Physiognomic Artificial Intelligence

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The reanimation of the pseudosciences of physiognomy and phrenology at scale through computer vision and machine learning is a matter of urgent concern. This Article—which contributes to critical data studies, consumer protection law, biometric privacy law, and antidiscrimination law—endeavors to conceptualize and problematize physiognomic artificial intelligence ("AI") and offer policy recommendations for state and federal lawmakers to forestall its proliferation.

Physiognomic AI, as this Article contends, is the practice of using computer software and related systems to infer or create hierarchies of an individual's body composition, protected class status, perceived character, capabilities, and future social outcomes based on their physical or behavioral characteristics. Physiognomic and phrenological logics are intrinsic to the technical mechanism of computer vision applied to humans. This Article observes how computer vision is a central vector for physiognomic AI technologies and unpacks how computer vision reanimates physiognomy in conception, form, and practice and the dangers this trend presents for civil liberties.

This Article thus argues for legislative action to forestall and roll back the proliferation of physiognomic AI. To that end, it considers a potential menu of safeguards and limitations to significantly limit the deployment of physiognomic AI systems, which hopefully can be used to strengthen local, state, and federal legislation. This Article foregrounds its policy discussion by proposing the abolition of physiognomic AI. From there, it posits regimes of U.S. consumer protection law, biometric privacy law, and civil rights law as vehicles for rejecting physiognomy's digital renaissance in AI. Specifically, it contends that physiognomic AI should be categorically rejected as oppressive and unjust. Second, it argues that lawmakers should declare physiognomic AI unfair and deceptive per se. Third, it proposes that lawmakers should enact or expand biometric privacy laws to prohibit physiognomic AI. Fourth, it recommends that lawmakers should prohibit physiognomic AI in places of public accommodation. It also observes the paucity of procedural and managerial regimes of fairness, accountability, and transparency in addressing physiognomic AI and attend to potential counterarguments in support of physiognomic AI.

INTRODUCTION

Powered by machine learning ("ML") techniques, computer vision systems and related, novel artificial intelligence ("AI"), technologies are ushering in a new era of computational physiognomy[1]

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[1]   The Oxford English Dictionary ("OED") defines physiognomy as "[t]he study of the features of the face, or of the form of the body generally, as being supposedly indicative of character; the art of judging character from such study." *Physiognomy*, OXFORD ENG. DICTIONARY, https://www.oed.com/view/Entry/143159 [https://perma.cc/MT56-543S]. Etymologically, the term's roots are as follows:

> late 14c., *phisonomie*, "art of judging characters from facial features," from Old French *fisonomie*, *phizonomie* and directly from Medieval Latin *physonomia*, from Late Latin *physiognomia*, from Greek *physiognōmia* "the judging of a person's nature by his features," from physio- + gnōmōn (genitive gnōmōnos) "a judge, interpreter, indicator" (from PIE root *gno- "to know"). The meaning "face, countenance, the human face and its expressions" is from c. 1400.

Physiognomy, ONLINE ETYMOLOGY DICTIONARY, https://www.etymonline.com/word/physiognomy [https://perma.cc/2LNX-YZEN]. Likewise, Sharrona Pearl defines physiognomy as "the study of facial traits and their relationship to character." SHARRONA PEARL, ABOUT FACES: PHYSIOGNOMY IN NINETEENTH-CENTURY BRITAIN 1 (2010). For more information on physiognomy and its use in a machine learning context, see Jake Goldenfein, *The Profiling Potential of Computer Vision and the Challenge of*

and even phrenology.[2] These scientifically baseless,[3] racist,[4] and discredited[5] pseudoscientific fields—which purport to determine

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[2]   The OED defines phrenology as:

> The theory that the mental powers or characteristics of an individual consist of separate faculties, each of which has its location in an organ found in a definite region of the surface of the brain, the size or development of which is commensurate with the development of the particular faculty; the study of the external conformation of the cranium as an index to the position and degree of development of the various faculties.

Phrenology,   OXFORD   LEARNER'S   DICTIONARY, https://www.oxfordlearnersdictionaries.com/us/definition/american_english/phrenology [https://perma.cc/Q38L-HGGE]; ROGER COOTER, THE CULTURAL MEANING OF POPULAR SCIENCE: PHRENOLOGY AND THE ORGANIZATION OF CONSENT IN NINETEENTH-CENTURY BRITAIN 3 (1984); Pierre Schlag, *Law and Phrenology*, 110 HARV. L. REV. 877, 878 (1997). For more information on phrenology in a tech context, see Sahil Chinoy, *The Racist History Behind Facial Recognition*, N.Y. TIMES (July 10, 2019), https://www.nytimes.com/2019/ 07/10/opinion/facial-recognition-race.html [https://perma.cc/Q5ZK-DAE7] ("But the surveillance potential of facial recognition—its ability to create a 'perpetual lineup'—isn't the only cause for concern. The technological frontiers being explored by questionable researchers and unscrupulous start-ups recall the discredited pseudosciences of physiognomy and phrenology, which purport to use facial structure and head shape to assess character and mental capacity."); Sam Biddle, *Troubling Study Says Artificial Intelligence Can Predict Who Will Be Criminals Based on Facial Features*, INTERCEPT (Nov. 18, 2016, 4:28 PM), https://theintercept.com/2016/11/18/troubling-study-says-artificial-intelligence-can-predict-who-will-be-criminals-based-on-facial-features/ [https://perma.cc/D6TC-UQUU] ("Kate Crawford, an AI researcher with Microsoft Research New York, MIT, and NYU, told *The Intercept*, 'I'd call this paper [on facial recognition] literal phrenology, it's just using modern tools of supervised machine learning instead of calipers. It's dangerous pseudoscience.'"). *See also* Catherine Stinson, *Algorithms Associating Appearance and Criminality Have a Dark Past*, AEON (May 15, 2020),   https://aeon.co/ideas/algorithms-associating-appearance-and-criminality-have-a-dark-past [https://perma.cc/DQL5-5PYB] ("For scientists to take their moral responsibilities seriously, they need to be aware of the harms that might result from their research. Spelling out more clearly what's wrong with the work labelled 'phrenology' will hopefully have more of an impact than simply throwing the name around as an insult.").

[3]   *See, e.g.*, Gen. Elec. Co. v. Joiner, 522 U.S. 136, 153 n.6 (1997) (Stevens, J., concurring) ("An example of 'junk science' that should be excluded . . . as too unreliable would be the testimony of a phrenologist who would purport to prove a defendant's future dangerousness based on the contours of the defendant's skull."); Agüera y Arcas et al., *supra* note 1; PEARL, *supra* note 1, at 12; DAVID DE GIUSTINO, CONQUEST OF MIND: PHRENOLOGY AND VICTORIAN SOCIAL THOUGHT 3 (2016); Stinson, *supra* note 2; Catherine Stinson, *The Dark Past of Algorithms that Associate Appearance and Criminality*, 109 AM. SCIENTIST 26 (2021); Donald Simpson, *Phrenology and the Neurosciences: Contributions of F. J. Gall and J. G. Spurzheim*, 75 ANZ J. SURGERY 475 (2005); Lisa Feldman Barrett et al., *Emotional Expressions Reconsidered: Challenges to Inferring Emotion from Human Facial Movements*, 20 PSYCH. SCI. PUB. INT. 1, 68 (2019) (concluding in meta-study that it

people's characters, capabilities, and future prospects based on their facial features or the shape of their skulls—should be anathema to any researcher or product developer working in computer science today. Yet physiognomic and phrenological claims now appear regularly in research papers,[6] at top AI conferences,[7] and in the sales pitches of digital technology firms around the world.[8] Taking these

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is not possible to judge emotion by just looking at a person's face); *see also* Angela Chen & Karen Hao, *Emotion AI Researchers Say Overblown Claims Give Their Work a Bad Name*, MIT TECH. REV. (Feb. 14, 2020), https://www.technologyreview.com/2020/02/14/844765/ai-emotion-recognition-affective-computing-hirevue-regulation-ethics [https://perma.cc/N4FT-HT9W].

[4]   RICHARD T GRAY, ABOUT FACE: GERMAN PHYSIOGNOMIC THOUGHT FROM LAVATER TO AUSCHWITZ 331 (2004). Critical race scholars continue to articulate the connections between systems of racial oppression and quantification. *See, e.g.*, Kimberlé Crenshaw, *Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color*, 43 STAN. L. REV. 1241 (1991); Luke Stark, *Facial Recognition Is the Plutonium of AI*, 25 XRDS, Spring 2019, at 50, 53 ("In the case of facial recognition, the schematization of human facial features is driven by a conceptual logic that these theorists and others, such as the French philosopher Michel Foucault, have identified as fundamentally racist because it is concerned with using statistical methods to arbitrarily divide human populations."); Amade M'Charek, *Tentacular Faces: Race and the Return of the Phenotype in Forensic Identification*, 122 AM. ANTHROPOLOGIST 369, 369–80 (2020); LUNDY BRAUN, BREATHING RACE INTO THE MACHINE: THE SURPRISING CAREER OF THE SPIROMETER FROM PLANTATION TO GENETICS, at xxii (2014); STEPHEN JAY GOULD, THE MISMEASURE OF MAN 3 (1981); Chinoy, *supra* note 2.

[5]   *See, e.g.*, Richard Twine, *Physiognomy, Phrenology and the Temporality of the Body*, BODY & SOC'Y, Mar. 2002, at 67, 67–88; PEARL, *supra* note 1, at 215; Stark, *supra* note 4, at 52 ("Reducing humans into sets of legible, manipulable signs has been a hallmark of racializing scientific and administrative techniques going back several hundred years. The systems used by facial recognition technologies to code human faces perform an essentializing visual schematization.").

[6]   *See, e.g.*, Xiaolin Wu & Xi Zhang, *Automated Inference on Criminality Using Face Images*, ARXIV (Nov. 21, 2016), https://arxiv.org/pdf/1611.04135v1.pdf [https://perma.cc/3C7D-6W2E]; Yilun Wang & Michal Kosinski, *Deep Neural Networks Are More Accurate Than Humans at Detecting Sexual Orientation From Facial Images*, 114 J. PERSONALITY & SOC. PSYCH. 246 (2018).

[7]   *See, e.g.*, Tae-Hyun Oh et al., *Speech2Face: Learning the Face Behind a Voice*, ARXIV (May 23, 2019), https://arxiv.org/abs/1905.09773 [https://perma.cc/DF5S-FFCE]; Matthew Hutson, *Who Should Stop Unethical A.I.?*, NEW YORKER (Feb. 15, 2021), https://www.newyorker.com/tech/annals-of-technology/who-should-stop-unethical-ai [https://perma.cc/QL5J-69V4].

[8]   *See, e.g.*, Andrea Murad, *The Computers Rejecting Your Job Application*, BBC NEWS (Feb. 8, 2021), https://www.bbc.com/news/business-55932977 [https://perma.cc/XVP8-FN66]; Dake Kang, *Chinese 'Gait Recognition' Tech IDs People by How They Walk*, AP NEWS (Nov. 6, 2018), https://apnews.com/article/bf75dd1c26c947b7826d270a16e2658a (last visited Apr. 14, 2022).

expansive claims at face value, AI and ML can purportedly predict whether an individual will commit a crime,[9] a person's sexuality,[10] if someone will be a good employee,[11] a citizen's political leaning,[12] and if a person is a psychopath,[13] all based on external features such as the face, body, gait, and tone of voice.

Many AI technologies being sold today are direct, if inadvertent, extensions of racist pseudoscience,[14] representing nothing more than

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[9]   *See, e.g.*, Wu & Zhang, *supra* note 6, at 1; Mahdi Hashemi & Margeret Hall, [Retracted Article] *Criminal Tendency Detection from Facial Images and the Gender Bias Effect*, J. BIG DATA, 2020, at 2.

[10]   *See* Wang & Kosinki, *supra* note 6, at 247.

[11]   *See, e.g.*, Eric Rosenbaum, *IBM Artificial Intelligence Can Predict with 95% Accuracy Which Workers Are About to Quit Their Jobs*, CNBC, https://www.cnbc.com/2019/04/03/ibm-ai-can-predict-with-95-percent-accuracy-which-employees-will-quit.html [https://perma.cc/Q7VL-WE2H] (Apr. 3, 2019); *Hiring Experience Platform™*, HIREVUE, https://www.hirevue.com/ [https://perma.cc/TY7M-24H3]; *The Caliper Profile*, TALOGY, https://calipercorp.com/caliper-profile/ [https://perma.cc/TP8K-6NED].

[12]   *See, e.g.*, Michal Kosinski, *Facial Recognition Technology Can Expose Political Orientation from Naturalistic Facial Images*, SCI. REPS., no. 100, Nov. 25, 2021, at 7–9; Kyle Wiggers, *Outlandish Stanford Facial Recognition Study Claims There Are Links Between Facial Features and Political Orientation*, VENTUREBEAT (Jan. 11, 2021, 2:00 AM), https://venturebeat.com/2021/01/11/outlandish-stanford-facial-recognition-study-claims-there-are-links-between-facial-features-and-political-orientation/ [https://perma.cc/EY5U-987D].

[13]   *See, e.g.*, Leda Tortora et al., *Neuroprediction and A.I. in Forensic Psychiatry and Criminal Justice: A Neurolaw Perspective*, FRONTIERS PSYCH., Mar. 17, 2020, at 1–9; Aaron Holmes, *Airbnb Has Patented Software that Digs Through Social Media to Root Out People Who Display 'Narcissism or Psychopathy,'* BUS. INSIDER (Jan. 6, 2020, 10:06 AM), https://www.businessinsider.com/airbnb-software-predicts-if-guests-are-psychopaths-patent-2020-1 [https://perma.cc/QPK5-32M2]; Marion Oswald, *Technologies in the Twilight Zone: Early Lie Detectors, Machine Learning and Reformist Legal Realism*, 34 INT'L REV. OF L., COMPS. & TECH. 214 (2020).

[14]   *See, e.g.*, Twine, *supra* note 5, at 68 ("At the start of the 21st century, the dominant popular scopic remains essentially physiognomic. Physiognomy still underlies many everyday assumptions about class, gender and 'race', and now gets technologized as it provides the underlying ethos for practices such as cosmetic surgery."); Courtney E. Thompson, *Phrenology Is Here to Stay*, MEDIUM (Feb. 11, 2021), https://medium.com/arc-digital/phrenology-is-here-to-stay-c835b5ce5032 [https://perma.cc/8MWY-ARHN] ("[F]raming phrenology as a 'pseudoscience' creates two problems. . . . this framing 'neglects the long-term influence of phrenology and related failed sciences.' It also makes it easy to turn phrenology and its believers into a joke, discounting the very real consequences of this kind of thinking."); COURTNEY E. THOMPSON, AN ORGAN OF MURDER: CRIME, VIOLENCE, AND PHRENOLOGY IN NINETEENTH-CENTURY AMERICA 34 (2021). *See also* COAL. FOR CRITICAL TECH., *Abolish the #TechtoPrisonPipeline*, MEDIUM (June 23,

the automation of the caliper.[15] No better at prediction than random number generators or hand-coded scoring, the claims prompted by these technologies—a constellation of applications such as human-centered computer vision, facial analysis, emotion recognition—are snake oil at best.[16] All of these systems analyze the human body and its behaviors; they then purport to determine, infer, or predict an individual's faculties and future social outcomes.[17] Arvind Narayanan highlights that AI's ability to predict such social outcomes is "fundamentally dubious": predicting criminal recidivism, job performance, terrorist risk, at-risk youth, and predictive policing.[18] In Narayan's words, "we can't predict the future. That should be common sense. But we seem to have decided to suspend common sense when AI is involved."[19] And in suspending our common sense by allowing AI to determine social outcomes through such predictions, Narayanan observes that we invite a plethora of social harms: "hunger for personal data, massive transfer of power from domain experts

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2020), https://medium.com/@CoalitionForCriticalTechnology/abolish-the-techtoprison pipeline-9b5b14366b16 [https://perma.cc/HB5W-T6LS].

[15]   For the broader history of artificial intelligence's connections to white supremacy, see generally YARDEN KATZ, ARTIFICIAL WHITENESS: POLITICS AND IDEOLOGY IN ARTIFICIAL INTELLIGENCE (2020); Shakir Mohamed et al., *Decolonial AI: Decolonial Theory as Sociotechnical Foresight in Artificial Intelligence*, 33 PHIL. & TECH. 659, 660–63 (2020); Stephen Cave & Kanta Dihal, *The Whiteness of AI*, 33 PHIL. & TECH. 685, 686–87 (2020); David Golumbia, *The Great White Robot God: Artificial General Intelligence and White Supremacy*, MEDIUM (Jan. 21, 2019), https://davidgolumbia.medium.com/the-great-white-robot-god-bea8e23943da [https://perma.cc/6ZWD-D2AR].

[16]   Arvind Narayanan, *How to Recognize AI Snake Oil*, PRINCETON UNIV., https://www.cs.princeton.edu/~arvindn/talks/MIT-STS-AI-snakeoil.pdf [https://perma.cc/WKD5-ZEBQ]. In a similar vein, many of these technologies are, to use philosopher Harry G. Frankfurt's technical term, "bullshit"; while they do not and cannot work because we cannot predict who people are and what they might do in the future, their deployment and use is nonetheless convincing purchasers and the public of their claims to truth, or at least utility. *See* HARRY G. FRANKFURT, ON BULLSHIT 54 (2005).

[17]   *See, e.g.*, Agüera y Arcas et al., *supra* note 1.

[18]   Narayanan, *supra* note 16, at 9.

[19]   *Id. See also* SUNG-HA HONG, TECHNOLOGIES OF SPECULATION: THE LIMITS OF KNOWLEDGE IN A DATA-DRIVEN SOCIETY 2 (2020) (". . . when big data and smart machines produce new predictions, new insights, what they are creating are fabrications: a process by which approximations are solidified into working certainty, guesswork is endowed with authority, and specific databases and algorithms—and all the biases and heuristics they embody—are invested with a credibility that often outstrips their present achievements.").

[and] workers to unaccountable tech companies, lack of explainability, distract[ion] from interventions, veneer of accuracy."[20]

At worst, those who develop and market these technologies have reinvigorated scientific racism at an unprecedented scale.[21] Physiognomic AI is being deployed to make determinations about nearly every aspect of human life. For instance, millions have been interviewed through automated human resources systems developed by companies like HireVue, which uses facial and emotional recognition as part of its automated decision-making process to decide who should be offered a job.[22] The enthusiastic explosion of research in and commercial pursuit of AI and ML techniques has laundered in a new era of pseudoscience and discrimination that pervades domains of legally-significant decision making. Policymakers have

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[20]   Narayanan, *supra* note 16, at 20.

[21]   *See generally*, LISA NAKAMURA, CYBERTYPES: RACE, ETHNICITY, AND IDENTITY ON THE INTERNET (2002); SIMONE BROWNE, DARK MATTERS: ON THE SURVEILLANCE OF BLACKNESS (2015); RUHA BENJAMIN, RACE AFTER TECHNOLOGY: ABOLITIONIST TOOLS FOR THE NEW JIM CODE (2019); Wendy Hui Kyong Chun, *Race and/as Technology; or, How to Do Things to Race*, *in* RACE AFTER THE INTERNET 38–60 (Lisa Nakamura & Peter A. Chow-White eds., 2011); SAFIYA UMOJA NOBLE, ALGORITHMS OF OPPRESSION: HOW SEARCH ENGINES REINFORCE RACISM (2018); *see also* Joy Buolamwini & Timnit Gebru, *Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification*, *in* 81 PROC. OF MACH. LEARNING RSCH. 1, 1–15 (2018); Inioluwa Deborah Raji et al., *Saving Face: Investigating the Ethical Concerns of Facial Recognition Auditing*, ARXIV (Jan. 3, 2020), https://arxiv.org/abs/2001.00964 [https://perma.cc/B3UZ-JB5A]; Abeba Birhane & Olivia Guest, *Towards Decolonizing Computational Sciences*, ARXIV (Sept. 29, 2020), https://arxiv.org/pdf/2009.14258.pdf [https://perma.cc/E5HU-63QG]; Lauren Rhue, Racial Influence on Automated Perceptions of Emotions 1–11 (Dec. 17, 2018) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3281765 [https://perma.cc/8G4B-DRU7]; M'Charek, *supra* note 4, at 370.

[22]   Drew Harwell, *A Face-Scanning Algorithm Increasingly Decides Whether You Deserve the Job*, WASH. POST (Nov. 6, 2019), https://www.washingtonpost.com/technology/2019/10/22/ai-hiring-face-scanning-algorithm-increasingly-decides-whether-you-deserve-job/ [https://perma.cc/P3KF-HLJD]; *see also* NATHAN MONDRAGON ET AL., THE NEXT GENERATION OF ASSESSMENTS 4–6 (2020). In January of 2021, HireVue announced they would no longer deploy facial analysis as part of their product, but would continue to analyze intonation and behavior. *See* Will Knight, *Job Screening Service Halts Facial Analysis of Applicants*, WIRED (Jan. 12, 2021), https://www.wired.com/story/job-screening-service-halts-facial-analysis-applicants/ [https://perma.cc/UKD5-YXKL]; *see also* Lindsey Zuloaga, *Industry Leadership: New Audit Results and Decision on Visual Analysis*, HIREVUE (Jan. 11, 2021), https://www.hirevue.com/blog/hiring/industry-leadership-new-audit-results-and-decision-on-visual-analysis [https://perma.cc/Y3EY-TW8S].

been caught largely flat-footed: dominant frameworks of notice and consent and meaningful human review only function to legitimize and amplify these technologies' problems. We need to both shift the narrative around these technologies and explicate their true social burden. Physiognomic AI is unjust and discriminatory in principle; physiognomic AI at scale is socially disastrous.

This Article conceptualizes and problematizes the renaissance of physiognomy in AI. Recent work to ban facial recognition, identification, and analysis technologies ("FRTs") are a critical part in reconsidering how AI technologies view and assess the human body.[23] This Article builds on these efforts to expand the core arguments for such prohibitions to a much broader conceptual class of AI-driven systems. The reanimation of physiognomy and phrenology at scale through computer vision and ML[24] is a matter of urgent concern.[25] Physiognomic and phrenological logics are intrinsic to the technical mechanism of computer vision applied to humans.[26] This Article aims to contribute to the intersection of critical data

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[23]   Antoaneta Roussi, *Resisting the Rise of Facial Recognition*, Nature (Nov. 18, 2020), https://www.nature.com/articles/d41586-020-03188-2 [https://perma.cc/M45U-GF8Q]; *Ban Dangerous Facial Recognition Technology that Amplifies Racist Policing*, Amnesty Int'l (Jan. 26, 2021), https://www.amnesty.org/en/latest/news/2021/01/ban-dangerous-facial-recognition-technology-that-amplifies-racist-policing/ [https://perma.cc/GXG2-6BDQ].

[24]   *See* Agüera y Arcas et al., *supra* note 1 ("Rapid developments in artificial intelligence and machine learning have enabled scientific racism to enter a new era, in which machine-learned models embed biases present in the human behavior used for model development. Whether intentional or not, this 'laundering' of human prejudice through computer algorithms can make those biases appear to be justified objectively.").

[25]   *See*, *e.g.*, Stark, *supra* note 4, at 52 ("Reducing humans into sets of legible, manipulable signs has been a hallmark of racializing scientific and administrative techniques going back several hundred years. The systems used by facial recognition technologies to code human faces perform an essentializing visual schematization."); Sarah Myers West et al., Discriminating Systems: Gender, Race and Power in AI 3 (2019) ("The use of AI systems for the classification, detection, and prediction of race and gender is in urgent need of re-evaluation. The histories of 'race science' are a grim reminder that race and gender classification based on appearance is scientifically flawed and easily abused. Systems that use physical appearance as a proxy for character or interior states are deeply suspect. . . . Such systems are replicating patterns of racial and gender bias in ways that can deepen and justify historical inequality. The commercial deployment of these tools is cause for deep concern.").

[26]   The rise of physiognomic AI systems has come in tandem with a new resurgence of white supremacist politics in the United States: suspending our common sense with regard to AI/ML has made the caliper great again.

studies, consumer protection law, biometric privacy law, and anti-discrimination law; it endeavors to conceptualize and problematize physiognomic AI. Further, it offers policy recommendations for state and federal lawmakers to forestall physiognomic AI's proliferation.

We define physiognomic AI as "[t]he practice of using computer software and related systems to infer or create hierarchies of an individual's body composition, protected class status, perceived character, capabilities, and future social outcomes based on their physical or behavioral characteristics."[27] This Article observes how computer vision is a central vector for physiognomic AI technologies, unpacking how some of the core tenets of the computer vision field reanimates physiognomy in conception, form, and practice. This Article argues for legislative action to forestall the proliferation of physiognomic AI in all its forms. To that end, we consider a potential menu of safeguards and limitations that significantly limit the deployment of physiognomic AI, which we hope can be used to strengthen local, state, and federal legislation.

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[27]   Compare this definition to that taken from the European Commission's draft regulation on artificial intelligence. *See Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts*, at 39, COM (2021) 206 final ("'[A]rtificial intelligence system' (AI system) means software that is developed with one or more of the techniques and approaches listed in Annex I and can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with"); *id.* at 42 ("'[B]iometric categorisation system' means an AI system for the purpose of assigning natural persons to specific categories, such as sex, age, hair colour, eye colour, tattoos, ethnic origin or sexual or political orientation, on the basis of their biometric data[.]"). *See also* European Data Protection Board Press Release, EDPB & EDPS Call for Ban on Use of AI for Automated Recognition of Human Features in Publicly Accessible Spaces, and Some Other Uses of AI That Can Lead to Unfair Discrimination (June 21, 2021), https://edpb.europa.eu/news/news/2021/edpb-edps-call-ban-use-ai-automated-recognition-human-features-publicly-accessible_en [https://perma.cc/S83D-2FFJ] ("[T]he EDPB and the EDPS call for a general ban on any use of AI for automated recognition of human features in publicly accessible spaces, such as recognition of faces, gait, fingerprints, DNA, voice, keystrokes and other biometric or behavioural signals, in any context."). For a broader discussion of the challenges around defining AI systems, see NYE THOMAS ET AL., L. COMM'N OF ONTARIO, REGULATING AI: CRITICAL ISSUES AND CHOICES 18 (2021).

We foreground our policy discussion by proposing the abolition of physiognomic AI. From there, we examine regimes of U.S. consumer protection law, biometric privacy law, and civil rights law as vehicles for rejecting physiognomy's digital renaissance in AI. Specifically, we first contend that physiognomic AI should be categorically rejected as oppressive and unjust. Second, we argue that lawmakers should declare physiognomic AI to be unfair and deceptive per se. Third, we propose that lawmakers should enact or expand biometric privacy laws to prohibit physiognomic AI. Fourth, we recommend that lawmakers should prohibit physiognomic AI in places of public accommodation. Furthermore, this Article observes the paucity of procedural and managerial regimes of fairness, accountability, and transparency in addressing physiognomic AI.

I.   DEFINING PHYSIOGNOMIC AI

Debates around AI are consistently mired in definitional questions. The set of digital automated decision-making systems often lumped together under the term "AI" are polysemic, sharing some technical qualities but often distinguished as much by the differences between them.[28] Contemporary AI systems are often underpinned by ML techniques,[29] through which computers "learn" statistical patterns in pre-provided data sets, and then use these learning models to search for similar patterns in novel, related data.[30] These complex sociotechnical systems—consisting of innovative technical

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[28]   *See* STANFORD UNIV., ARTIFICIAL INTELLIGENCE AND LIFE IN 2030: ONE HUNDRED YEAR STUDY ON ARTIFICIAL INTELLIGENCE 12 (2016), https://ai100.stanford.edu/sites/g/files/sbiybj18871/files/media/file/ai100report10032016fnl_singles.pdf [https://perma.cc/H97F-RE2D].

[29]   *See generally* ETHEM ALPAYDIN, INTRODUCTION TO MACHINE LEARNING (4th ed. 2020).

[30]   For conceptual critique of the epistemology of pattern recognition underpinning machine learning, see CLEMENS APPRICH ET AL., PATTERN DISCRIMINATION (2019); Solon Barocas & Andrew D. Selbst, *Big Data's Disparate Impact*, 104 CALIF. L. REV. 671 (2016). For the history of pattern recognition in computers, see Aaron Mendon-Plasek, *Mechanized Significance and Machine Learning: Why It Became Thinkable and Preferable to Teach Machines to Judge the World*, *in* THE CULTURAL LIFE OF MACHINE LEARNING 31 (2021). Yet for much of the history of the field of AI, the term generally meant something quite different: systems that were programmed with data and tasked with determining the symbolic connections between concepts logically. *See generally* MARGARET A. BODEN, MIND AS MACHINE: A HISTORY OF COGNITIVE SCIENCE (2006).

elements and established discursive labels—can be hard for policy-makers to pin down: distinguishing new from old in these assemblages is critical to enable a policy response neither overly tied to particular technical features nor untethered from new technologies' contextual effects.

Digital technology firms and some individual technology commentators exploit definitional indeterminacy in two ways.[31] The first is in taking confusion as an opportunity to frame policy prescriptions for regulating digital technologies such as AI systems around their preferred nomenclature,[32] social and legal theories,[33] and narrative of the "moral background" (or second-order normative assumptions).[34] The second is in advocating for narrowly-defined constraints around the technologies companies design and deploy when policymakers regulate. For instance, competing bills[35] put forward during the Washington State legislature's recent deliberations on regulating FRTs that were supported by major technology firms excluded facial analysis, emotion extrapolation, and other similar technologies from the definition of facial recognition.[36]

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[31]   One example of such exploitation is to abuse the stereotype that lawmakers do not have a sufficient understanding of digital technologies, where in reality, such systems are often procured and deployed without the knowledge or direct oversight of legislators. *See, e.g.*, Drew Harwell, *FBI, ICE Find State Driver's License Photos Are a Gold Mine for Facial-Recognition Searches*, WASH. POST (July 7, 2019), https://www.washingtonpost.com/technology/2019/07/07/fbi-ice-find-state-drivers-license-photos-are-gold-mine-facial-recognition-searches/ [https://perma.cc/6DQT-SJE8].

[32]   *See, e.g.*, John Markoff, *How Tech Giants Are Devising Real Ethics for Artificial Intelligence*, N.Y. TIMES (Sept. 1, 2016), https://www.nytimes.com/2016/09/02/technology/artificial-intelligence-ethics.html [https://perma.cc/8V4G-EJ8D].

[33]   *See* BRAD SMITH & CAROL ANN BROWNE, TOOLS AND WEAPONS: THE PROMISE AND THE PERIL OF THE DIGITAL AGE 287 (2019).

[34]   GABRIEL ABEND, THE MORAL BACKGROUND 28 (2014); *see also* Daniel Greene et al., *Better, Nicer, Clearer, Fairer: A Critical Assessment of the Movement for Ethical Artificial Intelligence and Machine Learning*, *in* HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES 2019, at 2122, 2122 (2019), https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1261&context=hicss-52 [https://perma.cc/42G9-RJWE].

[35]   *See* Tom Simonite, *Microsoft Wants Rules for Facial Recognition—Just Not These*, WIRED (Feb. 21, 2019, 7:00 AM), https://www.wired.com/story/microsoft-wants-rules-facial-recognition-just-not-these/ [https://perma.cc/YV34-CNZ4].

[36]   *Id.* It is worth noting that the definition of facial recognition of industry-backed House Bill 1854 is quite different from the definition of facial recognition in House Bill 1654, which was supported by community, privacy, and civil liberties advocates. *Compare* H.B. 1854, 66th Leg., Reg. Sess. § 14(6) (Wash. 2019) ("'[F]acial recognition' means

To be effective, definitions in digital technology policies must be sufficiently expansive to capture the full range of existing use cases, as well as "future proofed," or conceptually robust enough to remain relevant despite technical changes. Such definitions should be more explicitly concept-based, taking into consideration the precise historical trajectory and social vectors of a set of technologies (including the person doing the action, the medium, the action, and the thing being acted upon).[37] All policy definitions will be invariably imperfect. However, debating and deliming the conceptual contours of new technologies, especially those flagged by researchers as socially harmful, is simply good sense.

Here we draw on historical and conceptual arguments to delimit a category of technical systems we term "physiognomic AI," a fundamentally suspect class of computing technologies, systems, and applications which should be subject to legal scrutiny and legislative interventions. Physiognomy is the practice of using people's outer appearance to infer inner characteristics;[38] phrenology is the branch of physiognomy concerned with doing so by analysis of the human skull.[39] We define physiognomic AI as "*the practice of using computer software and related systems to infer or create hierarchies of an individual's body composition, protected class status, perceived character, capabilities, and future social outcomes based on their physical or behavioral characteristics*." Any computer system that uses AI technologies is, by this definition, physiognomic AI. This

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technology that analyzes facial features and is used for the unique personal identification of natural persons in still or video images."), *with* H.B. 1654, 66th Leg., Reg. Sess. § 2(1) (Wash. 2019) ("'Facial recognition' means both: (a) [t]he automated or semiautomated process by which a person is identified or attempted to be identified based on the characteristics of their face, including identification of known or unknown individuals or groups; and (b) [t]he automated or semiautomated process by which the characteristics of an individual's face are analyzed to determine the individual's sentiment, state of mind, or other propensities including but not limited to level of dangerousness.").

37   For instance, the analogical case comparison method as developed by the Technology Assessment Project of the Science, Technology, and Public Policy Program at the Gerald R. Ford School of Public Policy, University of Michigan, which entails "systematically analyzing the development, implementation, and regulation of previous technologies in order to anticipate how a new one might emerge and the challenges it will pose." CLAIRE GALLIGAN ET AL., CAMERAS IN THE CLASSROOM: FACIAL RECOGNITION TECHNOLOGY IN SCHOOLS 23 (2020).

38   *Physiognomy*, *supra* note 1.

39   *Phrenology*, *supra* note 2.

includes technologies employing ML to infer or categorize a person's character, faculties, protected class status, such as race or gender, or future social outcomes based on their physical or physiological characteristics—whether it be the face, eye, hand, voice, gait, heart rate, or any other body part—or patterns of behavior related to the same.

We recognize this definition provokes an array of objections.[40] Below, we detail and defend this definition of physiognomic AI by outlining how contemporary AI-based computer vision applications have reified physiognomy in their conceptual axioms, disciplinary forms, and social practices.

II. PHYSIOGNOMIC AI IN CONCEPTION

Recourse to physiognomic explanation is a longstanding theme in Western societies—though in this case, tradition should not be confused with venerability.[41] As a genesis point for physiognomy as an organized pseudoscientific discipline, historians often point to the work of eighteenth-century Swiss theologian Johann Kaspar Lavater, who popularized the collection and categorization of data on human facial features with the aim of developing a system of individual judgments grounded in particular physical traits.[42] Sharrona

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[40]   We recognize that one class of objections to our argument will relate to generalization. In classing a variety of specific computational technologies and use cases for them together, we will doubtlessly be accused of unfairly lumping together some common and seemingly benign technologies with those whose development and deployment are uncontroversially deleterious. We accept this critique, offering the response that many common technologies and practices rely implicitly on physiognomic principles, and that the widespread use of AI systems has merely brought this longstanding fact to light. We also note that our diagnosis of physiognomic AI as a class of technologies is not necessarily intended as an indictment of the developers of these technologies in all cases. Many practitioners in computer science and related fields are aware of the limitations inherent in this array of technologies and techniques. We note further that while not every form of problematically discriminatory AI is physiognomic, all instantiations of physiognomic AI have the potential to be problematically discriminatory, thus requiring the high level of regulatory scrutiny we recommend in this piece.

[41]   *See, e.g., Physiognomy, supra* note 1; PEARL, *supra* note 1, at 2; Carlo Ginzburg, *Morelli, Freud and Sherlock Holmes: Clues and Scientific Method*, HIST. WORKSHOP J., Spring 1980, at 5, 22.

[42]   *See* PEARL, *supra* note 1, at 11, 228 n.16; Agüera y Arcas et al., *supra* note 1; GRAY, *supra* note 3; Beatriz Pichel, *From Facial Expressions to Bodily Gestures: Passions,*

Pearl observes that physiognomy's flexibility and accessibility results in physiognomic ideas being circulated widely in societies like that of nineteenth-century Great Britain.[43] While grounded in expert consensus, physiognomic notions were diffused across various forms of cultural and knowledge production and were appealing because anyone could become, in their own regard, a physiognomic expert.[44] As such, Pearl describes making judgements about character via appearance as, first and foremost, a form of "shared subjectivity" for Victorian society.[45] Physiognomy served as a mechanism for public induction, giving newly urbanized denizens of growing industrial cities a set of heuristics with which to navigate social life and interactions with unfamiliar persons.[46] Pearl points out that in the nineteenth-century, physiognomy came to apply not only to facial features, but to other, more malleable elements of appearance and behavior such as clothing, gesture, or decoration; as such, nineteenth-century physiognomic practice also "entailed performance and self-presentation," in ways that had little to do with replicable truths about human interiority.[47]

Amidst this widespread physiognomic fomentation, in 1798 the German physiologist Franz Josef Gall developed a theory of what he called "cranioscopy": particular mental faculties were housed in particular parts of the brain and the physical size of those regions was proportionate to the strength of a faculty's manifestation through individual character.[48] Later termed "phrenology" by one of Gall's disciples, this particular species of physiognomic analysis quickly gained stature as a scientific discipline,[49] one "promising

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Photography, and Movement in French 19th-Century Sciences, HIST. HUM. SCIS., Feb. 2016, at 27.

43   *See* PEARL, *supra* note 1, at 12

44   *See id.* at 15.

45   *See id.* at 5.

46   *See id.*

47   *See* PEARL, *supra* note 1, at 8. On the development of objectivity as a scientific norm in the nineteenth century, see Lorraine Daston & Peter Galison, *The Image of Objectivity*, 40 REPRESENTATIONS 81, 81 (1992); LORRAINE DASTON & PETER GALISON, OBJECTIVITY 27 (2007).

48   *See Phrenology*, *supra* note 2; COOTER, *supra* note 2, at 3; Schlag, *supra* note 2, at 879.

49   *See, e.g.*, Schlag, *supra* note 2, at 877; DE GIUSTINO, *supra* note 3, at 12; PEARL, *supra* note 1, at 24 (calling phrenology "a failed attempt to be the scientific physiognomy").

clear and certain knowledge concerning the mental attributes and behaviors of human beings."[50] Phrenology was understood by many of its practitioners as "an important vehicle of liberal ideology" and a potential tool for enlightened social reform.[51] Because phrenology provided a causal theory of action regarding how the brain shaped behavior, it was understood as more scientific and progressive than other alternatives, capable of weeding out the truly incorrigible from the merely misguided.[52]

Pearl observes that the development of a shared sense of "physiognomic vision"—attuned to making judgements about character from afar through sight—was critical to the practice's widespread success on a popular level.[53] And as photography developed, it was seized in an attempt to furnish evidence to turn physiognomic principles into an organized discipline on par with phrenology.[54] British statistician Sir Francis Galton, both an enthusiast of phrenology and a proponent of eugenic theories,[55] unsuccessfully attempted to use

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[50]   Schlag, *supra* note 2, at 877.

[51]   *See* COOTER, *supra* note 2, at 7. Phrenologists believed that societally desirable mental faculties could be encouraged and exercised, and hereditary deviance could be subdued. *See* David de Giustino, *Reforming the Commonwealth of Thieves: British Phrenologists and Australia*, 15 VICTORIAN STUD. 439, 448 (1972) ("For the phrenologists, personal industry was truly noble. By itself it did not bring about a change of mental dispositions, but it could absorb the energy of the animal propensities which might otherwise lead to criminal acts.").

[52]   *See* COOTER, *supra* note 2, at 5. *See also* Adrian Daub, *The Return of the Face*, LONGREADS (Oct. 2018), https://longreads.com/2018/10/03/the-return-of-the-face/ [https://perma.cc/VH6C-75QR] ("Physiognomy gave concrete shape to liberalism's dark secret: the sense that reasoning and discourse are only part of how society and politics function, and that just looking someone in the face can be more revealing than listening to what they say. . . . Many aspects of physiognomy mark it as an anti-liberal project, but in one respect it is profoundly liberal. If we were to find one single, universally valid way to interpret faces, we could remove the suspicion that what we recognize in faces we like is simply ourselves, our people, our tribe.").

[53]   *See, e.g.*, PEARL, *supra* note 1, at 13.

[54]   *See id.* at 187 ("[D]octors understood the mad to be incapable of physiognomic faking or, indeed, manipulation of any kind."); *id.* at 192 (noting that leading physicians like Sir Charles Bell in the United Kingdom and J.É.D. Esquirol in France were particularly interested in physiognomic photography of those housed in asylums and other institutions because of a widespread belief that the insane were unable to control their facial expressions).

[55]   *See* David Green, *Veins of Resemblance: Photography and Eugenics*, 7 OXFORD ART J., no. 2, 1983, at 3, 8.

physiognomic principles to create "composite portraits" of those charged with crimes. He did this in an attempt to identify facial features commonly indicative of criminal character.[56] However, Galton's physiognomic efforts helped shape the evolution of physiognomic ideas: instead of a tool to judge particular individuals, Galton and others began to search for external signs of "group character"— common identifying traits that could allow diagnosis and judgement at physical distance and without the need, as in phrenology, for an extended manual examination of the head and body.[57]

Despite phrenology's discrediting as an organized field of science[58] and the fading of physiognomy as a term in popular discourse after World War II,[59] recourse to physiognomic analysis never entirely disappeared.[60] In large part, this persistence is due to the support physiognomic and phrenological assumptions provide in upholding existing racist, sexist, and classist social hierarchies.[61] Physiognomic claims also persist because the tendency to make heuristic judgments at the individual level—to "judge a book by its cover,"

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[56]   *See* PEARL, *supra* note 1, at 205 ("[T]he notion of self was relevant only so far as it represented deviation from the norm."); Daub, *supra* note 52 ("One of the first projects Galton undertook? Identifying a 'Jewish type' by means of composite photography."). Galton was also an early enthusiast for fingerprinting as a mode of identification, because he hoped it would show physiological patterns of difference that accorded with his racist theories—he was disappointed, Pearl notes, to find no correlation whatsoever. *See* PEARL, *supra* note 1, at 206; Ginzburg, *supra* note 41, at 27.

[57]   *See* PEARL, *supra* note 1, at 204.

[58]   *See* COOTER, *supra* note 2, at 256; Schlag, *supra* note 2, at 886 ("The simple explanation is that Gall and the other phrenologists had their ontology wrong. The fundamental faculties (as such) did not exist. They were not linked to the size of cranial organs. Further, the cranial organs did not bear any relation to cranial prominences. For all of their detailed inquiries, their sorting of countless cases, and their remarkable attempts to synthesize their research into fundamental faculties, principles, or laws, the phrenologists failed").

[59]   *See* PEARL, *supra* note 1, at 222.

[60]   *Id.* at 213 ("[P]hysiognomy remains a powerful technology of communication and decision making, a marker of selfhood, and a way to build identity.").

[61]   *See, e.g.*, Chinoy, *supra* note 2; BROWNE, *supra* note 21, at 93; Stinson, *supra* note 2 ("[Contemporary] psychologists studying the heritability of intelligence, such as Cyril Burt and Philippe Rushton, had to play fast and loose with their data to manufacture correlations between skull size, race and IQ. If there were anything to discover, presumably the many people who have tried over the years wouldn't have come up dry.").

often erroneously— is deeply entrenched in our cultural habits.[62] Such vernacular assessments often both reflect and reinforce existing forms of discrimination against members of already marginalized groups.[63] As pernicious as this common tendency is, however, the automation of the physiognomic impulse via digital technologies is even more alarming.[64] We argue that even when steps are taken to guard against it, physiognomic logics still pervade computer vision and related fields: digital images of humans are, at a conceptual level, always open to categorization based on physiognomic principles.

Computer vision has a fundamental conceptual concern: "recovering the three-dimensional shape and appearance of objects in imagery."[65] Computer vision systems are grounded in digitalization, or breaking the observable world down into binary code and extrapolating salient features out of the resulting data.[66] Moreover, computer vision is predicated on using statistical inferences to

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[62]   *See* PEARL, *supra* note 1, at 216 ("[P]eople are extraordinarily adept at finding ways to read distinction and value into what they see.").

[63]   *See* BROWNE, *supra* note 21, at 128; Ginzburg, *supra* note 41, at 20 ("Knowledge based on making individualizing distinctions is always anthropocentric, ethnocentric, and liable to other specific bias.").

[64]   *See, e.g.*, Goldenfein, *supra* note 1, at 113 ("Initially, these experiments were framed in terms of investigating whether computers could replicate the trait evaluation performed by humans (i.e. first impressions analysis). There were no complex machine learning methods, or assessments of accuracy. It was simply a translation of the task of physiognomic measurement into a computer vision system. From that point however, this type of personality computation became far more sophisticated."). *See also* Kate Crawford, *Time to Regulate AI that Interprets Human Emotions*, 592 NATURE 167 (2021) (discussing the similar "phrenological impulse").

[65]   RICHARD SZELISKI, COMPUTER VISION: ALGORITHMS AND APPLICATIONS 3 (2010) ("Researchers in computer vision have been developing . . . mathematical techniques for recovering the three-dimensional shape and appearance of objects in imagery. . . . Given a large enough set of views of a particular object or facade, we can create accurate dense 3D surface models using stereo matching . . . .However, despite all of these advances, the dream of having a computer interpret an image at the same level as a two-year old (for example, counting all of the animals in a picture) remains elusive.").

[66]   *See id.* ("Why is vision so difficult? In part, it is because vision is an *inverse problem*, in which we seek to recover some unknowns given insufficient information to fully specify the solution. We must therefore resort to physics-based and probabilistic models to disambiguate between potential solutions.").

extrapolate from partial data.[67] While more or less innocuous in many computer vision applications, these two technical foundations of the field are what underpin the physiognomic outcomes of AI when computer vision systems are applied to analyses of the human body. These are not accidental elements, but conceptual axioms for what computer vision is—and they are what make technical reforms and fixes to such systems fundamentally insufficient.

FRTs have been among the most widely deployed—and critiqued—examples of physiognomic AI systems: these technologies seek to detect, identify, and analyze images of human faces.[68] Detecting and recognizing the physiological patterns that correspond to a human face—alongside other aspects of human bodies and their specific characteristics, like gaits, temperatures, eye movements, and the like—are clear applications of the practice of generating digital data and inferring patterns from, and thus features of, that data (in the case of temperature, a characteristic not readily visible to human vision). This data concerns human appearance broadly

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[67]   *See id.* ("In computer vision, we are trying to . . . describe the world that we see in one or more images and to reconstruct its properties, such as shape, illumination, and color distributions.").

[68]   *See* Mark Thornton & Issy Pilowsky, *Facial Expressions Can Be Modelled Mathematically*, 140 BRIT. J. PSYCHIATRY 61, 62 (1982); Gianluca Donato et al., *Classifying Facial Actions*, 21 IEEE TRANSACTIONS ON PATTERN ANALYSIS & MACH. INTEL. 974, 975 (1999); Ginger McCall, *The Face Scan Arrives*, N.Y. TIMES (Aug. 29, 2013), https://www.nytimes.com/2013/08/30/opinion/the-face-scan-arrives.html [https://perma.cc/ZA2S-KJ8M]. For critiques of facial recognition systems, see Louise Amoore, *Biometric Borders: Governing Mobilities in the War on Terror*, 25 POL. GEOGRAPHY 336, 344 (2006) ("[A] project that works on fixing or securing an identity can never be complete, will always be contingent and uncertain."); KELLY GATES, OUR BIOMETRIC FUTURE: FACIAL RECOGNITION TECHNOLOGY AND THE CULTURE OF SURVEILLANCE 25 (2011); OFF. OF PRIV. COMM'R OF CAN., AUTOMATED FACIAL RECOGNITION IN THE PUBLIC AND PRIVATE SECTORS (2014); Woodrow Hartzog & Evan Selinger, *Facial Recognition Is the Perfect Tool for Oppression*, MEDIUM (Aug. 2, 2018), https://medium.com/s/story/facial-recognition-is-the-perfect-tool-for-oppression-bc2a08f0fe66 [https://perma.cc/AS7G-AWSS]; Goldenfein, *supra* note 1; Jeremy W. Crampton, *Platform Biometrics*, 17 SURVEILLANCE & SOC'Y 54, 56 (2019); Alexander Monea, *Race and Computer Vision*, *in* THE DEMOCRATIZATION OF ARTIFICIAL INTELLIGENCE. NET POLITICS IN THE ERA OF LEARNING ALGORITHMS 189 (Andreas Sudmann ed., 2019); Morgan Klaus Scheuerman et al., *How Computers See Gender*, 3 PROC. ACM HUM.-COMPUT. INTERACTION, no. 144, Nov. 2019, at 1; Max Eddy, *Facial Recognition Is Tech's Biggest Mistake*, PC MAG. (Nov. 27, 2019), https://www.pcmag.com/opinions/facial-recognition-is-techs-biggest-mistake [https://perma.cc/A6LX-QA7L]; BROWNE, *supra* note 21; Buolamwini & Gebru, *supra* note 21; Stark, *supra* note 4.

construed and is collected with the goal of extrapolating certain kinds of information from that appearance around a person's characteristics.[69]

Using inferences to claim knowledge about patterns of human characteristics comes close to the definition of physiognomy.[70] In the case of AI systems which merely detect and identify human faces, the computer vision system must infer the existence of the pattern of a "face" itself (and, by extension, infer the lack of a face). While a "face" is merely the label for a particular collection of pixels to a computer system, being misrecognized as not having a face is intrinsically degrading to an individual.[71] So even simple facial detection systems perform the crudest possible type of physiognomic judgment—judging "faciality" itself—as their primary task. Moreover, computer vision systems are predicated on using statistical inferences to extrapolate invisible aspects of an image from visible ones: this inferential "depth" model is intrinsic to computer vision. Physiognomy also uses the inferential "depth" model to draw on a person's appearance and infer interior truths: moving from describing the visible body to a subjective characterization of an individual's non-visible attributes.[72] Based on decades of scholarship in critical race and technology studies (largely by Black and other women of color scholars),[73] one of this Article's authors argued that

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[69]   *See* Wang & Kosinski, *supra* note 6, at 247 (" . . . we can easily and accurately identify others' gender, age, race, or emotional state—even from a glimpse of their faces."). *See also* SHOSHANA AMIELLE MAGNET, WHEN BIOMETRICS FAIL: GENDER, RACE, AND THE TECHNOLOGY OF IDENTITY 3 (2011) ("The case studies explored in this book cast doubt on scientific and industry assertions that the human body can be made to speak the truth of its identity through biometric technologies.").

[70]   *See Physiognomy*, *supra* note 2; PEARL, *supra* note 1, at 1.

[71]   *See* Emmanuel Levinas, *Philosophy and the Idea of Infinity*, *in* COLLECTED PHILOSOPHICAL PAPERS 47, 54–56 (Alphonso Lingis trans., 1987); M'Charek, *supra* note 4, at 370 ("The faciality machine is thus one that affects the entire body, implying that any bodily marker has the capacity to enact the face. Given the importance of faces in Western cultures, so Deleuze and Guattari argue, the social production of face and the facialization of the body provide new ways to understand race and racism.").

[72]   *See* Amanda Levendowski, *Face Surveillance Was Always Flawed*, PUB. BOOKS (Nov. 30, 2021), https://www.publicbooks.org/face-surveillance-was-always-flawed/ [https://perma.cc/L9VY-YU27].

[73]   *See* BROWNE, s*upra* note 21, at 67 ("[W]e can see that pseudo-scientific discourse of racial difference forms the theoretical basis from which to develop a facial computational model that could qualify (and mathematically quantify) differences to allow for identity

such physiognomic inferences are inescapable outcomes even of simple facial detection systems.[74] And if even simple facial detection is crudely physiognomic—making a judgement about the "face" as a characteristic of an image—then AI systems making wider inferences based on the body are undoubtedly physiognomic ones.[75]

If the physiognomic claims of simple facial detection and identification systems are clear, the wider physiognomic underpinnings of AI applications that analyze human faces and bodies should be all the more apparent. One notable, nineteenth-century phrenological manual described the phrenological practitioner as one who, "studies the brain as the center of mental and physical power; he takes into account the Temperament (or physical constitution) as the basis of quality and health; he studies all that face, form, motion, and expression may reveal."[76] Today's AI-enabled computer vision systems also examine "all that face, form, motion, and expression may reveal," by collecting (whether through a still image, video, audio, or infrared) and analyzing virtually every observable or measurable characteristic of an individual, including, but not limited to, a retina or iris scan, fingerprint, voice or voiceprint,[77] scan of hand or face geometry, facial expression, gestures, gait, or clothing.[78]

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authentication."); BENJAMIN, *supra* note 21; Buolamwini & Gebru, *supra* note 21; NOBLE, *supra* note 21; Chun, *supra* note 21; NAKAMURA, *supra* note 21.

[74]   Stark, *supra* note 4, at 52 ("The fundamental problem with facial recognition technologies is they attach numerical values to the human face at all.").

[75]   It might be objected that at least some computer vision systems have a merely descriptive function as applied to the body, making no judgments about "characteristics," only enumerating them. Two responses follow: as scholars in Science and Technology Studies and related fields have long noted, no technology classifies in a neutral fashion: even a system purporting to merely describe will, by virtue of the particular design decisions made by its developers, produce technical judgements with normative effects. Second, we might assess physiognomic AI on a continuum of explicitness or actualization: the facial detection systems described above are implicitly physiognomic, whereas facial analysis systems are often more explicitly so (with implicit and explicit here not referring to the stated intentions of a technology's developers, but the details of its functions and outcomes).

[76]   NELSON SIZER, FORTY YEARS IN PHRENOLOGY: EMBRACING RECOLLECTIONS OF HISTORY, ANECDOTE, AND EXPERIENCE 9 (1st ed. 1882).

[77]   *See* Beth Semel, *The Body Audible: From Vocal Biomarkers to a Phrenology of the Throat*, SOMATOSPHERE (Sept. 21, 2020), http://somatosphere.net/2020/the-body-audible.html/ [https://perma.cc/9JHB-4PCM].

[78]   *See* Rosenbaum, *supra* note 11; Wu & Zhang, *supra* note 6; GATES, *supra* note 68.

Physiognomic logics are intrinsic to the conceptual mechanisms underpinning computer vision and related techniques as applied to humans. Per the basic logic of physiognomy and phrenology, facial and vocal analysis systems then extend this study to make inferences about the "mental and physical power" of individuals.[79] These inferences generally involve assessing a person's faculties or future social outcomes based on their physical or behavioral characteristics: faculties can include cognitive abilities, emotion, or criminality,[80] while future social outcomes can include employability, creditworthiness, voting behavior, and criminal behavior. Indeed, much of the human-centric AI sold today reflects the physiognomic impulse: applying some supervised ML as a veneer on top of a desire to predict who people are and will become based on what they look like or their past behavior.[81]

III. Physiognomic AI's Disciplinary Form

The physiognomic logics underpinning computer vision and related AI techniques applied to the human body have not prevented the proliferation of such works. Indeed, the conceptual problems already described have buttressed existing structural inequalities within AI and computer science research more broadly. AI/ML's structural racism as a discipline leaves it open to incorporating the

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[79]   *See* Mona Sloane et al., *A Silicon Valley Love Triangle: Hiring Algorithms, Pseudo-Science, and the Quest for Auditability*, 3 PATTERNS, no. 100425, Feb. 11, 2022, at 1.

[80]   *See* Wu & Zhang, *supra* note 6. Needless to say, criminality is not a "faculty." *See also* COAL. FOR CRITICAL TECH., *supra* note 14 ("[N]o such pattern exists for facial features and criminality, because having a face that looks a certain way does not *cause* an individual to commit a crime—there simply is no 'physical features to criminality' function in nature.").

[81]   Scholars have rightly argued that computer vision systems are also reproducing existing biases in training and model data. For instance, Agüera y Arcas and colleagues argue that "[t]he peril comes from the fact that a scientist or engineer can easily design a classification task that the machine can learn to perform well—without understanding what the task is actually measuring, or what patterns the system is actually finding." Agüera y Arcas et al., *supra* note 1. We agree with this diagnosis ("This is problematic when the "how" or "why" of such a system's judgments matter, as they certainly would if the judgment purported to be of a person's character or criminal status." *Id.*), but argue the critique is necessary but insufficient, failing to capture the full scope of the ways in which such systems are set up to produce physiognomic outcomes by virtue of their very application of such analyses to human faces and bodies. *See also* Crawford, *supra* note 64.

worst aspects of physiognomic thinking into its products[82] while these technologies' technical underpinnings facilitate physiognomic practices even in cases where designers do not intend them. The development of physiognomic AI is a fundamentally moral act; one so scaffolded into the technical and institutional norms of computer science as a discipline that practitioners have often mistaken normative choices about its development for scientific necessities.[83]

The embrace of physiognomy by certain sectors of computer science also mirrors the institutional development of phrenology itself in the second half of the nineteenth century and first decades of the twentieth century.[84] Pierre Schlag's detailed analysis of the functional similarities between phrenology and certain traditions in American legal formalism serves as a useful template for illuminating the parallels between phrenology and contemporary physiognomic AI work.[85] The rise and legitimation of such work in

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[82]   *See generally* CHARLTON MCILWAIN, BLACK SOFTWARE 246 (2019); KATZ, *supra* note 15; Mohamed et al., *supra* note 15; Cave & Dihal, *supra* note 15; Golumbia, *supra* note 15. *See also* Birhane & Guest, *supra* note 21.

[83]   *See* Wang & Kosinski, *supra* note 6, at 247 ("The existence of such links between facial appearance and character is supported by the fact that people can accurately judge others' character, psychological states, and demographic traits from their faces.").

[84]   SAMUEL R. WELLS, HOW TO READ CHARACTER: A NEW ILLUSTRATED HAND-BOOK OF PHRENOLOGY AND PHYSIOGNOMY FOR STUDENTS AND EXAMINERS; WITH A DESCRIPTIVE CHART 9 (1st ed 1869) ("Phrenology is a system of mental philosophy founded on the physiology of the brain. It treats of mind, as we know it in this moral life, associated with matter and acting through material instruments. . . . Phrenology does not now claim to be entirely complete as a science or perfect as an art, and it demands recognition and acceptance only so far as it has been firmly established on the broad and immovable basis of the constitution of man.").

[85]   Schlag, *supra* note 1, at 877 ("Both phrenology and law emerged as disciplinary knowledges through attempts to cast them in the form of sciences. In both cases, the 'sciences' were aesthetically organized around a fundamental ontology of reifications and animisms—'faculties' in the case of phrenology, 'doctrines' and 'principles' in the case of law. Both disciplines developed into extremely intricate productions of self-referential complexity. In both cases, the disciplinary edifice was maintained by disciplinary thinkers who sought confirming evidence of the truth (and value) of their enterprise and who went to great lengths to avoid disconfirming evidence. Finally, the surface plausibility of both disciplines was maintained through a tacit reliance on folk beliefs (folk-frames and folk-ontologies) that were recast in professionalized jargons. Both the similarities and the differences between phrenology and law lead to a fundamental question: does the discipline of law know anything, and if so, what?"). For broader comparisons between formalism in computer science and law, and its pitfalls, see Ben Green & Salomé Viljoen, *Algorithmic*

computer science shares disturbing functional similarities to that of phrenology—first and foremost is that developers of physiognomic AI, like phrenology, have their ontology wrong.[86] The inferential statistical methods on which ML is based, while useful in many contexts, fails when applied to extrapolating subjective human characteristics from physical features and even patterns of behavior—just as phrenology and physiognomy did.[87] Yet in terms of disciplinary formation and institutional prestige, phrenology and physiognomic AI works share notable parallels: these include a focus on reification, the presence of self-referential complexity, a high degree of self-legitimation, a connection to existing folk beliefs, and an emphasis on the field's social utility.[88]

A.   *Reifying Descriptive Categories*

Schlag observes that both phrenology and legal formalism were, "[a]esthetically organized around a fundamental ontology of reifications and animisms—'faculties' in the case of phrenology, 'doctrines' and 'principles' in the case of law."[89] This process was enabled by reifying descriptive categories as naturalized formative ones: "descriptive categories [were] hypostatized and projected back onto an agency, a potentiality, or a faculty whose defining character is its ostensible capacity to produce the behavior in question."[90]

Physiognomic AI systems perform an analogous series of reifications. The developers of these technologies rely on the implicit assumption that descriptive categories and labels assigned to data about humans are constitutive of ground truths about people and the

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Realism: Expanding the Boundaries of Algorithmic Thought, Proc. ACM Conf. on Fairness, Accountability, & Transparency (FAT*), at 19 (2020).

86   Schlag, *supra* note 2, at 886 ("The fundamental faculties [of temperament] (as such) did not exist. They were not linked to the size of cranial organs. Further, the cranial organs did not bear any relation to cranial prominences. For all of their detailed inquiries, their sorting of countless cases, and their remarkable attempts to synthesize their research into fundamental faculties, principles, or laws, the phrenologists failed.").

87   *See* Agüera y Arcas et al., *supra* note 1.

88   Schlag, *supra* note 2, at 887.

89   *Id.* at 895–96.

90   *Id.* at 888.

world.[91]   These reified categories include stereotypical associations between human phenotypes and racial categories.[92] Moreover, in an age of widespread data collection and analysis spurred by mechanisms of "surveillance capitalism,"[93] AI/ML systems both explode the amount of data to be labeled and obscure the act of labelling. AI systems' reification of contingent descriptive categories is symptomatic of a "conjectural" paradigm that erroneously infers regularity from human data that is both non-repeatable and non-replicable.[94] These erroneous conjectures are often masked by the complexity of ML analysis and size of the data sets involved, but map to the same kinds of reifying assumptions about human behavior that typified physiognomy and phrenology in their heyday.

B. Self-Referential Complexity

The various subfields of contemporary AI research have produced a vast corpus of research scholarship.[95] Between 1998 and 2018, the number of peer-reviewed papers on AI-related topics increased by over three hundred percent.[96] Within this broader agglomeration, work on physiognomic AI has proliferated, making increasingly granular claims within an internally consistent, but largely self-referential epistemological framework supported by conferences, symposia, and ties to commercialization and product

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[91]   *See* Abeba Birhane & Vinay Uday Prabhu, *Large Datasets: A Pyrrhic Win for Computer Vision?*, PROC. IEEE/CVF WINTER CONF. ON APPLICATIONS OF COMP. VISION 1537, 1547 (2021).

[92]   *See* Monea, *supra* note 65, at 192.

[93]   *See* SHOSHANA ZUBOFF, THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER 27 (2019); *see also* Oscar H. Gandy, Jr., *Coming to Terms with the Panoptic Sort*, *in* COMPUTERS, SURVEILLANCE, AND PRIVACY 133 (David Lyon & Elia Zureik eds., 1996); Paul Ohm, *Branding Privacy*, 97 MINN. L. REV. 907 (2013); FRANK PASQUALE, THE BLACK BOX SOCIETY 101 (2015); Joanne McNeil, *Big Brother's Blind Spot*, BAFFLER (July 2018), https://thebaffler.com/salvos/big-brothers-blind-spot-mcneil [https://perma.cc/JN8K-XQEV].

[94]   *See* Ginzburg, *supra* note 41; Luke Stark, Artificial Intelligence and the Conjectural Sciences 3 (March 20, 2022) (unpublished manuscript) (on file with author); Chun et al., *supra* note 21.

[95]   *See* Yoshua Bengio, *Time to Rethink the Publication Process in Machine Learning*, YOSHUA BENGIO (Feb. 26, 2020), https://yoshuabengio.org/2020/02/26/time-to-rethink-the-publication-process-in-machine-learning/ [https://perma.cc/P7MA-C48T].

[96]   Paula Klein, 2019 *AI Report Tracks Profound Growth*, MIT INITIATIVE ON DIGIT. ECON. (Dec. 15, 2019), https://ide.mit.edu/insights/2019-ai-report-tracks-profound-growth/ [https://perma.cc/V7CN-F4X5].

development.[97] Work on physiognomic AI systems and applications appears at contemporary computer vision conferences such as the Conference on Computer Vision and Pattern Recognition ("CVPR"), a fact that has been noted and condemned by other AI scholars.[98]

In this respect too, physiognomic AI mirrors the development of phrenology as a field. "One of the most striking aspects of phrenology," Schlag suggests, "was its detailed character. Because phrenologists were quite astute in understanding the relations among categories within their taxonomic framework, phrenology developed into an intricate multi-layered field."[99] For Schlag, phrenology's disciplinary complexity stemmed in part from its fundamentally imaginary character. "Because the units of analysis lacked any robust or stabilized referent," he suggests, "virtually anything could be said about how they were related to each other."[100] Physiognomic AI work often suffers from a particular case of this general phenomenon: the empirical data these systems use for analysis are often poor (or entirely inadequate) proxies for the conceptual phenomena purportedly being analyzed.[101] Take, for instance, Wang and Kosinksi's now infamous "gayface" study, in which the authors claimed to ascertain a person's sexual orientation through ML analysis of facial features.[102] The authors begin their work with an explicit disavowal of historical physiognomy, but immediately perform an about-face and claim that several forms of evidence exist to prove the connection between facial features and "character."[103] "Character" is the

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[97]   *See* Oh et al., *supra* note 7.

[98]   *See* Hutson, *supra* note 7.

[99]   Schlag, *supra* note 2, at 882.

[100]   *Id.* at 889 ("Without any stabilized referent for the fundamental faculties, phrenologists could produce a great deal of complexity, including numerous interpretations and applications of the fundamental faculties. They could perform classic analytical operations, such as specification, subdivision, and entailment, in an endless array of combinations without much risk of running into serious resistance from their putative object of study. The predictable result was a great deal of complexity.").

[101]   *See* DYLAN MULVIN, PROXIES: THE CULTURAL WORK OF STANDING IN 8 (2021).

[102]   *See* Wang & Kosinski, *supra* note 6.

[103]   *Id.* at 246 ("Physiognomy is now universally, and rightly, rejected as a mix of superstition and racism disguised as science. Due to its legacy, studying or even discussing the links between facial features and character became taboo, leading to a wide-spread

floating category under which Wang and Kosinski stitch together their analysis: it simultaneously refers to personality measures and life experience;[104] socialization and sociality;[105] and behavior and other "traits."[106] Moreover, the paper itself purports to measure sexual orientation, which is not a "character" trait under the initial presumptive definition of the term as the authors use it. With such a range of poorly defined floating proxies, it is easy for physiognomic AI research to produce various complex analyses almost entirely detached from the realities of phenomena purportedly being described—a process which, replicated across many studies via sheer volume, bolsters the professional and societal status of the field as a whole.[107]

C. Self-Legitimation

Many proponents of physiognomic AI share a further similarity with the physiognomists and phrenologists of the nineteenth and early twentieth centuries: a tendency toward a closed epistemology that values internal consistency in the face of evidence to the contrary. Schlag observes that nineteenth-century phrenology's "disciplinary edifice was maintained by disciplinary thinkers who sought confirming evidence of the truth (and value) of their enterprise and who went to great lengths to avoid disconfirming evidence."[108] Today, many proponents of physiognomic AI engage in similar

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presumption that no such links exist. However, there are many demonstrated mechanisms that imply the opposite.") (internal citation omitted).

[104]   *Id.*

[105]   *Id.* at 247.

[106]   *Id.* at 248.

[107]   Schlag, *supra* note 2, at 889–90 ("This production of internal complexity helped sustain belief. Indeed, the internal complexity of a discipline often contributes to maintaining belief among its practitioners. Practitioners become so focused on the intricacies of minute disciplinary issues and problems that their attention is diverted from any recognition that the entities and the discipline are a kind of collective imaginary.").

[108]   *Id.* at 885 ("This is not to say that critics did not raise many objections to phrenology. One objection was that the validity of its findings invariably depended upon the ability to measure the various organs—something that could not be easily achieved . . . .The answer to this point was straightforward. As suggested by one eminent phrenologist, 'although the boundaries of the different organs cannot be determined with mathematical precision, . . . yet, in a single case, an accurate observer may make a very near approximation to the truth.'").

motivated reasoning.[109] Often, this legitimation takes the form of appeals to common human practices: observations that, because humans sometimes engage in imprecise or inexact physiognomic judgments, such judgements can and should be replicated through automated means.[110] Such justifications also often point to extant scientific literature from other fields, often without delving into details and effacing controversies and disagreements within the original discipline. Finally, proponents of physiognomic AI research share a tendency with those in the broader field, discussed further below: legitimizing themselves and their findings via the enthusiastic and somewhat credulous coverage their work often receives in the popular press.[111]

D. *The Production of Folk Beliefs*

Tightly connected to physiognomic AI's self-legitimation is its appeal to folk beliefs. Historian Carlo Ginzburg observes that the development of physiognomy and phrenology as organized areas of study in the nineteenth century was a manifestation of older folk beliefs about the relationship between the exteriority of the body and inner traits or characteristics.[112] Schlag concurs, noting that phrenology possessed, "a tacit reliance on folk beliefs (folk-frames and

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[109]   *See* Wang & Kosinski, *supra* note 6, at 247 ("[T]he low accuracy of humans when judging character from others' faces does not necessarily mean that relevant cues are not prominently displayed. Instead, people may lack the ability to detect or interpret them. It is possible that some of our intimate traits are prominently displayed on the face, even if others cannot perceive them.").

[110]   *See, e.g.*, *id.* ("[W]e can easily and accurately identify others' gender, age, race, or emotional state— even from a glimpse of their faces."); Oh et al., *supra* note 7, at 1 ("When we listen to a person speaking without seeing his/her face, on the phone, or on the radio, we often build a mental model for the way the person looks."); Kosinski, *supra* note 12, at 1 ("A growing number of studies claim to demonstrate that people can make face-based judgments of honesty, personality, intelligence, sexual orientation, political orientation, and violent tendencies.") (internal citations omitted).

[111]   Schlag, *supra* note 2, at 892 ("In the later stages of phrenology, any distinction between phrenological knowledge and its advertisements for itself collapsed. Phrenology became a discourse of self-celebration. The ironic result was that, as phrenological knowledge became increasingly stressed and less credible, the normative claims about its usefulness and moral worth became increasingly inflated and more grandiose.").

[112]   Ginzburg, *supra* note 41, at 22 ("One need only think of the gulf separating the rigid and schematic treatises of physiognomy (judging character or mood from the appearance) from its perceptive and flexible practice by a lover or a horse-dealer or a card-player."). *See also* PEARL, *supra* note 1, at 57.

folk-ontologies) that were recast in professionalized jargons."[113] Such beliefs grounded in stereotypes, allusions, and "old wives' tales" have potent cultural resonance, but dubious utility in an individual subjective context; we need not resort to aphorisms to realize that the accuracy of even the most perspicacious subjective personal judgement is intrinsically limited.

Contemporary proponents of physiognomic AI similarly invoke folk beliefs to justify their results. For instance, Wang and Kosinski claim that "the existence of such links between facial appearance and character is supported by the fact that people can accurately judge others' characters, psychological states, and demographic traits from their faces."[114] Wang and Kosinski justify their claim by stating, "[s]uch judgments are not very accurate, but are common and spontaneous."[115] These bland claims are risible prima facie; moreover, such particular judgements cannot, as a matter of epistemological necessity, be aggregated into general and repeatable empirical rules to be applied back onto individual cases.[116] Wang and Kosinski, like other proponents of physiognomic AI, appeal to superficially reasonable "common sense" in order to make unfounded physiognomic claims.[117]

Credulous press reports further exacerbate the production of folk beliefs associated with physiognomic AI systems. Such reports create and perpetuate folk beliefs regarding the exaggerated capacities of AI systems, which some researchers are then either happy to tout

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[113] Schlag, *supra* note 2, at 892 ("From the perspective of folk beliefs, the cerebral localization hypothesis, the cranioscopic hypothesis, and Gall's twenty-seven fundamental faculties seemed perfectly sensible.").

[114] Wang & Kosinski, *supra* note 6, at 247.

[115] *Id.*

[116] *See* Steven Piantadosi et al., *The Ecological Fallacy*, 127 Am. J. of Epidemiology 893, 893 (1988).

[117] Schlag, *supra* note 2, at 893 ("Thus, by replicating a folk ontology in a slightly more professionalized jargon, phrenology was able to draw upon pre-existing folk beliefs while nonetheless representing its knowledge as scientific and rooted in actual scientific empirical investigation. This double aspect—(1) the tracking of a folk ontology, (2) in a jargon seemingly independent of that folk ontology—gave phrenology its considerable rhetorical power. In addition, phrenologists often made their 'science' track popular moral and political beliefs. Much phrenological work was explicitly racist, ascribing inferior physiological capacities to non-white races.").

further in an escalating cycle of vernacular boosterism,[118] or to only partially refute as a means to burnish their expert credentials.[119] Folk beliefs regarding the capacities of digital technologies such as AI are already widespread,[120] and physiognomic AI work benefits from technologically determinist views about AI systems that ascribe these technologies a high degree of agency and accuracy. This focus on the inevitability of AI development occludes the active research agendas of scientists, research labs, and corporate sponsors in the process, and defuses public awareness that the regulation of AI systems is a matter of social and political priority rather than a technical process best left to the developers of the systems themselves.[121]

E. *A Focus on Social Good*

As AI and ML technologies become increasingly criticized for their roles in creating and exacerbating social harms—routinely scrutinized for both their fundamental limitations and demonstrable harms to civil and human rights and dignities—technology companies have emphasized the importance of AI for social good.[122]

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[118]   *See* Devin Coldewey, *Facial Recognition Reveals Political Party in Troubling New Research*, TECHCRUNCH (Jan. 13, 2021, 12:47 PM), https://techcrunch.com/2021/01/13/facial-recognition-reveals-political-party-in-troubling-new-research/ [https://perma.cc/KGA2-3CVK].

[119]   *See, e.g.*, Nicholas Thompson, *Tristan Harris: 'Tech is Downgrading Humans.' It's Time to Fight Back*, WIRED (Apr. 23, 2019, 3:01 PM), https://www.wired.com/story/tristan-harris-tech-is-downgrading-humans-time-to-fight-back/ [https://perma.cc/WJ2U-88RC].

[120]   *See* Taina Bucher, *The Algorithmic Imaginary: Exploring the Ordinary Affects of Facebook Algorithms*, 20 INFO., COMMC'N & SOC'Y 30, 31 (2017); Jenna Burrell, *How the Machine 'Thinks': Understanding Opacity in Machine Learning Algorithms*, BIG DATA & SOC'Y, Jan.–June 2016, at 9.

[121]   *See* Greene et al., *supra* note 34.

[122]   *See, e.g.*, Karen Hao, *Five Ways to Make AI a Greater Force for Good in 2021*, MIT TECH. REV. (Jan. 8 2021), https://www.technologyreview.com/2021/01/08/1015907/ai-force-for-good-in-2021/ [https://perma.cc/R9BD-H56T]; *AI for Social Good: Applying AI to Some of The World's Biggest Challenges*, GOOGLE, https://ai.google/social-good/ [https://perma.cc/JU2W-UMD4]; *Data for Good*, META, https://dataforgood.fb.com/ [https://perma.cc/GJ9D-MX5N]; Kirk Borne, *The Power of Data Science and AI for Social Good*, BOOZ ALLEN HAMILTON, https://www.boozallen.com/s/insight/blog/the-power-of-data-science-and-ai-for-social-good.html [perma.cc/2F8T-K53K]; *AI for Social Good*, INTEL, https://www.intel.com/content/www/us/en/artificial-intelligence/ai4socialgood.html [https://perma.cc/4363-LYGQ]; Michael Chui et al., *Applying Artificial Intelligence for Social Good*, MCKINSEY GLOB. INST. (Nov. 28, 2018),

Proponents of physiognomic AI systems aim to associate their technologies with putatively positive discourses; like phrenology a century ago,[123] physiognomic AI systems are similarly touted by their developers and investors for their practical utility.[124] In describing the later days of phrenology, Schlag underscores that, "[the] belief in phrenology was promoted not so much by demonstrating the validity of its fundamental ontology and fundamental principles, but rather by highlighting its usefulness—that is, its ability to advance individual achievement and to promote the social good."[125] Over the course of the COVID-19 pandemic in particular, physiognomic AI technologies have been deployed by businesses and governments across the United States under flimsy rationales.[126] As detailed below in Part IV, physiognomic AI is now rife and applied in many of the same arenas of social life as were physiognomy and phrenology more than a century ago.

IV. PHYSIOGNOMIC AI IN FUNCTION

Today's application of physiognomic AI systems neatly parallel and extend the purported utilities of physiognomy and phrenology as claimed by their nineteenth-century proponents. For instance, contemporary applications echo the uses of physiognomic and phrenological practices outlined by American phrenologist Lorenzo

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https://www.mckinsey.com/featured-insights/artificial-intelligence/applying-artificial-intelligence-for-social-good# [https://perma.cc/L89E-CK9M]. However, it is worth noting that these promises are secondary concerns. *See* Karen Hao, *Big Tech's Guide to Talking About AI Ethics*, MIT TECH. REV. (Apr. 13, 2021), https://www.technologyreview.com/2021/04/13/1022568/big-tech-ai-ethics-guide/ [https://perma.cc/574G-JNMH] ("[F]or good (ph)—As in 'AI for good' or 'data for good.' An initiative completely tangential to your core business that helps you generate good publicity.").

[123] *See* Schlag, *supra* note 2, at 894 ("Finally, the plausibility of phrenology was supported by the accomplishments and instrumental gains that it promised. Phrenologists promised that their science would be useful in the day-to-day affairs of men. Particularly in its later days, serious scientists abandoned phrenology, and practical entrepreneurs joined the phrenological enterprise. The switch in orientation from the pursuit of science to the rendition of instrumental services was well captured by Sizer, who wrote in 1882, 'Fifty years ago people asked: [i]s Phrenology true? Now they ask, in regard to its uses, [d]oes it benefit mankind?'").

[124] *See, e.g.*, Chui et al., *supra* note 122.

[125] Schlag, *supra* note 2, at 895.

[126] *Id.*

Niles Fowler in a lecture given in the 1870s on the "Utility of Phrenology."[127] Fowler, the co-founder and publisher of *The Phrenological Journal*, was one of the United States' foremost phrenological experts in the later nineteenth century.[128] As noted above, many proponents of physiognomic analysis, including practicing phrenologists, understood their discipline to be a progressive one.[129] Fowler was no exception: grounded in the erroneous belief that the shape of a human skull could give insight into character and personality, Fowler claimed that phrenology was a valuable diagnostic tool for doctors, clergymen, and other social reformers.[130] Similar claims for social utility, even social progress grounded in erroneous conceptual axioms, typify today's applications of physiognomic AI. This Article compares key uses of phrenology as claimed by Fowler to current commercial applications and deployments of physiognomic AI. The parallels are both disturbing and instructive: common themes include analyzing the face and the body to unearth natural tendencies and capabilities of individuals, including employability, educability, attentiveness, criminality, emotional stability, sexuality, compatibility, and trustworthiness.

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[127]   LORENZO NILES FOWLER, UTILITY OF PHRENOLOGY: A LECTURE 2 (London, W. Tweedie n.d.), https://wellcomecollection.org/works/a5aaj99u [https://perma.cc/4GVE-THCU]. Fowler outlines twelve applications of physiognomic and phrenologic practice. *Id.* ("[I]t teaches, firstly, self-knowledge; secondly, how to develope the organization as a whole harmoniously. Thirdly, it enables us to govern and educate each faculty, to control the propensities, to cultivate and direct the moral feelings. Fourthly, it indicates the particular calling or pursuits by which everyone may succeed in life. Fifthly, it enables the parent to be more faithful in the discharge of his duties to his children. Sixthly, it assists in the choice of servants. Seventhly, it is an important aid in the practice of the different professions. Eighthly, it teaches charity for the frailties of otheres. Ninthly, it makes valuable suggestions for the treatment of criminals. Tenthly, it gives many important hints with regard to the cure and prevention of Insanity. Eleventhly, it enables a person to choose an agreeable, congenial companion for life. Twelfthly, it teaches that moral perfection is the most desirable end to be attained in this life.").

[128]   *See* MADELEINE B. STERN, HEADS AND HEADLINES: THE PHRENOLOGICAL FOWLERS, at xv (1971); Stacey A. Tovino, *Imaging Body Structure and Mapping Brain Function: A Historical Approach*, 33 AM. J.L. & MED. 193 (2007).

[129]   *See* COOTER, *supra* note 2, at 101; PEARL, *supra* note 1, at 187.

[130]   Fowler, *supra* note 127, at 13 ("Those whose business it is to make laws for the improvement of society might form better codes of justice, if they understood the powers and capacities of the mind.").

A. *Labor & Employment*

Physiognomy and phrenology were touted by proponents like Fowler as offering a mechanism for optimizing employment determinations to businesses and individuals alike,[131] and for interpreting the character and prospects of new firms.[132] AI-dependent video interviewing and hiring tools promise similar utility.[133] In the United States, millions of jobseekers have been assessed by such technologies, which analyze candidates' faces and voices and produce employability scores.[134]

Many of the capabilities and traits AI-powered video interviewing technologies claim to understand and evaluate map neatly onto the mental faculties that physiognomy and phrenology sought to identify and leverage. For example, AI video interviewing company Inclusive.hr (formerly 8AndAbove) claims to understand how "adventurous," "cultured," "resourceful," and "intellect[ual]" a job

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[131]   *See, e.g.*, *id.* at 4 ("Phrenology teaches us our appropriate sphere in life. It is a fact that human beings are graded . . . .Certain natural qualifications give us an adaptation to a certain sphere, and we should be content to attain the greatest degree of perfection in that sphere. A man accomplished the most when he is pursuing that occupation by which we can use his talents to the best advantage, so as to be in harmony with the natural tendency of his mind."). *See also* John D. Davies, Phrenology: Fad and Science: A 19th-Century American Crusade 39 (1955); Tovino, *supra* note 128, at 201 ("American newspaper editor and politician Horace Greeley was so convinced of the usefulness of phrenology in the employment context that he argued in an 1852 editorial that railroad accidents could be reduced if trainmen were selected 'by the aid of phrenology, and not otherwise.'").

[132]   *See* Coleman Sherry, Corporate Heads: Phrenology, Physiognomy, and the Character of Big Business, 1895–1914 (Mar. 29, 2021) (B.A. thesis, Columbia University) (on file with the Columbia University Library).

[133]   *See* Manish Raghavan et al., *Mitigating Bias in Algorithmic Hiring: Evaluating Claims and Practices*, *in* Proc. ACM Conf. on Fairness, Accountability, & Transparency (FAT*), at 469 (2020); *see generally* Ifeoma Ajunwa et al., *Limitless Worker Surveillance*, 105 Calif. L. Rev. 735 (2017); Ifeoma Ajunwa, *Automated Video Interviewing as the New Phrenology*, 36 Berkeley Tech. L.J. __ (2022), https://ssrn.com/abstract=3889454 [https://perma.cc/EWG8-BAWQ].

[134]   *See, e.g.*, Drew Harwell, *A Face-Scanning Algorithm Increasingly Decides Whether You Deserve a Job*, Wash. Post (Nov. 6, 2019), https://www.washingtonpost.com/technology/2019/10/22/ai-hiring-face-scanning-algorithm-increasingly-decides-whether-you-deserve-job/ [https://perma.cc/WA3Q-DT6Q]; Drew Harwell, *Rights Group Files Federal Complaint Against AI-Hiring Firm Hirevue, Citing 'Unfair And Deceptive' Practices*, Wash. Post (Nov. 6, 2019), https://www.washingtonpost.com/technology/2019/11/06/prominent-rights-group-files-federal-complaint-against-ai-hiring-firm-hirevue-citing-unfair-deceptive-practices/ [https://perma.cc/6SFL-8335].

candidate is based on a thirty-second recording of their facial expressions and voice.[135] Likewise, phrenological analysis claimed to understand how "conscientiousness," "benevolence," and "self-esteem" were evident in a person's character based on the "the crown of the head" and the "top of the head."[136] Phrenologists like Fowler boasted that their techniques were valuable in the assessment of domestic servants[137] and in the evaluation and purchase of enslaved people.[138] In both phrenological readings and contemporary AI-driven assessments, the presumed chain of causality—from immutable inner character traits to particular manifestations of exterior expressions—is irretrievably broken.[139] Categories like "adventurous" and "benevolent" cannot be statically applied to a person's character; such broadly construed categories have little to do with a worker's potential suitability for a job, and individual physical manifestations of expressions are practically useless proxies for either.[140] While such assessments using "physiognomic vision" seem superficially easy and attractive, they are, at best, arbitrary—and, at worse, reifications of existing biases, animus, and stereotypes.

B. *Teaching & Education*

Similar to its labor application, phrenology was also celebrated for both optimizing and individualizing education.[141] To Fowler, "[a]ll teachers would be more successful if, by the aid of [p]hrenology, they trained their pupils with reference to their mental

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[135]   *See, e.g.*, *DuShaun Thompson*, INCLUSIVE.HR, https://www.inclusive.hr/p/profile/blueprint/643/ [https://perma.cc/AW9U-WD7U] (showing a sample, "Inclusive.hr candidate" blueprint based on a thirty-second recorded video cover letter); Raghavan et al., *supra* note 133.

[136]   *See* SIZER, *supra* note 76, at 10.

[137]   *See* Fowler, *supra* note 127, at 5 ("If you can select a servant phrenologically, you will have a good one.").

[138]   *Id.* ("I have been many times asked to go to decide on the developments of different slaves who have been in the market.").

[139]   *See* Mona Sloane et al., *A Silicon Valley Love Triangle: Hiring Algorithms, Pseudo-Science, and the Quest for Auditability*, 3 PATTERNS, no. 100425, Feb. 11, 2022, at 1.

[140]   *See, e.g.*, Abigail Jacobs & Hanna Wallach, *Measurement and Fairness*, *in* FAccT '21: PROCEEDINGS OF THE 2021 ACM CONFERENCE ON FAIRNESS, ACCOUNTABILITY, AND TRANSPARENCY 375 (2021), https://dl.acm.org/doi/pdf/10.1145/3442188.3445901 [https://perma.cc/V3JB-EC8G]; Agüera y Arcas et al., *supra* note 1; Schlag, *supra* note 2; Ginzburg, *supra* note 41.

[141]   Fowler, *supra* note 127, at 8.

capacities."[142] Physiognomic AI systems deployed in educational contexts make similar promises. Such "student-centered" AI surveillance and computer vision technologies claim to be able to both monitor and evaluate student propensities for cheating[143] and paying attention,[144] among others. Remote proctoring technologies,[145] which purport to detect cheating and suspiciousness[146] via AI-driven monitoring of students and test-takers, have sparked national outcry from students,[147] privacy advocacy groups,[148] and federal

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[142] *Id.*; Sizer, *supra* note 73, at 423 ("All teachers should acquire all the knowledge which Phrenology can give them in regard to the nature of the faculties, their modes of operation, and their single or combined activity. Certainly those who are to educate mind, who are to train faculty, who are to lead the young in the path of knowledge, and train the character to act in harmony with the highest morality, should themselves be as thoroughly drilled as possible in regard to the nature of the faculties they have to deal with.").

[143] *See, e.g.*, Drew Harwell, *Cheating-Detection Companies Made Millions During the Pandemic. Now Students Are Fighting Back*, WASH. POST (Nov. 12, 2020), https://www.washingtonpost.com/technology/2020/11/12/test-monitoring-student-revolt/ [https://perma.cc/E7ML-AQ7B].

[144] For example, Catholic Memorial School in Roxbury, MA was reported in 2019 to use the headband devices developed by BrainCo, a Boston technology company, for their students. *See* Paula Ebben, *Catholic Memorial Students Use Headbands to Harness Brainpower*, CBS BOSTON (Dec. 16, 2019, 5:35 PM), https://boston.cbslocal.com/2019/12/16/catholic-memorial-brainco-headset-technology/ (last visited Apr. 14, 2022). BrainCo claims that the headband devices can detect and quantify students' attention levels through brain-activity detection and allow teachers to pull up a screen to see which student is paying attention and which one is not. *Id.*; *see also* ARTICLE 19, EMOTIONAL ENTANGLEMENT: CHINA'S EMOTION RECOGNITION MARKET AND ITS IMPLICATIONS FOR HUMAN RIGHTS (2021), https://www.article19.org/wp-content/uploads/2021/01/ER-Tech-China-Report.pdf [https://perma.cc/K5WH-KL8T].

[145] *See, e.g.*, *Automated or Live Exam Monitoring*, PROCTORIO, https://proctorio.com/platform/exam-monitoring [https://perma.cc/GX9W-U69L].

[146] *See Data Analytics, Track Integrity for Test Taker Success*, PROCTORIO, https://proctorio.com/platform/data-analytics [perma.cc/PHM5-VGVZ] ("Proctorio scans the written assignment for similarities to other documents and resources within the institution's locally-stored repository and across the internet," and "Proctorio spots formatting anomalies in documents that other plagiarism detection tools might miss, including hidden or invisible text and embedded images.").

[147] *See* Todd Feathers & Janus Rose, *Students Are Rebelling Against Eye-Tracking Exam Surveillance Tools*, VICE (Sept. 24, 2020, 9:00 AM), https://www.vice.com/en_us/article/n7wxvd/students-are-rebelling-against-eye-trackingexam-surveillance-tools [https://perma.cc/6W5J-H5C2]; Khari Johnson, *ExamSoft's Remote Bar Exam Sparks Privacy and Facial Recognition Concerns*, VENTUREBEAT (Sept. 29, 2020, 9:07 AM), https://venturebeat.com/2020/09/29/examsofts-remote-bar-exam-sparks-privacy-and-facial-recognition-concerns/ [https://perma.cc/W6FP-HWQW].

[148] *See, e.g.*, *Consumer Cases: In re Online Test Proctoring Companies*, ELEC. PRIV. INFO. CTR. (Dec. 9, 2020), https://epic.org/documents/in-re-online-test-proctoring-

lawmakers[149] in the wake of their proliferation during the COVID-19 pandemic.[150] In both surveilling and assessing the capabilities of students based on digitally monitorable behavior, physiognomic AI systems in education are part of a broader push on the part of some policymakers toward using bioinformatic and sociogenomic models to make decisions about education policies—a trend that threatens to reanimate biological determinism, eugenics, and scientific racism as digitally-mediated motivating discourses in education.[151]

C. *Policing & Criminal Justice*

Phrenology positioned itself as key mechanism for making determinations about criminality and the adjudication of justice; the drive to automatically determine criminality through AI claims similar utility.[152] Fowler argued that, "[a] knowledge of [p]hrenology helps us to understand our neighbour and comprehend the peculiarities of his disposition . . ." and positions the phrenological practice as deeply beneficial to those who administer law and justice.[153] To the phrenologist, "there are natural tendencies to various classes of mental excess, and law should be administered according to these

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companies/ [https://perma.cc/927F-MR8X]; Jason Kelley et al., *EFF Tells California Supreme Court Not to Require Examsoft for Bar Exam*, ELEC. FRONTIER FOUND. (Sept. 10, 2020), https://www.eff.org/deeplinks/2020/09/eff-tells-california-supreme-court-not-require-examsoft-bar-exam [https://perma.cc/N6ZA-4JS4].

[149]   For review, see Letter from Richard Blumenthal et al., U.S. Sen., to Sebastian Vos, Chief Exec. Officer, ExamSoft (Dec. 3, 2020), https://www.blumenthal.senate.gov/imo/media/doc/2020.12.3%20Letter%20to%20Ed%20Testing%20Software%20Companies%20ExamSoft.pdf [https://perma.cc/PW5B-UKK4].

[150]   *See generally* Ben Williamson & Rebecca Eynon, *Historical Threads, Missing Links, and Future Directions in AI in Education*, 45 LEARNING, MEDIA & TECH., 223 (2020).

[151]   *See, e.g.*, Ben Williamson, *Bringing Up the Bio-Datafied Child: Scientific and Ethical Controversies Over Computational Biology in Education*, 15 ETHICS & EDUC. 444 (2020).

[152]   *See HU Facial Recognition Software Predicts Criminality*, HARRISBURG UNIV. (May 5, 2020), https://web.archive.org/web/20200506013352/ [https://perma.cc/EQU3-S2CE] ("With 80 percent accuracy and with no racial bias, the software can predict if someone is a criminal based solely on a picture of their face. The software is intended to help law enforcement prevent crime."); Hashemi, *supra* note 9; Wu & Zhang, *supra* note 6. *But see* COAL. FOR CRITICAL TECH., *supra* note 14 ("Data generated by the criminal justice system cannot be used to 'identify criminals' or predict criminal behavior. Ever."); SARAH BRAYNE, PREDICT AND SURVEIL: DATA, DISCRETION, AND THE FUTURE OF POLICING 56 (2020).

[153]   Fowler, *supra* note 127, at 3.

strong predilections."[154] Phrenologists understood their social re-
form projects to include the identification and classification of crim-
inal-based cranial and facial features and the popularization of such
diagnoses as a mechanism to gain publicity for their discipline.[155]

Today, both implicitly or explicitly, physiognomic claims to un-
derpin a wide array of technical systems marketed to and used by
law enforcement entities. Israeli startup Faception, for example, pro-
motes itself as the "first-to-technology and first-to-market with pro-
prietary computer vision and [ML] technology for profiling people
and revealing their personality based only on their facial image."[156]
Research on its ability to identify criminality from facial images has
proliferated.[157] As Agüera y Arcas notes, "[t]he Faception team [is]
not shy about promoting applications of their technology, offering
specialized engines for recognizing 'High IQ,' 'White-Collar Of-
fender,' 'Pedophile,' and 'Terrorist' from a face image. Their main
clients are in homeland security and public safety."[158] As part of a
much wider set of predictive analytical systems deployed by law en-
forcement and criminal justice organizations,[159] physiognomic AI

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[154]   *Id.* at 12.
[155]   *See* THOMPSON, *supra* note 14, at 3 ("In the United States, phrenology shaped the
production of medicolegal knowledge around crime, the treatment of the criminal, and
sociocultural expectations about the cause of crime."). *See also* JONATHAN FINN,
CAPTURING THE CRIMINAL IMAGE: FROM MUG SHOT TO SURVEILLANCE SOCIETY, at ix
(2009) ("By the close of the nineteenth century, the photographic representation of the
criminal body was enmeshed in a socially-defined binary of normal versus deviant, and in
questions of power, surveillance, and privacy."); Tovino, *supra* note 108, at 202
("Phrenology continued to influence American legal decisions as late as 1908, when the
Superior Court of Pennsylvania granted a divorce to an emotionally abused woman based
in part on her husband's testimony that he had deficient self-esteem, as diagnosed by two
phrenologists.").
[156]   FACEPTION, https://www.faception.com [https://perma.cc/K6W3-YPAV]; Matt
McFarland, *Terrorist or Pedophile? This Start-up Says it Can Out Secrets by Analyzing
Faces*, WASH. POST (May 24, 2016), https://www.washingtonpost.com/news/innovations/
wp/2016/05/24/terrorist-or-pedophile-this-start-up-says-it-can-out-secrets-by-analyzing-
faces/ [https://perma.cc/U8ED-SAFN].
[157]   *See, e.g.*, Hashemi, *supra* note 9; Wu & Zhang, *supra* note 6.
[158]   Agüera y Arcas et al., *supra* note 1.
[159]   *See, e.g.*, COAL. FOR CRITICAL TECH., *supra* note 14; BROWNE, *supra* note 21; Brayne,
supra note 146; BRIAN JEFFERSON, DIGITIZE AND PUNISH: RACIAL CRIMINALIZATION IN THE
DIGITAL AGE 6 (2020) ("[C]riminalization in the age of digital computation does not
signify a new cultural logic so much as it performs an upgrade of entrenched modes of
social differentiation and dominance.").

systems and the racist logics underpinning their uses have already been responsible for mistaken arrests of Black citizens.[160] And more broadly, the canard that criminality can be read off any person shifts the stance of law enforcement officials from a presumption of innocence to a presumption of guilt.[161]

D. *Commercial Applications*

Phrenologists advocated that merchants take up their practice: "[p]hrenology," Fowler claimed, "explains much with reference to failures and success[es] in business."[162] Faception also offers retail and events industry clients "computer-vision and AI technologies that analyze a person's facial image and automatically reveals his personality, enabling retailers to get valuable intelligence allowing them to personalize their communication with their customers."[163] The company claims their technologies "can indicate whether a shopper may be an early adopter, a compulsive buyer, or an adventurous type."[164] Major retail developers such as Cadillac-Fairview

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[160]   *See* Kashmir Hill, *Wrongfully Accused by an Algorithm*, N.Y. TIMES, https://www.nytimes.com/2020/06/24/technology/facial-recognition-arrest.html [https://perma.cc/H7QQ-S53U] (Aug. 3, 2020).

[161]   *See* Finn, *supra* note 155, at 90 ("Criminality exists in every record of the digital archive and in every body those records represent. It is something that is latent in all of us, and therefore, awaiting identification.").

[162]   Fowler, *supra* note 127, at 15. *See also* SIZER, *supra* note 76, at 424 ("The merchant who is a phrenologist can take account of all the mental differences in men, and adapt himself to each in an agreeable manner, so as to hold his customer, accomplish business, and avoid being deceived himself by trusting those who are tricky or unworthy."); Rory W Spanton & Olivia Guest, *Measuring Trustworthiness or Automating Physiognomy? A Comment on Safra, Chevallier, Grèzes, and Baumard*, ARXIV (Feb. 17, 2020), https://arxiv.org/pdf/2202.08674.pdf [https://perma.cc/K9MH-S5N3].

[163]   *Retail and Events Industry*, FACEPTION, https://www.faception.com/copy-of-financial-services [https://perma.cc/GC88-4LJL] ("Equipped with this type of information, the retail attendant can offer customers products they really care about and communicate in a manner that motivates them to buy. The result: dramatically improve customer experience and increase his lifetime value. Our technology can be implemented on existing security cameras or on new cameras o [sic] the retail floor and the information can be made available to the sales representatives at their counter or on their mobile phones.").

[164]   *Id.*

in Canada[165] and NewMark Merrill Cos in the United States[166] have tested FRT systems on their properties to infer customers' ages and genders, often with little notice to them.

E. Emotion Analysis

With their focus on how inner tendencies could be discerned from the exterior of the body, early phrenologists were implicitly concerned with human emotions and their associated expressions. Fowler averred that, "[a] knowledge of [p]hrenology helps us to understand our neighbor and comprehend the peculiarities of his disposition."[167] Later phrenologists theorized a causal link between purported faculties of the brain (as expressed by the shape of the head) and particular emotive tendencies more explicitly.[168] Contemporary AI-powered emotion detection and analysis systems, particularly as they are marketed and discussed in the press, often assume a similar connection between a person's subjective emotional state and its outward expression.[169] Often grounded in the Basic Emotion Theory ("BET") developed by American psychologist Paul

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[165]   *See, e.g.*, *Cadillac Fairview Collected 5 Million Shoppers' Images*, Off. of Priv. Comm'r of Can. (Oct. 29, 2020), https://www.priv.gc.ca/en/opc-news/news-and-announcements/2020/nr-c_201029/ [https://perma.cc/DHN2-2WAZ].

[166]   *See, e.g.*, *Shopping Centers Exploring Facial Recognition in Brave New World of Retail*, NewMark Merrill Cos. (July 2, 2019), https://www.newmarkmerrill.com/shopping-centers-exploring-facial-recognition-in-brave-new-world-of-retail/ [https://perma.cc/NZU3-R9DC].

[167]   Fowler, *supra* note 127, at 3.

[168]   *See, e.g.*, Louis Allen Vaught, Vaught's Practical Character Reader 85 (1902) ("Those who have control of their appetites and feelings regulate their lips like the first outline; those who have not will have a position of the lips like the second.").

[169]   *See, e.g.*, Elaine Sedenberg & Josh Chuang, *Smile for the Camera: Privacy and Policy Implications of Emotion AI*, arXiv (Sept. 2017), https://arxiv.org/pdf/1709.00396.pdf [https://perma.cc/LZ3C-XL95]; Andrew McStay, Emotional AI: The Rise of Empathic Media 55 (2018); Luke Stark, *Algorithmic Psychometrics and the Scalable Subject*, 48 Soc. Stud. Sci. 204 (2018); Luke Stark, *Affect and Emotion in digitalSTS*, *in* digitalSTS: A Field Guide for Science & Technology Studies 117 (Janet Vertesi & David Ribes eds., 2019); Kate Crawford et al., AI Now 2019 Report (2019), https://ainowinstitute.org/AI_Now_2019_Report.pdf [https://perma.cc/RJZ4-TFMX]; Luke Stark & Jesse Hoey, *The Ethics of Emotion in Artificial Intelligence Systems*, *in* FAccT '21: Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency 782 (2021), https://dl.acm.org/doi/pdf/10.1145/3442188.3445939 [https://perma.cc/QY4D-GK9H]; Kate Crawford, Atlas of AI 151 (2021).

Ekman,[170] these systems assume that discrete categories of human emotion are universally legible via external signals such as movements of the face[171] or tones of voice.[172] They are predicated on the idea that emotions motivate human behavior in ways that are hard to consciously suppress—claims that have been contested on multiple scientific and social grounds.[173] As a result, the complexity of human emotions are frequently flattened by these systems into one more physiognomic indicator; for instance, emotion analysis technologies have been used to obtain "scientific" evidence of criminal culpability based on the purported degree of guilt expressed by an accused individual.[174]

F. *Matchmaking*

Fowler celebrated phrenology as, "an all-important aid in choosing suitable companions for life,"[175] and contemporary physiognomic AI systems make similar claims about their ability to match and sort individuals into homogenous, homophilous, and implicitly harmonious groups.[176] Published claims that such analyses can

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[170]   *See* Paul Ekman & Wallace V. Friesen, *Constants Across Cultures in the Face and Emotion*, 17 J. PERSONALITY & SOC. PSYCH. 124 (1971); PAUL EKMAN & ERIKA L ROSENBERG, WHAT THE FACE REVEALS: BASIC AND APPLIED STUDIES OF SPONTANEOUS EXPRESSION USING THE FACIAL ACTION CODING SYSTEM (FACS) 3 (2005).

[171]   *See* Ekman & Friesen, *supra* note 170, at 128 ("The results . . . clearly support our hypothesis that particular facial behaviors are universally associated with particular emotions.").

[172]   *See* Semel, *supra* note 77.

[173]   *See, e.g.*, Lisa Feldman Barrett, *Are Emotions Natural Kinds?*, 1 PERSPS. ON PSYCH. SCI. 28 (2006); RUTH LEYS, THE ASCENT OF AFFECT 270 (2017); LISA FELDMAN BARRETT, HOW EMOTIONS ARE MADE: THE SECRET LIFE OF THE BRAIN 42 (2017); Barrett et al., *supra* note 3, at 46 (" . . . the facial configurations in question are not 'fingerprints' or diagnostic displays that reliably and specifically signal particular emotional states regardless of context, person, and culture. It is not possible to confidently infer happiness from a smile, anger

from a scowl, or sadness from a frown, as much of current technology tries to do when applying what are mistakenly believed to be the scientific facts.").

[174]   *See* ARTICLE 19, *supra* note 144, at 19 ("The argument driving this [work]—and all uses of emotion recognition in public security settings—is the belief that people feel guilt before committing a crime, and that they cannot mask this 'true' inner state in facial expressions so minor or fleeting that only high-resolution cameras can detect them.").

[175]   Fowler, *supra* note 127, at 14.

[176]   *See* Chun et al., *supra* note 30.

determine sexual orientation[177] and political affiliation from images of a face[178] have been roundly critiqued and debunked.[179] However, physiognomic AI remains an appealing commercial hook for other kinds of matchmaking. For instance, by mastering phrenological practice, Fowler underscored that, "one is enabled to find that combination of faculties and temperaments which will produce happiness in married life."[180] In July 2015, the United States Government Accountability Office ("U.S. GAO") identified "online dating" as an industry where "facial recognition technology has applications that can be useful to consumers and businesses."[181] The U.S. GAO highlighted that "some online dating companies use facial recognition to determine the facial features a user finds most attractive and search their database for individuals with similar features."[182] More broadly, a plethora of facial filters available via social media platforms sort and categorize users into various categories, and even alter or re-animate their images according to these same categories.[183] Most infamously, filters available via smartphone applications such as FaceApp often allow users to modify their faces based on physiognomic racial stereotypes.[184]

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[177]   *See* Wang & Kosinski, *supra* note 6.

[178]   *See* Kosinski, *supra* note 12.

[179]   *See* Agüera y Arcas et al., *supra* note 1.

[180]   Fowler, *supra* note 127, at 14.

[181]   U.S. GOV'T ACCOUNTABILITY OFF., GAO-15-621, FACIAL RECOGNITION TECHNOLOGY—COMMERCIAL USES, PRIVACY ISSUES, AND APPLICABLE FEDERAL LAW 7, 10 (2015), https://www.gao.gov/assets/680/671764.pdf [https://perma.cc/EQ56-QY29].

[182]   *Id.*; *see also* Caitlin Dewey, *We Tried Out the Facial Recognition Software that Match.com Will Use to Find People Who 'Look like Your Exes,'* WASH. POST (June 18, 2014), https://www.washingtonpost.com/news/the-intersect/wp/2014/06/18/we-tried-out-the-facial-recognition-software-that-match-com-will-use-to-find-people-who-look-like-your-exes/ [https://perma.cc/6ZJE-KC68].

[183]   *See, e.g.*, Stark, *supra* note 65; Stephen Monteiro, *Gaming Faces: Predictive and Diagnostic Face Scanning in Social Media and the Legacy of Racist Face Analysis*, INFO., COMMC'N & SOC'Y (Jan. 30, 2022), https://www.tandfonline.com/doi/abs/10.1080/1369118X.2021.2020867 [https://perma.cc/6K9N-24EY].

[184]   *See* Alex Hern, *FaceApp Forced to Pull 'Racist' Filters that Allow 'Digital Blackface,'* GUARDIAN (Aug. 10, 2017, 5:19 AM), https://www.theguardian.com/technology/2017/aug/10/faceapp-forced-to-pull-racist-filters-digital-blackface [https://perma.cc/YS3R-3VME].

V. Addressing Physiognomic AI

The reanimation of physiognomy and phrenology at scale through computer vision and ML[185] is a matter of urgent societal concern. This Article advocates for legislative action to forestall and roll back the proliferation of physiognomic AI systems in both public and private contexts. To that end, it offers a menu of potential policy levers to significantly limit the deployment of physiognomic AI, which we hope will both inspire and strengthen state and federal legislation and serve as conceptual models for jurisdictions around the globe.[186]

We begin our policy discussion by advocating for the abolition of physiognomic AI and by observing the paucity of procedural and

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[185]   *See, e.g.*, Agüera y Arcas et al., *supra* note 1 ("Rapid developments in artificial intelligence and machine learning have enabled scientific racism to enter a new era, in which machine-learned models embed biases present in the human behavior used for model development. Whether intentional or not, this 'laundering' of human prejudice through computer algorithms can make those biases appear to be justified objectively.").

[186]   Historical legal responses to phrenology—which was often grouped with other practices like "fortune telling, character reading, and mind reading"—in the United States include state and municipal prohibitions on the practice of phrenology, national broadcasting prohibitions on advertising the practice of phrenology, and limitations on the admission of evidence based on phrenology. *See, e.g.*, Tovino, *supra* note 128, at 203–05; GA. CODE ANN. § 36-1-15 (West 2020) ("The county governing authority may by proper Ordinance prohibit . . . the practice of fortunetelling, phrenology, astrology, clairvoyance, palmistry, or other kindred practices, businesses, or professions where a charge is made or a donation accepted for the services and where the practice is carried on outside the corporate limits of the municipality."); S.C. CODE ANN. § 16-17-690 (1976); LINCOLN, NEB., ORDINANCES § 9.40.030 (1997); AZUSA, CAL., MUN. CODE § 8.52.060 ("No person shall practice or profess to practice or engage in the business or art of . . . phrenology . . . or any similar business or art, who either solicits or receives a gift or fee or other consideration for such practice, or where admission is charged for such practice."); TELEVISION CODE §§ IV(12), IX(10) (NAT'L ASS'N OF BROADS., 19th ed. 1976); Gen. Elec. Co. v. Joiner, 522 U.S. 136, 153 n.6 (1997) (Stevens, J., concurring); United States v. Gipson, 24 M.J. 246, 249 (1987) ("At the bottom [of the scientific evidence hierarchy] lies a junk pile of contraptions, practices, techniques, etc., that have been so universally discredited that a trial judge may safely decline even to consider them, as a matter of law. To that level have been relegated such enterprises as phrenology, astrology, and voodoo."); JACK B. WEINSTEIN & MARGARET A. BERGER, 4 WEINSTEIN'S FEDERAL EVIDENCE § 702.05[3] (Joseph M. McLaughlin ed., 2d ed. 1997) ("The reliability requirement is designed to exclude so-called—junk science—conjuring up memories of the phrenology craze where the bumps on a person's head were felt in order to determine character traits from federal courts. At the very least, scientific opinions offered under Rule 702 must be based on sound scientific methods and valid procedures.").

managerial regimes of fairness, accountability, and transparency in addressing physiognomic AI. From there, we posit regimes of U.S. consumer protection law, biometric privacy law, and civil rights law as vehicles for rejecting physiognomy's digital renaissance. First, we argue that physiognomic AI should be categorically rejected as oppressive and unjust. Second, we argue lawmakers should declare physiognomic AI to be unfair and deceptive *per se*. Third, we argue that lawmakers should enact or expand biometric privacy laws to prohibit physiognomic AI. Fourth, we argue that lawmakers should prohibit physiognomic AI in places of public accommodation.

A. Abolition: Physiognomic AI Should Be Categorically Rejected as Oppressive and Unjust

We must situate our response to physiognomic AI in an abolitionist vision and praxis.[187] Abolition calls on us, as Patrisse Cullors writes, "not only to destabilize, deconstruct, and demolish oppressive systems, institutions, and practices, but also to repair histories of harm across the board."[188] Physiognomy and phrenology—in any form—are oppressive and unjust, and their disturbing renaissance through AI and ML technologies should be categorically rejected as such. As a matter of first principles, we must ask ourselves: do we want to live in a society where physiognomic AI is commonplace, routinely making or informing decisions that impact people's lives and opportunities? We must undoubtedly answer in the negative. Physiognomic AI is unjust in principle and in practice. It should be banned for all intents and purposes such that it is as legally and politically unpalatable as it is morally. The categorical rejection and abolition of physiognomic AI systems is not a new idea, but it remains a necessary one. The movement to ban FRT[189]—a subclass of

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[187] *See* Patrisse Cullors, *Abolition and Reparations: Histories of Resistance, Transformative Justice, and Accountability*, 132 HARV. L. REV. 1684 (2019); PAULO FREIRE, PEDAGOGY OF THE OPPRESSED 51 (Myra Bergman Ramos trans., Continuum 30th Anniversary ed. 2005) (1970) ("Functionally, oppression is domesticating. To no longer be prey to its force, one must emerge from it and turn upon it. This can be done only by means of the praxis: reflection and action upon the world in order to transform it.").

[188] Cullors, *supra* note 187, at 1686.

[189] *See* Hartzog & Selinger, *supra* note 68; BAN FACIAL RECOGNITION, https://www.banfacialrecognition.com/ [https://perma.cc/ZK3D-VNCY]; Lindsey Barrett, *Ban Facial Recognition Technologies for Children—And for Everyone Else*, 26 B.U. J. SCI. & TECH. L. 223, 275 (2020) ("Facial recognition technologies should be banned because

physiognomic AI—at the local,[190] state,[191] and federal[192] levels in the United States is testament to this animating spirit in our contemporary nation.

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they corrode privacy and due process, damage free expression, and enable dangerous discrimination, all while being difficult or impossible to avoid.").

[190]   Multiple municipalities have banned the use of facial recognition technology by city government outright, including (but not limited to): San Francisco (Kate Conger et al., *San Francisco Bans Facial Recognition Technology*, N.Y. TIMES (May 14, 2019), https://www.nytimes.com/2019/05/14/us/facial-recognition-ban-san-francisco.html [https://perma.cc/PU3J-6HE4]), Oakland (*Oakland Approves Face Recognition Surveillance Ban as Congress Moves to Require Government Technology*, ACLU (July 17, 2019), https://www.aclu.org/press-releases/oakland-approves-face-recognition-surveillance-ban-congress-moves-require-government [https://perma.cc/46B9-SS28]), Berkeley (Tom McKay, *Berkeley Becomes Fourth U.S. City to Ban Face Recognition in Unanimous Vote*, POPULAR RESISTANCE (Oct. 18, 2019), https://popularresistance.org/berkeley-becomes-fourth-u-s-city-to-ban-face-recognition-in-unanimous-vote/ [https://perma.cc/A258-YFGM]), Boston (Ally Jarmanning, *Boston Lawmakers Vote to Ban Use of Facial Recognition Technology by the City*, NAT'L PUB. RADIO (June 24, 2020), https://www.npr.org/sections/live-updates-protests-forracial-justice/2020/06/24/883107627/boston-lawmakers-vote-to-ban-use-of-facial-recognitiontechnology-by-the-city [https://perma.cc/NK4S-J46E]), and Somerville (*Somerville Becomes First East Coast City to Ban Government Use of Face Recognition Technology*, ACLU (June 28, 2019), https://www.aclu.org/press-releases/somerville-becomes-first-east-coast-city-ban-government-use-face-recognition [https://perma.cc/J4YH-V8HS]).

[191]   In 2020, we have seen numerous proposed state laws and regulations targeting AI-driven biometric surveillance. *See* H.B. 2644, 66th Leg., Reg. Sess. (Wash. 2020) (proposing to prohibit AI profiling in some public places, decision-making processes); H.B. 2856, 66th Leg., Reg. Sess. (Wash. 2020) (moratorium on the use of facial recognition in public accommodations as well as by government agencies in Washington State).

[192]   *See* Barrett, *supra* note 189, at 278 ("The goal of a comprehensive and federal ban on facial recognition may be lofty, but it is not impossible given the enormous shift in awareness and political will."). Senators Booker and Merkley introduced a bill that would ban federal uses of facial recognition technology and prohibit states and local entities from using federal funding for facial recognition technology until Congress passes legislation regulating it. *See* Ethical Use of Facial Recognition Act of 2020, S. 3284, 116th Cong. § 2 (2020); *see also Booker Introduces Bill Banning Facial Recognition Technology in Public Housing*, BOOKER SEN. (Nov. 1, 2019), https://www.booker.senate.gov/?p=press_release&id=1007 [https://perma.cc/MWZ6-F4ZT]. Senator Bernie Sanders called for a nationwide ban on facial recognition technology as part of his 2020 Presidential platform. *See* Shirin Ghaffary, *Bernie Sanders Wants to Ban Police Use of Facial Recognition Technology*, VOX (Aug. 10, 2019, 3:30 PM), https://www.vox.com/recode/2019/8/19/20812594/bernie-sanders-ban-facial-recognition-tech-police [https://perma.cc/9DW7-LW8M]; Candice Bernd, *States, 2020 Candidates Push Back Against Facial Recognition Technology*, TRUTHOUT (Sept. 24, 2019), https://truthout.org/articles/states-2020-candidates-push-back-against-facial-recognition-technology/ [https://perma.cc/64W8-5RMW]. For House Oversight hearings on facial recognition technology, see *Facial Recognition Technology (Part 1): Its Impact on our Civil Rights and Liberties: Hearing Before the H. Comm on*

Legislative and regulatory developments in the European Union are a further testament to the categorical rejection and abolition of physiognomic AI systems. The EU has advanced categorical prohibitions on certain forms of AI. The recently-published European Union Artificial Intelligence Regulation ("EU AI Regulation") delineates prohibited forms of AI, including, but not limited to:

> AI systems by public authorities or on their behalf for the evaluation or classification of the trustworthiness of natural persons over a certain period of time based on their social behaviour or known or predicted personal or personality characteristics, with the social score leading to either or both of the following: (i) detrimental or unfavourable treatment of certain natural persons or whole groups thereof in social contexts which are unrelated to the contexts in which the data was originally generated or collected; (ii) detrimental or unfavourable treatment of certain natural persons or whole groups thereof that is unjustified or disproportionate to their social behaviour or its gravity.[193]

These prohibitions fall squarely within those we argue for in this Article.

Aiming to deepen the prohibitions of the EU AI Regulation, the European Data Protection Board ("EDPB") and European Data Protection Supervisor ("EDPS") called for "a general ban on any use of AI for automated recognition of human features in publicly accessible spaces, such as recognition of faces, gait, fingerprints, DNA, voice, keystrokes and other biometric or behavioural signals, in any context," as well as "AI systems using biometrics to categorize individuals into clusters based on ethnicity, gender, political or sexual

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Oversight and Reform, 116th Cong. (2019); *Facial Recognition Technology (Part II): Ensuring Transparency in Government Use: Hearing Before the H. Comm on Oversight and Reform*, 116th Cong. (2019); *Facial Recognition Technology (Part III): Ensuring Commercial Transparency & Accuracy: Hearing Before the H. Comm on Oversight and Reform*, 116th Cong. (2020).

[193] *See Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts*, at 43, COM (2021) 206 final (Apr. 21, 2021).

orientation, or other grounds on which discrimination is prohibited . . . ."[194] The EDPB and the EDPS also argued that "the use of AI to infer emotions of a natural person is highly undesirable and should be prohibited, except for very specified cases, such as some health purposes, where the patient emotion recognition is important, and that the use of AI for any type of social scoring should be prohibited."[195]

Ultimately, in working toward the abolition of physiognomic AI systems, lawmakers must not legitimize physiognomic AI through procedural safeguards. Procedural rules and safeguards—such as notice and consent, opt-in or out rights, or meaningful human review[196]—are principally and practically ill-equipped[197] to address the full slate of harms presented by physiognomic AI.[198] Trenchant critiques of "managerialization" in the context of privacy law[199] further illustrate why procedural rules would be inadequate for physiognomic AI.[200] Moreover, reframing the policy discourse from

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[194]   *See* European Data Protection Board Press Release, *supra* note 27.

[195]   *See id.*

[196]   Take, for example, "meaningful human review," which features in policy proposals jettisoned by private industry, as a central safeguard for the roll out of physiognomic AI in public life and in legally significant decision making. Imagine if old-school, caliper-toting phrenology was used at scale today in virtually every facet of public life. Throwing meaningful human review into the mix evades the question of whether phrenology is wrong in principle. It casts phrenology as a problem of process. For those who seek procedural solutions the problem isn't measuring people's skulls and grading their worth, it's making sure you have a supervisor.

[197]   Just as they are insufficient to addressing other privacy harms. *See* Daniel J. Solove, *Introduction: Privacy Self-Management and the Consent Dilemma*, 126 HARV. L. REV. 1880, 1881 (2013).

[198]   *But see* Barrett, *supra* note 189, at 278 ("Enacting procedural rules rather than banning facial recognition is, of course, preferable to no regulation at all.").

[199]   *See* JULIE E. COHEN, BETWEEN TRUTH AND POWER: THE LEGAL CONSTRUCTIONS OF INFORMATIONAL CAPITALISM 143–47 (2019); Ari E. Waldman, *Privacy Law's False Promise*, 97 WASH. U. L. REV. 773, 808 (2020).

[200]   *See, e.g.*, Waldman, *supra* note 199, at 809–10, 834. Waldman notes:

> Some privacy professionals see privacy as one part of a compliance ecosystem focused on enhancing efficiency, speed, and productivity, while reducing the risk of debilitating fines. . . . [A]lthough consumers can benefit when companies start thinking about privacy as good for business, the value proposition is nevertheless shifted from what helps consumers to what helps corporations. When that happens, those responsible for compliance advance managerial, rather than substantive, privacy goals . . . merely symbolic structures are often

"whether" to "how" to deploy physiognomic AI tacitly accepts the broad-based application of physiognomy to make important determinations about people's lives. Given that physiognomic AI is unjust in principle and in practice, the pursuit of procedural safeguards and technical fixes obfuscates and, in doing so, legitimates physiognomic ideas and their applications. The issue of physiognomy is not one of implementation; the morality of physiognomy is not resolvable through changes to input data and deployment. Subjecting everyone to physiognomy equally and transparently also misses the point: if state and federal lawmakers are to pursue legislative action, it should categorically reject physiognomic AI.

B. Consumer Protection Law: Lawmakers Should Declare Physiognomic AI to be Unfair and Deceptive Per Se

Consumer protection law is a necessary and important tool in abolishing physiognomic AI. The bedrock of U.S. consumer protection doctrine is its prohibition on unfair and deceptive acts and practices in trade and commerce.[201] Section 5 of the Federal Trade Commission Act prohibits unfair and deceptive acts and practices and empowers the Federal Trade Commission ("FTC") to enforce the Act's prohibitions.[202]

Responsibility for protecting against unfair and deceptive practices, however, does not rest solely with the FTC. Indeed, every state has parallel and supplementary "unfair or deceptive acts or

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being used to advance management goals to the detriment of consumers. . . . [Privacy] law is at risk . . . it is undergoing a process of what Lauren Edelman called legal endogeneity, whereby systems that have the veneer of legality—paper trails, assessments and audits, internal and external policies, to name just a few—take the place of actual adherence to the law. And when these merely symbolic structures proliferate, they undermine the substantive power of the law and shift the discourse of power, all to the detriment of consumer privacy.

Id. Julie E. Cohen, *Information Privacy Litigation as Bellwether for Institutional Change*, 66 DePaul L. Rev. 535, 535 (describing the track records of private litigation in vindicating privacy harms as "stunningly poor" as the result of "denial of standing, enforcement of boilerplate waivers, denial of class certification, disposal via opaque multidistrict litigation proceedings, and cy pres settlements.").

[201]   15 U.S.C. § 45.

[202]   *Id.* § 45.

practices" statutes or "UDAP" statutes.[203] These statutes empower state authorities, such as State Attorneys General Offices, and, in some cases, private litigants to enforce consumer protection laws.[204] While state UDAP statutes parallel the language of Section 5 of the FTC Act, they often have more teeth in terms of enforcement, including private rights of action, affording minimum and multiple damages, as well as attorney's fees for the prevailing consumer plaintiff.[205] Further, state legislatures often declare specific acts or practices to be unfair and deceptive in themselves.[206]

The reanimation of racist pseudoscience at scale through computer vision and ML raises obvious problems not only of unfairness and deception, but also of immorality and oppression. Historically, policy and moral dimensions were central to the determination of unfairness, where the traditional criteria for unfairness consisted of three prongs: (1) whether the practices, without necessarily having been previously considered unlawful, offends public policy as it has

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[203]   *See generally* NAT'L CONSUMER L. CTR., UNFAIR AND DECEPTIVE ACTS AND PRACTICES (7th ed., 2008); CAROLYN L. CARTER, NAT'L CONSUMER L. CTR., CONSUMER PROTECTION IN THE STATES: A 50-STATE REPORT ON UNFAIR AND DECEPTIVE ACTS AND PRACTICES STATUTES (2009), https://www.nclc.org/images/pdf/pr-reports/report-udap-50-states.pdf [https://perma.cc/UN66-TLKK]; Marshall A. Leaffer & Michael H. Lipson, *Consumer Actions Against Unfair or Deceptive Acts or Practices: The Private Uses of Federal Trade Commission Jurisprudence*, 48 GEO. WASH. L. REV. 521 (1980); Jeff Sovern, *Private Actions Under the Deceptive Trade Practices Acts: Reconsidering the FTC Act as Rule Model*, 52 OHIO ST. L.J 437 (1991).

[204]   *See generally* NAT'L CONSUMER L. CTR., *supra* note 203; CAROLYN L. CARTER, *supra* note 203.

[205]   *See generally* NAT'L CONSUMER L. CTR., *supra* note 203; CAROLYN L. CARTER, *supra* note 203.

[206]   *See, e.g.*, Washington State: RCW 18.185.210 (bail bond agents), RCW 19.16.440 (collection agencies), RCW 19.100.190 (franchises), RCW 19.110.170 (business opportunity fraud), RCW 19.134.070(5) (credit service agencies), RCW 19.275.040 (pyramid schemes), RCW 64.36.330, .170 (time share sales), RCW 18.11.260 (auctions), RCW 19.158.010, .030 (commercial telephone solicitation), RCW 19.170.010 (advertising prizes and promotions), RCW 19.182.150 (Fair Credit Reporting Act), RCW 19.250.040 (personal wireless numbers), RCW 26.33.400(3) (adoption advertising), RCW 31.45.190 (check cashers), RCW 46.70.310 (formerly Unfair Motor Vehicle Practices—Dealers' Licenses), RCW 46.71.070 (automotive repair), RCW 49.60.030(3) (discrimination, civil rights), RCW 63.10.050 (consumer leases of motor vehicles), and RCW 80.36.400(3) (automatic dial answer services).

been established by statutes, the commonly law, or otherwise;[207] (2) whether it is immoral, unethical, oppressive, or unscrupulous; and (3) whether it causes substantial injury to consumers.[208]

While the federal unfairness doctrine in U.S. consumer protection law has lost its original and arguably intuitive meaning based on moral considerations and has become more of a cost-benefit analysis,[209] legislatures at the state and federal levels remain empowered to declare specific acts unfair and deceptive.[210] For example, in 2020, members of the Washington State House of Representatives proposed legislation to declare the use of "artificial intelligence-enabled profiling"[211] in places of public accommodation[212] and in legally significant decision-making[213] to be an unfair or deceptive act

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[207] Whether, in other words, it is within at least the penumbra of some common law, statutory, or other established concept of unfairness.

[208] This language was originally used by the Commission in a proposed regulation that would have required a health warning in cigarette advertising. *See* Unfair or Deceptive Advertising and Labeling of Cigarettes in Relation to the Health Hazards of Smoking, 29 Fed. Reg. 8324, 8355 (1964). The rule was later superseded by legislation requiring a warning label in ads an on packages for cigarettes. Cigarette Labeling and Advertising Act of 1965, 15 U.S.C. §§ 1331–1340.

[209] The Federal Trade Commission issued a policy statement on unfairness in 1980 that shifted primary emphasis to consumer injury, which must be substantial, not outweighed by countervailing benefits, and must be an injury that consumers could not reasonably avoid. *See* 15 U.S.C. § 45(n). Public policy has become a secondary confirming factor, and public morality has been dropped completely. *Id.* The policy was codified into the FTC Act in 1994. Thus, the unfairness doctrine in U.S. consumer protection law lost its original intuitive meaning based on moral considerations—becoming more of a cost-benefit analysis. *See generally* Neil W. Averitt, *The Meaning of "Unfair Acts or Practices" in Section 5 of the Federal Trade Commission Act*, 21 B.C. L. REV. 227 (1981).

[210] *See, e.g.*, H.B. 2644, 66th Leg., Reg. Sess. (Wash. 2020).

[211] *See id.* (defining artificial intelligence-enabled profiling as "the automated or semiautomated process by which the external or internal characteristics of an individual are analyzed to determine, infer, or categorize an individual's state of mind, character, propensities, protected class status, political affiliation, religious beliefs or religious affiliation, immigration status, or employability.").

[212] *Id.* § 3(1) ("A person may not operate, install, or 20 commission the operation or installation of equipment incorporating 21 artificial intelligence-enabled profiling in any place of public 22 resort, accommodation, assemblage, or amusement, as defined in RCW 23 49.60.040.").

[213] *Id.* ("A person may not use artificial intelligence-enabled profiling to make decisions that produce legal effects or similarly significant effects concerning consumers. Decisions that include legal effects or similarly significant effects concerning consumers include, without limitation, denial or degradation of consequential services or support, such as financial or lending services, housing, insurance, educational enrollment, criminal justice,

in trade or commerce and an unfair method of competition for the purpose of applying Washington's Consumer Protection Act.[214]

Without *per se* status (or a revamped unfairness doctrine), we invite a battle of physiognomic substantiation. Rather than declaring that physiognomy and phrenology cannot work and rejecting it principally, the FTC and state attorneys general will have to fight every possible instance of physiognomic AI. This shifts power to developers of physiognomic AI and invites further rationalization and normalization of physiognomic logics. Physiognomy and phrenology are racist pseudosciences that are intrinsically immoral, unethical, oppressive, and unscrupulous, and physiognomic AI ought be regarded and regulated as such. Thus, lawmakers should declare physiognomic AI as a *per se* unfair and deceptive practice.

C. *Biometric Law: Lawmakers Should Enact or Expand Biometric Privacy Laws to Prohibit Physiognomic AI*

While physiognomic AI is not wholly biometric—also involving "soft" biometric and non-biometric data[215]—the use of AI systems for classification, detection, and prediction based on the human body fall squarely within the realm of biometric regulation and policy discourse. In the United States, Illinois's Biometric Information Privacy Act ("BIPA")[216] has emerged as both a model[217] and "high

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employment opportunities, health care services, and access to basic necessities, such as food and water.").

[214]   *Id.* § 4(1) ("The legislature finds that the practices covered by this chapter are matters vitally affecting the public interest for the purpose of applying the consumer protection act, chapter 19.86 RCW. A violation of this chapter is not reasonable in relation to the development and preservation of business and is an unfair or deceptive act in trade or commerce and an unfair method of competition for the purpose of applying the consumer protection act, chapter 19.86 RCW.").

[215]   Note also that physiognomic AI as process is largely non-biometric (i.e., its purpose is not to identify a specific individual but rather to identify natural characteristics, capabilities, and future social outcomes of specific individuals).

[216]   Biometric Information Privacy Act, 740 ILL. COMP. STAT. 14/15 (2022).

[217]   CRAWFORD ET AL., *supra* note 169, at 33 (2019) ("Several proposals, such as the Florida Biometric Privacy Act, the California Consumer Privacy Act, Bill S. 1385 in Massachusetts, NY SB 1203 in New York, and HB1493 in Washington, are explicitly modeled after Biometric Information Privacy Act (BIPA) . . . .").

watermark"[218] for biometric privacy legislation.[219] Not only does BIPA empower individuals to sue for effectively any authorized collection and use of their biometric data by a private actor, it also categorically delimits prohibited biometric practices, such as profiting from an individual's biometrics.[220] Here, physiognomic AI could serve as an additional prohibited category of biometric practice. Thus, state and federal lawmakers should expand these categorical prohibitions to include instances of physiognomic AI as per this Article's definition.

D. Antidiscrimination Law: Lawmakers Should Prohibit Physiognomic AI in Places of Public Accommodation

Physiognomy and phrenology, with or without computer vision, is anathema to basic principles of civil rights. Physiognomic AI at scale thus raises serious questions about the just and equitable distribution of rights and opportunities as well as individual dignity in social life. Places of public accommodation[221] support access to

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[218]   *Id.* ("This is especially true after the Ninth Circuit Court of Appeals approved the pursuit of an Illinois class-action lawsuit under BIPA against Facebook's use of facial-recognition technology in August, finding that Facebook's collection of biometric face data from users injured their rights to privacy.").

[219]   *Id.* at 32 ("[S]everal states in the US—Washington, Texas, California, Arkansas, New York, and Illinois—have begun actively restricting and regulating in these areas, including limits on some forms of biometric collection and recognition. In addition, Washington, Michigan, California, Massachusetts, Arizona, and Florida have introduced efforts seeking to do the same.").

[220]   740 ILL. COMP. STAT. 14/15(b) (2022) ("No private entity in possession of a biometric identifier or biometric information may sell, lease, trade, or otherwise profit from a person's or a customer's biometric identifier or biometric information . . . ."). The same prohibition is featured in Senator Sanders and Merkely's recently introduced National Biometric Privacy Act. *See* National Biometric Information Privacy Act, S. 440, 116th Cong. § 3(c) (2020) ("PROHIBITED ACTS—A private entity in possession of a biometric identifier or biometric information may not sell, lease, trade, use for advertising purposes, or otherwise profit from a person's or a customer's biometric identifier or biometric information.").

[221]   The Civil Rights Act of 1964, 42 U.S.C § 2000a ("Title II"), entitles citizens to "the full and equal enjoyment of the goods, services, facilities, privileges, advantages, and accommodation of any place of public accommodation." Title II defines "public accommodations" by providing an inclusive list of establishments, where the listed establishments are divided into three principal categories: (1) inns and motels; (2) restaurants and lunch counters; and (3) places of exhibition or entertainment, such as theater, concert hall, or stadium. *Id.* § 2000(b)(1). Later, Title III of the Americans with

critical social goods and the ability to live with dignity and self-respect. Deploying physiognomic AI to determine who can enter and fully enjoy these institutions is fundamentally incompatible with such a proposition.[222] Understanding this, members of the Washington State House of Representatives introduced two separate proposals in the 2020 legislative session to ban "artificial intelligence enabled profiling"[223] and "facial recognition"[224] in places of public accommodation in Washington State.[225] Thus, state and federal lawmakers should prohibit physiognomic AI in places of public accommodations.

E. *Counterarguments*

Abolishing physiognomic AI systems or eliminating them through extant regimes of consumer protection laws, biometric privacy laws, and antidiscrimination laws will inspire opposition.[226] Given this certainty, this Article next addresses potential counterarguments from physiognomic AI's proponents.

1. Data

To some, the central problem of physiognomic AI is data: researchers and developers need to leverage greater data—both in breadth and depth—to improve the accuracy and efficacy of physiognomic AI systems. Proponents may argue that, rather than eliminating physiognomic AI writ-large, policymakers should enable conditions for the technology to "improve" or "mature" through

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Disabilities Act gives an even more comprehensive list, defining public accommodations into twelve categories of privately operated facilities.

[222] *See* Os Keyes, *The Misgendering Machines: Trans/HCI Implications of Automatic Gender Recognition*, 2 PROC. ACM ON HUM.-COMPUT. INTERACTION, no. 88, Nov. 2018, at 1 (analyzing the harms of automated gender recognition in the context on bathrooms).

[223] *See* H.B. 2644, 66th Leg., Reg. Sess. § 2(2) (Wash. 2020).

[224] H.B. 2856, 66th Leg., Reg. Sess. (Wash. 2020) (moratorium on the use of facial recognition in public accommodations as well as by government agencies in Washington State).

[225] House Bill 2644 or "The AI Profiling Act" provides that "[a] person may not operate, install, or commission the operation or installation of equipment incorporating artificial intelligence-enabled profiling in any place of public resort, accommodation, assemblage, or amusement, as defined in RCW 49.60.040.23." H.B. 2644, 66th Leg., Reg. Sess. § 3(1).

[226] To that end, inspired by musical artist Marshall Bruce Mathers III (aka Eminem), we must ask, "will the real phrenologists please stand up?"

refined data curation and testing conditions. This position both neglects and obfuscates the first order problem of physiognomic AI: making reliable judgements about a person's character and capabilities based on their external characteristics is both fundamentally unjust and oppressive, and epistemologically impossible. All the data in the world cannot salvage conceptual and moral bankruptcy. Second, assuming more data could improve such systems, the proposition requires an unconscionable expansion of data collection and synthesis in both development and deployment. In effect, arguments for the collection of more data simply double down on the assumed social utility of omnipresent surveillance, despite the manifest evidence to the contrary.[227]

2. Profit & Innovation

Another challenge we expect will come from those aiming to profit from physiognomic AI who will invariably claim that our position is a death knell to the ostensibly multibillion-dollar digital technology market and will stifle innovation outright. First, some "innovation" is worth stifling: the world does not need more scientific and technological processes that result in racist and oppressive tendencies. Further, treating "innovation" as universal, overriding good obfuscates material harms and histories of technologies of classification and elevates the role of technology companies in setting the terms of moral and regulatory debate. Second, the pursuit on any sort of "AI Ethics" is meaningless if organizations are unwilling to sacrifice profits over grave moral harms. Indeed, nineteenth-century phrenology was, at points, a profitable enterprise, yet its profitability alone is insufficient to redress its individual and structural harms. This Article articulates and amplifies a defensible red line. If one can't turn a profit without relying on racist

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[227] *See generally* DATA JUSTICE LAB, *Data Harm Record*, https://datajusticelab.org/data-harm-record/ [https://perma.cc/DHR9-XUKJ]; Michele Gilman & Rebecca Green, *The Surveillance Gap: The Harms of Extreme Privacy and Data Marginalization*, 42 N.Y.U. REV. L. & SOC. CHANGE 253, 255 (2018); Neil M. Richards, *The Dangers of Surveillance*, 126 HARV. L. REV. 1934, 1935 (2013); *Americans and Privacy: Concerned, Confused and Feeling Lack of Control Over Their Personal Information*, PEW RSCH. CTR. (Nov. 15, 2019), https://www.pewresearch.org/internet/2019/11/15/americans-and-privacy-concerned-confused-and-feeling-lack-of-control-over-their-personal-information/ [https://perma.cc/ML87-46XW].

pseudoscience, should one not be able to turn a profit at all? Third, this Article is fundamentally concerned with human-centered computer vision and related techniques. While non-human-centered computer vision presents its own challenges, the desire to assign numerical value to every element of the human body—treating humans as universally quantifiable—is fundamentally fraught. We note that many of the analytic techniques and practices now being deployed widely via physiognomic AI systems have been the staples of scientific experimentation and basic research for decades; however, this past use does not absolve such practices of their conceptual problems, merely suggesting scrutiny is long overdue.

3. Equity & Accessibility

Finally, proponents of physiognomic AI systems may contend that such systems are necessary to ensure equity and accessibility— arguing that physiognomic AI can "debias" human decision-making or function as an assistive technology for people living with disabilities. To put it bluntly, physiognomic AI is to debiasing as guns are to disarming. First, emergent physiognomic AI systems, such as AI monitoring to ensure academic integrity, directly threaten the dignity and rights of people living with disabilities.[228] Second, not only do physiognomic AI systems magnify extant biases, explode their consequences, and reify scientific racism, the very notion that physiognomic AI is necessary to counterbalance human biases is ripped straight from the phrenologists' playbook. Steven Jay Gould emphasizes that the phrenologists' goal was "to use modern science as a cleansing broom to sweep away from jurisprudence the outdated philosophical baggage of free will and unmitigated moral responsibility."[229] Kate Crawford and Trevor Paglen highlight that phrenologists of the early twentieth century "truly believed they were 'de-

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[228]   *See* Lydia X. Z. Brown, *How Automated Test Proctoring Software Discriminates Against Disabled Students*, CTR. FOR DEMOCRACY & TECH. (Nov. 16, 2020), https://cdt.org/insights/how-automated-test-proctoring-software-discriminates-against-disabled-students/ [https://perma.cc/HE59-XDXF]; Cynthia L. Bennett & Os Keyes, *What Is the Point of Fairness? Disability, AI and the Complexity of Justice*, ARXIV (Aug. 9, 2019), https://arxiv.org/pdf/1908.01024.pdf [https://perma.cc/BLA6-R8ZF]; Os Keyes, *Automating Autism: Disability, Discourse, and Artificial Intelligence*, 1 J. SOCIOTECHNICAL CRITIQUE 1 (2020).

[229]   GOULD, *supra* note 4, at 140.

biasing' criminal justice systems, creating 'fairer' outcomes through the application of their 'scientific' and 'objective' methods."[230] Here, the intention to build and deploy physiognomic AI for social good is not innovative, but rather a dangerous repetition of history. The desire to leverage physiognomic AI for accessibility or assistive purposes similarly extends the ostensibly progressive motivations of phrenologists and should be dismissed.

Conclusion

The physiognomic impulse—the urge to judge humans based merely on their outward appearance and behavior—is stubbornly rooted in our societies.[231] Physiognomy and phrenology in their modern form, however, have developed out of technologies and techniques of classification and categorization, both statistical[232] and ideological.[233] We stand in gratitude to the scholars and activists, many of whom are Black women and other women of color, who have described, analyzed, critiqued and warned against the physiognomic impulse and its technical manifestations for more than one hundred years.[234] Today's AI-driven physiognomic analyses are no different in kind: though they leverage powerful computational techniques and large amounts of digital data, their core conceptual logics parallel those of pseudosciences long discredited and forms of bigotry anathema to diverse democracies. The extreme care with which rigorous science must collect, analyze, and interpret data regarding humans should be well known; in fields such as genetics, experts have appealed for both the highest empirical standards and for a high degree of interdisciplinary scholarship in order to separate

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[230]   Kate Crawford & Trevor Paglen, *Excavating AI: The Politics of Images in Machine Learning Training Sets*, EXCAVATING AI (Sept. 19. 2019), https://excavating.ai [https://perma.cc/EVF7-9SMZ].

[231]   Crawford, *supra* note 64.

[232]   *See, e.g.*, PEARL, *supra* note 1, at 186; Goldenfien, *supra* note 1; GOULD, *supra* note 4, at 105; KURT DANZIGER, CONSTRUCTING THE SUBJECT: HISTORICAL ORIGINS OF PSYCHOLOGICAL RESEARCH 179 (1990).

[233]   Chun, *supra* note 21, at 38–60.

[234]   *Cf.* Inioluwa Deborah Raji & Genevieve Fried, *About Face: A Survey of Facial Recognition Evaluation*, ARXIV (Feb. 1, 2021), https://arxiv.org/pdf/2102.00813.pdf [https://perma.cc/8SBR-J8WL]; BROWNE, *supra* note 21; Saidiya Hartman, *Venus in Two Acts*, SMALL AXE, June 2008, at 1; NAKAMURA, *supra* note 21, at 101.

stereotype and folk bias from purportedly objective scientific re-
sults.[235] A similar movement is needed in computer science, partic-
ularly AI and computer vision research, alongside the law. Yet such
a movement is also insufficient. The combination of the physiog-
nomic impulse with AI technologies is intrinsically harmful, and
such artifacts should not be deployed in the first place.

Large scale physiognomic AI has potentially catastrophic impli-
cations for the injection of animus into any arena in which such sys-
tems operate. As such, we agree with Agüera y Arcas that, "it is
urgent that developers, critics, and users of artificial intelligence un-
derstand both the limits of the technology and the history of physi-
ognomy, a set of practices and beliefs now being dressed in modern
clothes."[236] Yet the commercialization of AI is giving physiognomy
unprecedented structural power: no longer relegated to academic re-
search labs, these technologies—and logics— are increasingly ubiq-
uitous. We cannot allow physiognomy to return from the pseudosci-
entific grave: now is the time to put a stake through its heart once
and for all.

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[235]   *How Not to Talk About Race and Genetics*, BUZZFEED NEWS (Mar. 30, 2018, 5:29
PM), https://www.buzzfeednews.com/article/bfopinion/race-genetics-david-reich [https://
perma.cc/AXN4-WP43] ("[S]cholarship recognizes the existence of geographically based
genetic variation in our species, but shows that such variation is not consistent with
biological definitions of race. Nor does that variation map precisely onto ever changing
socially defined racial groups.").

[236]   Agüera y Arcas et al., *supra* note 1.