27, 2019, 2:36 PM), https://www.forbes.com/sites/insights-intelai/2019/03/27/can-ai-help-companies-do-the-right-thing/#160f03e5345c [https://perma.cc/KJ23-ES6U].

[414] *See AI Ethics*, *supra* note 411.

[415] *See* Rob Enderle, *Beyond Limits: Rethinking the next generation of AI*, COMPUTERWORLD (Jun. 28, 2019), https://www.computerworld.com/article/3405897/beyond-limits-rethinking-the-next-generation-of-ai.html [https://perma.cc/7578-ZJVV].

so algorithms can be edited at a granular level without the need for AI retraining.[416] This development addresses diversity issues at the industry level and is already being employed in finance, healthcare, and petrochemical industries.[417]

[101] As consumers, we can make positive contributions and take responsibility at the individual level. We can remind ourselves that there is a middle ground between corporate will, consumer greed, and responsible, ethical technological progress.[418] We can reside in that middle space by (1) being realistic in our expectations and participating in conversations about how to eliminate or lessen data bias as the technology evolves;[419] (2) advocating for laws and ethical standards to gain control over diversity awareness that we need; and (3) using our collective imaginations to build the world we want to live in. A practical starting point would be to call the data science industry on any visible gaps in its hiring culture, diversity policies, and AI programing biases.[420] In all those endeavours, we have the

[416] *See id.*

[417] *See id.*

[418] *See* Jessica Davies, *Giovanni Buttarelli on State of GDPR Adoption: 'Even Ticking a Box Does Not Necessarily Mean Consent Is Freely Given'*, DIGIDAY (Apr. 12, 2019), https://digiday.com/media/european-commissions-giovanni-buttarelli-state-gdpr-adoption-even-ticking-box-not-necessarily-mean-consent-freely-given/ [https://perma.cc/W6QP-CBU5] (examining Giovanni Buttarelli's response that although there have been "a lot of declarations from businesses including Google, saying they were ready to respect it [GDPR]," the deluge of privacy notices sent, often in obscure language, "were clearly orientated to protect data controllers, not citizens.").

[419] *See* SHEILA JASANOFF, THE ETHICS OF INVENTION: TECHNOLOGY AND THE HUMAN FUTURE 28 (Kwame Anthony Appiah ed., 2016).

[420] *See* Karen Hao, *AI's White Guy Problem Isn't Going Away*, MIT TECH. REV. (Apr. 17, 2019), https://www.technologyreview.com/s/613320/ais-white-guy-problem-isnt-going-away/ [https://perma.cc/CS6C-U8FE] (reporting that "[w]omen account for only 18% of authors at leading AI conferences, 20% of AI professorships, and 15% and 10% of research staff at Facebook and Google, respectively. Racial diversity is even worse: black workers represent only 2.5% of Google's entire workforce and 4% of Facebook's and Microsoft's.").

opportunity to shape our ethical awareness of technological fairness by starting with that masterpiece of design, the humble emoji.[421]

IV. CONCLUSION

[102] Emoji are under the microscope in this article for how they exemplify tricky ethical questions that arise when digital innovators face demands for inclusion and diversity. Their evolving designs illustrate that the digital revolution is transforming our views about values and priorities, good behaviour, and what sort of innovation is socially preferable. Those are the fundamental factors in ethical and lawmaking vigilance. Expanding the array of emoji to reflect accessibility (wheelchairs, guide dogs, prosthetic arms) is an emerging diversity trope. In announcing its proposal, Apple reminds us how emoji currently speak to one in seven people around the world that has some form of disability, whether physical disability involving vision, hearing, or loss of physical motor skills, or a more hidden, invisible disability.

[103] This article argues that emoji are well placed, in terms of their broad appeal and accessibility, as ambassadors of inclusion. They are also, unfortunately, expanding access to our personal data and threatening our security by third parties including hackers and data brokers. In addition, new emoji designs raise ethical questions about their political messaging and unspoken bias that could offend as well as include. Those concerns are amplified by the practice of activists, misogynists, and fake news proponents to subscribe their accounts to bot posting services with immeasurable potential to propagate prejudice and even hatred.

[104] With social media privacy law now a reality in Germany and AI legislation under consideration on both sides of the Atlantic, the door is opened to similar considerations in other parts of the world. Emoji are adding to that conversation with the controversy they create by sparking

[421] *See* Galloway, *supra* note 2.

diversity discussions around the globe.[422] As participants in that dialogue, we can join in those conversations and plan for the kind of Web we envision. In fact, the integrity of our privacy, informational security, and human rights just might depend on it.

[422] *See, e.g.*, Danny Lee, *Hongkongers Delight as Apple's Latest Update Includes Emoji of Yellow Occupy Ribbon*, SOUTH CHINA MORNING POST (Sep. 11, 2015, 7:00 AM), https://www.scmp.com/news/hong-kong/education-community/article/1857038/hongkongers-delight-apples-latest-ios-update [https://perma.cc/5LF6-L76N]. *See also* Cale Guthrie Weissman, *No, There's Not a New Anti-LGBT Emoji*, FAST COMPANY (Feb. 20, 2019), https://www.fastcompany.com/90309797/no-theres-not-a-new-anti-lgbt-emoji [https://perma.cc/MXN8-V5C6] (discussing public anger over new emoji).