

AUTOMATING DISCRIMINATION: AI HIRING PRACTICES AND GENDER INEQUALITY

Lori Andrews & Hannah Bucher†

“I think people underestimate the impact algorithms and recommendation engines have on jobs,” Derek Kan, Vice President of Product Management at Monster says.¹ “The way you present yourself is most likely read by thousands of machines and servers first, before it even gets to a human eye.”²

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† Lori Andrews, J.D., Professor of Law, Chicago-Kent College of Law; Director, Institute for Science, Law, and Technology, Illinois Institute of Technology and Hannah Bucher, J.D., Chicago-Kent College of Law. The authors wish to thank Adrienne Finucane, Bora Ndrejoni, Kelby Roth, and Andrew White for their research, editorial insights, creativity, and inspiration in connection with this Article. They are also grateful for the insights of Anita Bernstein, Richard Gonzalez, Ruth Kaufman, Ellen Mitchell, Clements Ripley, and Jim Stark.

¹ Sheridan Wall & Hilke Schellmann, *LinkedIn’s Job-Matching AI Was Biased. The Company’s Solution? More AI.*, MIT TECH. REV. (June 25, 2021), <https://www.technologyreview.com/2021/06/23/1026825/linkedin-ai-bias-ziprecruiter-monster-artificial-intelligence> [https://perma.cc/45R2-LMJJ].

² *Id.*

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INTRODUCTION

Amazon is a world leader in the use of artificial intelligence (AI) to address a range of business issues, from predicting consumer purchases³ to reducing its corporate carbon footprint.⁴ As the company grew, needing to hire tens of thousands of employees, management asked its engineers to create an AI algorithm to identify the best potential employees based on their resumes alone.⁵

After 500 attempts,⁶ the engineers collectively threw up their hands.⁷ Instead of creating a useful automated hiring technology, they had created the perfect tool to discriminate against women.⁸ The algorithm rejected applicants who used the term “women” anywhere—such as “Captain, Women’s Soccer Team” or “National Women’s Chess Champion.”⁹ It rejected applicants who went to all-women’s colleges.¹⁰ Not only did the program reject potentially qualified women before they even reached the interview stage, but some candidates the algorithm identified for jobs were not even qualified.¹¹

How could the world leader in AI so miss the mark? The answer is an abiding fact of AI—it learns to replicate the biases of the data used to create it.¹² Because the Amazon engineers developed the algorithm based

³ Jonathan Camhi & Stephanie Pandolph, *Machine Learning Driving Innovation at Amazon*, BUS. INSIDER (Apr. 17, 2017, 11:11 AM), <https://www.businessinsider.com/machine-learning-driving-innovation-at-amazon-2017-4> [<https://perma.cc/TBK5-A2VV>].

⁴ In the past seven years, using artificial intelligence machine learning, “the company has reduced the weight of its outbound packaging by 33%, eliminating 915,000 tons of packaging material worldwide, or the equivalent of over 1.6 billion shipping boxes.” AWS Retail Editorial Team, *In the News: How Amazon Is Using Machine Learning to Eliminate 915,000 Tons of Packaging*, AWS (Jan. 29, 2021), <https://aws.amazon.com/blogs/industries/how-amazon-is-using-machine-learning-to-eliminate-915000-tons-of-packaging> [<https://perma.cc/TN7C-UFKE>].

⁵ Jeffrey Dastin, *Amazon Scraps Secret AI Recruiting Tool That Showed Bias Against Women*, REUTERS (Oct. 10, 2018, 7:04 PM), <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G> [<https://perma.cc/B8MV-THAD>].

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

¹² Bo Cowgill, *Bias and Productivity in Humans and Algorithms: Theory and Evidence from Résumé Screening 1* (Working Paper, Columbia University, New York, NY, 2020) (“[A]lgorithms will codify or exacerbate existing biases.”); Frida Polli, *Using AI to Eliminate Bias from Hiring*, HARV. BUS. REV. (Oct. 29, 2019), <https://hbr.org/2019/10/using-ai-to-eliminate-bias-from-hiring> [<https://perma.cc/Z3XB-VLQ6>].

on resumes submitted to Amazon, which were predominantly male,¹³ the AI responded by assuming male candidates were preferred.¹⁴ This fiasco led Amazon to give up on creating such a hiring tool.¹⁵ However, many other companies are marketing¹⁶ or employing¹⁷ AI-based hiring tools. In a Harris Poll conducted for CareerBuilder, 55% of Human Resource managers said they would be using AI by 2022.¹⁸ The COVID-19 pandemic escalated the demand for AI-based hiring technologies,¹⁹ further entrenching them into normal HR procedures.

Despite the potential for gender discrimination, independent developers and companies sell AI hiring tools to businesses without evidence that those technologies actually identify qualified candidates.²⁰ At least 407 companies within the Fortune 500 use some combination of three such technologies—resume scanning, one-way video interviews, and the use of video games—to screen applicants.²¹

¹³ Polli, *supra* note 12; Isobel Asher Hamilton, *Why It's Totally Unsurprising That Amazon's Recruitment AI Was Biased Against Women*, BUS. INSIDER (Oct. 13, 2018, 4:00 AM), <https://www.businessinsider.com/amazon-ai-biased-against-women-no-surprise-sandra-wachter-2018-10> [<https://perma.cc/Z2TB-V4UD>] (noting that 74% of the managers at Amazon were male).

¹⁴ Dastin, *supra* note 5; Rachel Goodman, *Why Amazon's Automated Hiring Tool Discriminated Against Women*, ACLU (Oct. 12, 2018, 1:00 PM), <https://www.aclu.org/blog/womens-rights/womens-rights-workplace/why-amazons-automated-hiring-tool-discriminated-against> [<https://perma.cc/2BZZ-QXPJ>].

¹⁵ Dastin, *supra* note 5.

¹⁶ See, e.g., HIREVUE, <https://www.hirevue.com> [<https://perma.cc/NA5U-FBNX>]; *Put Your Data to Work*, KNACK, <https://www.knack.com/tour/workflow> [<https://perma.cc/7JY3-77JG>].

¹⁷ This includes Goldman Sachs and LinkedIn. Dastin, *supra* note 5.

¹⁸ Press Release, CareerBuilder, *More Than Half of HR Managers Say Artificial Intelligence Will Become a Regular Part of HR in Next 5 Years* (May 18, 2017), <https://press.careerbuilder.com/2017-05-18-More-Than-Half-of-HR-Managers-Say-Artificial-Intelligence-Will-Become-a-Regular-Part-of-HR-in-Next-5-Years> [<https://perma.cc/T744-D6E5>].

¹⁹ Wall & Schellmann, *supra* note 1.

²⁰ See, e.g., *Recruitment Software*, FRESHWORKS, <https://www.freshworks.com/hrms/features/recruitment-software> [<https://perma.cc/T5FP-CNDU>] (resume scanning) (“With Freshteam, you can parse, track and analyze resumes automatically.”); *myInterview Media Kit*, MYINTERVIEW, <https://www.myinterview.com/mediakit> [<https://perma.cc/78QH-6QH2>] (describing a “[p]remium video interview provider”); MYINTERVIEW, <https://www.myinterview.com> [<https://perma.cc/2JZ6-4MCP>] (describing myInterview as offering “[p]urpose-built machine learning algorithms”); KNACK, <https://knackapp.com> (last visited Apr. 10, 2022) (“The [“innovation award-winning games”] platform provides a rich personalized report of people’s unique intangible assets and most promising learning and career directions.”).

²¹ The Harvard Business School/Accenture study cited Fortune 500 data collected by Jobscan, a company offering prospective job seekers advice and automated tools to help their applications get noticed by resume scanning technologies. See JOSEPH B. FULLER, MANJARI RAMAN, EVA SAGE-GAVIN & KRISTEN HINES, *HIDDEN WORKERS: UNTAPPED TALENT* 20 n.74 (Oct. 4, 2021), <https://www.hbs.edu/managing-the-future-of-work/Documents/research/hiddenworkers09032021.pdf> [<https://perma.cc/T7J3-JL4H>] (report conducted with Harvard Business School and Accenture). Jobscan notes that, of the Fortune 500 companies using ATS, Workday is used by at

least 130 businesses, Taleo 109, SAP/SuccessFactors 73, IBM Kenexa BrassRing 47, iCIMS 36, and ADP 12. James Hu, *99% of Fortune 500 Companies Use Applicant Tracking Systems*, JOBS CAN (Nov. 7, 2019), <https://www.jobscan.co/blog/99-percent-fortune-500-ats> [<https://perma.cc/J2R6-XRUT>] (navigate to chart entitled “ATS used by Fortune 500”). Upon further investigation, each one of these companies uses or can be customized to use at least one of the automated technologies discussed in this Article, most of which rely on some combination of machine learning and data science. See, e.g., *Workday Recruiting*, WORKDAY, <https://www.workday.com/content/dam/web/en-us/documents/datasheets/datasheet-workday-recruiting.pdf> [<https://perma.cc/9RGY-8U22>] (noting that Workday’s “[a]utomated [w]orkflow” “[r]educe[s] time to hire by automatically positioning or moving candidates forward in the recruiting process”); Sayan Chakraborty, *Machine Learning Across Workday Products: Delivering Business Value to Customers*, WORKDAY BLOG (Oct. 14, 2019), <https://blog.workday.com/en-us/2019/machine-learning-across-workday-products-delivering-business-value-to-customers.html> [<https://perma.cc/ZX2G-ZJA4>]; James Hu, *Taleo: 4 Ways the Most Popular ATS Ranks Your Job Application*, JOBS CAN (Mar. 8, 2018) [hereinafter Hu, *Taleo*], <https://www.jobscan.co/blog/taleo-popular-ats-ranks-job-applications> [<https://perma.cc/A5MW-WVAX>] (“Taleo parses the text from your resume and application then compares it to the job description.”); *SAP SuccessFactors Recruiting: Features*, SAP, <https://www.sap.com/products/recruiting-software/features.html> [<https://perma.cc/A346-VHUX>] (noting that SAP’s “[p]rocess automation” “[e]liminate[s] time spent creating job requisitions, progressing or disposition candidates, or add[s] intelligence to offers to ensure equitable hiring”); *Setting Up and Maintaining SAP SuccessFactors Recruiting: Configuring Resume Parsing*, SAP, <https://help.sap.com/viewer/8477193265ea4172a1dda118505ca631/2105/en-US/282b8727ec494684b2ef8e26a75788b6.html> [<https://perma.cc/73CY-AWRB>]; *5725-Q55 IBM Kenexa Talent Acquisition Suite 1.0*, IBM (Oct. 5, 2021), https://www.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep_sm/5/897/ENUS5725-Q55/index.html [<https://perma.cc/K4YN-TZVC>] (“Kenexa Talent Suites are unique in that they move beyond managing a single source of data (such as is traditionally provided in a human resource information system) and automating the processes around the data. While this is important, Kenexa Talent Suites add to this rich understanding of talent (behavioral sciences) an imbedded social platform (changing the way in which we exchange information, learn, and get business done), analytics, and a consumer style design that engages users throughout the lifecycle of employment.”); *AI Recruiting & Machine Learning*, ICIMS, <https://www.icims.com/products/talent-cloud-platform/ai-recruiting> [<https://perma.cc/C2M4-PJY8>]; *ADP Recruiting Portal Upload*, ADP, https://recruiting.adp.com/portal-upload/RMPOD4WebDocument/2018/8/clientdata_1208301/30/1650/ff040347-63bc-4a76-9bbe-51ad9ba0e6c5.pdf [<https://perma.cc/WA7G-HRQW>] (“Our system can search attached documents [(e.g., resumes and cover letters)] and extract information from those documents. If you upload a picture/image of your resume and/or cover letter, our system can’t extract information from an image. You will need to add all the information into the fields, on the following screens, manually.”). Indeed, these examples largely use resume parsing, and most allow additional modifications to integrate automated video interviewing and video game assessments into their hiring workflows. To view the plug-in site for iCIMS sorted by video interview integration products, such as HireVue, see, for example, *Video Interview*, ICIMS MARKETPLACE, <https://marketplace.icims.com/en-US/listing?cat=77570&page=1&locale=en-US> [<https://perma.cc/F897-GDL9>]. Other companies that provide technologies other than resume parsing also note that their clientele includes Fortune 500 companies. See, e.g., MYINTERVIEW, *supra* note 20 (noting Facebook as a client); *pymetrics Awarded as Technology Pioneer by World Economic Forum*, BUSINESSWIRE (June 21, 2018, 3:30 AM), <https://www.businesswire.com/news/home/20180621005278/en/pymetrics-Awarded-as-Technology-Pioneer-by-World-Economic-Forum> [<https://perma.cc/67FV-H8CR>] (noting large clients of pymetrics, such as Tesla, Unilever, Mercer, and Accenture).

The developers marketing these technologies claim that the algorithms can decrease costs,²² save time,²³ and identify the best applicants in the hiring process.²⁴ The technologies are even touted as a way to avoid racial and gender discrimination²⁵ and protect employers from being sued under employment discrimination laws²⁶ because the decisions are made by a computer rather than a human.

²² See, e.g., *Pricing*, MYINTERVIEW (video interview analysis), <https://www.myinterview.com/aupricing> [<https://perma.cc/XWP8-5YYN>] (“Time is money and you’ll be saving lots of it! Instead of wasting time on endless phone calls chasing candidates and scheduling meetings, myInterview lets you skip some steps and polish others.”); *pymetrics*, PAGEUP, <https://www.pageuppeople.com/marketplace/pymetrics> [<https://perma.cc/NA72-PTEB>] (noting use of the platform has resulted in 25% decrease in costs for hiring companies). Somen Mondal, former CEO of the software company Ideal, asserts that artificial intelligence software can have up to a “71% reduction in recruitment costs.” Qiong Jia, Yue Guo, Rong Li, Yurong Li & Yuwei Chen, *A Conceptual Artificial Intelligence Application Framework in Human Resource Management*, PROCEEDINGS 18TH INT’L CONF. ON ELEC. BUS. 106, 109 (2018).

²³ See, e.g., *Resume Management Software for Businesses*, FRESHWORKS, <https://www.freshworks.com/hrms/resume-management> [<https://perma.cc/E3M4-63WW>] (“Put simply, resume management is all about giving more time for the recruiters to focus on other recruitment tasks rather than wasting time streamlining every single candidate’s resume.”); *myInterview Media Kit*, *supra* note 20 (noting that its software leads to “70% Faster Time to Hire”); *Talent Acquisition*, PYMETRICS, <https://www.pymetrics.ai/solutions#talent-acquisition> [<https://perma.cc/GA8E-7PRP>] (pre-hiring video game assessment) (“Reduce time to hire and drive higher yields across the hiring process[.]”).

²⁴ See, e.g., *Resume Management Software for Businesses*, *supra* note 23 (“A good AI-driven software should be able to convert every profile into a candidate. . . . A resume management software evaluates the candidate profiles based on their skills, education, and experience that helps classify and organize your candidates in their respective categories. This avoids confusion and ensures you are processing the resume of relevant talents only.”); MYINTERVIEW, *supra* note 20 (“Purpose-built machine learning algorithms fueled by diverse data scan the content of every video to reveal the hidden gems that perfectly match what you’re looking for.”); *Talent Acquisition*, *supra* note 23 (“Select the best fit candidates to move forward for a particular role[.]”). Somen Mondal noted that the twin biggest impacts are “automatically screen[ing] candidates and reduc[ing] bias.” Jia, Guo, Li, Li & Chen, *supra* note 22, at 109. However, it does not appear that Mondal provided data to support these claims. See *id.*

²⁵ See, e.g., MYINTERVIEW, *supra* note 21; *Mission*, PYMETRICS, <https://www.pymetrics.ai/mission> [<https://perma.cc/TUT2-FRYF>] (pre-hiring video game assessment) (“We leverage audited AI behavioral soft skill assessments to help enterprise companies build diverse teams of top performers. By mitigating inherent human biases through our audited AI platform, we can help your team to identify quality candidates, hire equitably, reduce turnover rate, and enhance overall talent performance.”); see also Polli, *supra* note 12; Jia, Guo, Li, Li & Chen, *supra* note 22, at 110 (“In [the initial resume scan parsing] process, AI has the characteristics of screening the candidates without prejudice.” (citing Matthew Hutson, *Even Artificial Intelligence Can Acquire Biases Against Race and Gender*, SCIENCE (Apr. 13, 2017), <https://www.science.org/content/article/even-artificial-intelligence-can-acquire-biases-against-race-and-gender> [<https://perma.cc/PV3P-XVQG>])).

²⁶ See generally AARON RIEKE & MIRANDA BOGEN, UPTURN, HELP WANTED: AN EXAMINATION OF HIRING ALGORITHMS, EQUITY, AND BIAS 12 (2018), <https://www.upturn.org/static/reports/2018/hiring-algorithms/files/Upturn%20-%20Help%20Wanted%20-%20An%20Exploration%20of%20Hiring%20Algorithms,%20Equity%20and%20Bias.pdf> [<https://perma.cc/>

Automation, however, is not necessarily a woman's friend. On the internet, female job seekers are directed to lower-paying jobs more often than male job seekers. Researchers from Carnegie Mellon created hundreds of fake male and female internet job seekers.²⁷ The fake job applicants from both groups visited employment webpages. The study found that male job seekers received overwhelmingly more ads for high-paying jobs than equally qualified female job seekers. Ads that read "\$200k+ Jobs—Execs Only" and "Find Next \$200k+ Job" were displayed almost six times more often for men than for women.²⁸

The design of the technologies at issue in this Article similarly create a situation that favors male candidates. If the technologies are developed using data from the existing employees (such as their resumes, their speech patterns in one-way video interviews, or the way they play video games), the algorithm will privilege male traits if the existing employees are predominantly male. The risk of gender discrimination is real due to the male-skewed workforce in many major companies. In 2018, men accounted for 81% of Microsoft's technical workforce, 79% of Google's, 78% of Facebook's, and 77% of Apple's.²⁹

This Article makes a unique contribution to the literature by combining a deep understanding of AI hiring technologies with an original series of proposals of how they should be addressed by law. The topic is of crucial importance due to the extensive use of these technologies and their powerful potential for discrimination. This Article addresses three AI-based hiring tools that rank and even reject applicants before they get to the interview stage—resume scanning, one-way video interviews, and the use of video games to screen applicants. It analyzes how the use of seemingly neutral AI in recruiting may discriminate against women and on what legal grounds a woman who is not hired might bring a legal claim challenging the use of these technologies. Part I summarizes the AI-based hiring technologies and analyzes the ways in which they might disadvantage women. Part II provides the overall framework for gender discrimination cases involving employment under Title VII of the Civil Rights Act. Part III applies the legal principles and precedents of Title VII law to the use of AI in hiring assessments, and Part

88UA-NHSN] ("For discrimination claims that do end up in court, technology vendors may succeed in shielding themselves from close scrutiny through trade secrecy and intermediary immunity claims, which have so far proven difficult to pierce even in cases where key rights and due process appear to have been undermined.").

²⁷ AMIT DATTA, MICHAEL CARL TSCHANTZ & ANUPAM DATTA, AUTOMATED EXPERIMENTS ON AD PRIVACY SETTINGS: A TALE OF OPACITY, CHOICE, AND DISCRIMINATION 13 (2015), <https://arxiv.org/pdf/1408.6491.pdf> [<https://perma.cc/3STZ-NEGN>].

²⁸ *Id.* at 14.

²⁹ Dastin, *supra* note 5.

IV proposes policy changes to ensure fairness in hiring in an era of algorithms.

I. ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN HIRING DECISIONS

Hiring software uses artificial intelligence and machine learning to create algorithms to predict which job applicants will be successful in the job.³⁰ The term “artificial intelligence” refers to all computation efforts to code a machine to make decisions as though it were a human.³¹ “Machine learning” is a subset of artificial intelligence in which “the automated model-building process determines which input variables (or features) are most useful and how to combine them to best predict a behavior or outcome based on the latest data available.”³² In the hiring context, the algorithms look for correlations between various traits that applicants have and the traits of people who, by some measure, have succeeded in the job (such as the top managers in a company). What distinguishes machine learning from human-coded algorithms is that the computer, rather than a person, constantly modifies the algorithms to identify the “important” patterns.³³ According to a joint Accenture and Harvard Business School study, 90% of Fortune 500 businesses use automated technology in hiring to “initially filter or rank potential middle-skills . . . and high-skills . . . candidates.”³⁴

Advocates of the use of algorithms in hiring claim that AI reduces the time and cost of finding employees. But they often underestimate the complexity of testing their predictions and validating the results. When discussing the benefits of machine learning in the context of hiring, a team of economists analogized the process to a tool used during brain surgery.³⁵ During a typical brain surgery to remove a tumor, doctors

³⁰ See RIEKE & BOGEN, *supra* note 26, at 6; *AI for Recruiting: A Definitive Guide for HR Professionals*, IDEAL, <https://ideal.com/ai-recruiting> [<https://perma.cc/MQ8R-RYP3>].

³¹ See Darrell M. West, *What Is Artificial Intelligence?*, BROOKINGS (Oct. 4, 2018), <https://www.brookings.edu/research/what-is-artificial-intelligence> [<https://perma.cc/D4KJ-SPAX>] (“Today, AI generally is thought to refer to ‘machines that respond to stimulation consistent with traditional responses from humans, given the human capacity for contemplation, judgment, and intention.’” (quoting Shukla Shubhendu S. & Jaiswal Vijay, *Applicability of Artificial Intelligence in Different Fields of Life*, 1 INT’L J. SCI. ENG’G & RSCH. 28, 28 (2013))).

³² David M. Skanderson, *Managing Discrimination Risk of Machine Learning and AI Models*, 35 A.B.A. J. LAB. & EMP. L. 339, 342 (2021).

³³ See *id.* at 342.

³⁴ FULLER, RAMAN, SAGE-GAVIN & HINES, *supra* note 21, at 3.

³⁵ Ajay Agrawal, Joshua S. Gans & Avi Goldfarb, *Artificial Intelligence: The Ambiguous Labor Market Impact of Automating Prediction*, 33 J. ECON. PERSPS. 31, 33 (2019).

would generally over-remove brain tissue to ensure that all cancerous tissue is excised.³⁶ A company developed an algorithm that, in conjunction with a medical imaging device, could analyze in real time the tissue the doctor was assessing during brain surgery.³⁷ The algorithm predicted with around 90% accuracy whether the brain tissue under the wand was cancerous.³⁸

In designing medical studies involving machine learning and cancer, researchers analyze thousands of tissue samples. They follow up by testing the tissue to determine if it is cancerous or not. The employment situation is much different. Algorithms are being developed using data from a limited number of existing employees (for a particular one-way video algorithm, it is 50 employees)³⁹. In medical situations, researchers can easily measure false positives and false negatives by testing the tissue. But how do we determine whether the women who were rejected would have done better than the men who were hired?

The hiring context creates a challenge in both defining success and determining what contributes to it. It is surprisingly difficult to determine job success. We do not have a metric for what makes a good employee. Are the people in the top positions in the company or the highest-salaried people necessarily the smartest, most productive, most creative, and best leaders? And what traits actually ensure job success, as opposed to those traits that the supposedly “top” employees share, that are unrelated to doing the job well?

Ascertaining what makes a good employee is a challenge for artificial intelligence hiring technology.⁴⁰ Peter Cappelli notes in the *Harvard Business Review* that researchers have been trying to determine what constitutes a good hire since World War I⁴¹: “So the idea of bringing in exploratory techniques like machine learning to analyze HR data in an

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.* (noting “the device enables the surgeon to reduce both type I errors (removing noncancerous tissue) and type II errors (leaving cancerous tissue)”).

³⁹ Hilke Schellmann, *Auditors Are Testing Hiring Algorithms for Bias, but There’s No Easy Fix*, MIT TECH. REV. (Feb. 11, 2021), <https://www.technologyreview.com/2021/02/11/1017955/auditors-testing-ai-hiring-algorithms-bias-big-questions-remain> [<https://perma.cc/SP22-BBB8>].

⁴⁰ Prasanna Tambe, Peter Cappelli, and Valery Yakubovich note in the California Management Review that ascertaining a definition for “good employee” is “quite difficult.” Prasanna Tambe, Peter Cappelli & Valery Yakubovich, *Artificial Intelligence in Human Resources Management: Challenges and a Path Forward*, 61 CAL. MGMT. REV. 15, 17–18 (2019).

⁴¹ Peter Cappelli, *There’s No Such Thing as Big Data in HR*, HARV. BUS. REV. (June 2, 2017), <https://hbr.org/2017/06/theres-no-such-thing-as-big-data-in-hr> [<https://perma.cc/67JM-NS7L>].

attempt to come up with some big insight we didn't already know is pretty close to zero.”⁴²

Because the data used to train hiring algorithms consists of the kind of traits and qualities possessed by an existing pool of employees, the program will produce results to mirror and favor those inputs.⁴³ For example, in medical school admissions, an algorithm trained on historic data incorporated the previous human decision biases⁴⁴: the algorithm selected against women and those who were not native English speakers.⁴⁵ If a hiring algorithm is modeled on an existing workforce without gender diversity, the results will also lack gender diversity. Any model trained to assess potential candidates will do little other than “faithfully attempt to reproduce past decisions” and, in doing so, “reflect the very sorts of human biases they are intended to replace.”⁴⁶

Because an algorithm ultimately selects which criteria to include, the algorithm itself can consider both illogical⁴⁷ and discriminatory⁴⁸ variables in its decision-making process. The algorithm may focus on traits of top employees that have nothing to do with actual ability to do their job. For example, the artificial intelligence program created by the company Gild to find potential employees out in the wild processed a massive quantity of data and then advised clients that a good potential employee is someone who visits a certain Japanese manga site.⁴⁹

In another instance, when one of his clients was about to employ a resume scanning program, attorney Mark Girouard inquired into the

⁴² *Id.*

⁴³ Ketki V. Deshpande, Shimei Pan & James R. Foulds, *Mitigating Demographic Bias in AI-Based Resume Filtering*, 2020 UMAP '20 ADJUNCT: ADJUNCT PUBL'N 28TH ACM CONF. ON USER MODELING, ADAPTATION & PERSONALIZATION 268, 269.

⁴⁴ *Id.* (citing Stella Lowry & Gordon Macpherson, *A Blot on the Profession*, 296 BRIT. MED. J. 657 (1988)).

⁴⁵ *Id.*

⁴⁶ Manish Raghavan & Solon Barocas, *Challenges for Mitigating Bias in Algorithmic Hiring*, BROOKINGS (Dec. 6, 2019), <https://www.brookings.edu/research/challenges-for-mitigating-bias-in-algorithmic-hiring> [<https://perma.cc/7AB3-WWLW>].

⁴⁷ Skanderson, *supra* note 32, at 342 (“[M]achine learning methods tend to select attributes and combinations of attributes based purely on the strength of their correlations to the outcome being predicted. Less emphasis (or sometimes no emphasis) is placed on understanding whether logical economic or behavioral reasons underlie those correlations.”).

⁴⁸ See *id.* at 343–44 (“The question of *why* a specific attribute or combination of attributes predicts the outcome is less important than the fact that it is correlated with the outcome, and that the correlation appears to be robust across different data samples.”).

⁴⁹ Don Peck, *They're Watching You at Work*, ATLANTIC (Dec. 2013), <https://www.theatlantic.com/magazine/archive/2013/12/theyre-watching-you-at-work/354681> [<https://perma.cc/WYY2-TVXN>].

variables that the algorithm was prioritizing in applicants' CVs.⁵⁰ The algorithm identified two factors as indicative of successful job performance: first, that the candidate's name was Jared, and second, that the applicant played high school lacrosse.⁵¹ Girouard noted that with such systems, "your results are only as good as your training data."⁵² He said, "[t]here was probably a hugely statistically significant correlation between those two data points [(being named Jared and having played lacrosse)] and performance, but you'd be hard pressed to argue that those were actually important to performance."⁵³

As the Jared example shows, correlation is not causation. If Tony changed his name to Jared, he would not then have more skills. Moreover, creating algorithms by retrospectively assessing a workforce may doom the corporation to stagnation because the few employees who are visionaries with the ability to move the corporation forward would likely have traits that are underrepresented in the data set.

Although AI proponents often tout that their technologies combat discrimination,⁵⁴ there are multiple ways in which gender discrimination may inadvertently crop up. Using data from preexisting top performers can lead to "hindsight bias" because the algorithms will presume that (1) the characteristics the algorithm identified led to success, rather than merely being correlated with it; and (2) the characteristics that led to success in the past will necessarily lead to success in the future.⁵⁵ Hindsight bias can operate to the disadvantage of groups of individuals who have historically been excluded from the workplace, including women.⁵⁶ Given that possibility, what legal recourse is available for women who are not hired because of bias in the algorithm?

⁵⁰ Dave Gershgorn, *Companies Are on the Hook If Their Hiring Algorithms Are Biased*, QUARTZ, <https://qz.com/1427621/companies-are-on-the-hook-if-their-hiring-algorithms-are-biased> [<https://perma.cc/G6EX-9FB8>] (Oct. 23, 2018); see also Gary D. Friedman & Thomas McCarthy, *Employment Law Red Flags in the Use of Artificial Intelligence in Hiring*, A.B.A. (Oct. 1, 2020), https://www.americanbar.org/groups/business_law/publications/blt/2020/10/ai-in-hiring [<https://perma.cc/5FG9-DHZZ>].

⁵¹ See sources cited *supra* note 50.

⁵² See *id.*

⁵³ See *id.*

⁵⁴ See Polli, *supra* note 12.

⁵⁵ Jack Hensler, Note, *Algorithms as Allies: Regulating New Technologies in the Fight for Workplace Equality*, 34 TEMP. INT'L & COMPAR. L.J. 31, 43–44 (2019) (quoting Cathy O'Neil, *Amazon's Gender-Biased Algorithm Is Not Alone*, BLOOMBERG (Oct. 16, 2018, 9:00 AM), <https://www.bloomberg.com/opinion/articles/2018-10-16/amazon-s-gender-biased-algorithm-is-not-alone> [<https://perma.cc/8T7C-RA3G>]) (discussing the limits and dangers of analyzing past information to predict the future).

⁵⁶ *Id.* at 44.

II. THE LAW OF EMPLOYMENT DISCRIMINATION UNDER TITLE VII

Title VII of the Civil Rights Act prohibits a broad range of discriminatory conduct based on an individual's sex, including an employer refusing to hire an applicant,⁵⁷ discharging an employee,⁵⁸ refusing to promote an employee,⁵⁹ or demoting an employee.⁶⁰ The two main theories of liability under Title VII are disparate treatment and disparate impact.⁶¹

In 1978, the Equal Employment Opportunity Commission (EEOC) released the Uniform Guidelines on Employee Selection Procedures (Uniform Guidelines) under 29 C.F.R. § 1607.⁶² Based on court decisions,⁶³ previous agency guidance,⁶⁴ and the policies underlying Title VII, the Uniform Guidelines were designed to help both public and private employers comply with federal employment law.⁶⁵ The Uniform Guidelines provide guidance about what types of employer conduct are permissible in assessing job applicants.⁶⁶

These Guidelines provide that before using a selection tool for hiring, an employer should perform a job analysis to determine which measures of work behaviors or performance are relevant to the job or group of jobs in question.⁶⁷ Then, the employer must assess whether there

⁵⁷ 42 U.S.C. § 2000e-2(a).

⁵⁸ *Id.*

⁵⁹ *See id.*

⁶⁰ *See id.*

⁶¹ *Ricci v. DeStefano*, 557 U.S. 557, 577 (2009).

⁶² *See* 29 C.F.R. § 1607 (2022).

⁶³ *See* Uniform Guidelines on Employee Selection Procedures, 43 Fed. Reg. 38311 (Aug. 25, 1978) (codified at 29 C.F.R. § 1607); Adoption of Employee Selection Procedures, 43 Fed. Reg. 38290 (Aug. 25, 1978) (codified at 29 C.F.R. § 1607) (“In succeeding years, the EEOC and the Department of Labor provided more extensive guidance which elaborated upon these principles and expanded the guidelines to emphasize all selection procedures. In 1971 in *Griggs v. Duke Power Co.*, the Supreme Court announced the principle that employer practices which had an adverse impact on minorities and were not justified by business necessity constituted illegal discrimination under title VII. Congress confirmed this interpretation in the 1972 amendments to title VII. The elaboration of these principles by courts and agencies continued into the mid-1970’s, but differences between the EEOC and the other agencies (Justice, Labor, and Civil Service Commission) produced two different sets of guidelines by the end of 1976.” (footnotes omitted)).

⁶⁴ *Id.*

⁶⁵ 29 C.F.R. § 1607.1(B), (C).

⁶⁶ *Id.* § 1607.1(B).

⁶⁷ *Id.* § 1607.14(A). The Uniform Guidelines define “job analysis” as “[a] detailed statement of work behaviors and other information relevant to the job,” *id.* § 1607.16(K), and “work behavior” as “[a]n activity performed to achieve the objectives of the job.” *Id.* § 1607.16(Y) (“Work behaviors involve observable (physical) components and unobservable (mental) components. A work

is “empirical data demonstrating that the selection procedure is predictive of or significantly correlated with important elements of job performance.”⁶⁸ Although the Uniform Guidelines can shepherd employers through the tangle of federal law, the Supreme Court has explained that the “Guidelines are not administrative [‘]regulations’ promulgated pursuant to formal procedures established by the Congress.”⁶⁹ Instead, they are an “administrative interpretation” of Title VII by an administrative agency.⁷⁰ Nevertheless, the Supreme Court has consistently held that the Uniform Guidelines are “entitled to great deference.”⁷¹

In 2016, the EEOC held a meeting to educate itself on the use of algorithms in hiring.⁷² The Commission received testimony about the benefits of AI in recruitment⁷³ and its risks.⁷⁴ However, the EEOC has yet

behavior consists of the performance of one or more tasks. Knowledges, skills, and abilities are not behaviors, although they may be applied in work behaviors.”).

⁶⁸ *Id.* § 1607.5(B).

⁶⁹ *Albemarle Paper Co. v. Moody*, 422 U.S. 405, 431 (1975). The Uniform Guidelines are the result of a joint effort by four government agencies—the Equal Employment Opportunity Commission (EEOC), the Civil Service Commission (now the Office of Personnel Management), the Department of Labor, and the Department of Justice—to produce a uniform government position on employee selection procedures. 29 C.F.R. § 1607.1(A); *see sources cited supra* note 63. The agencies adopted the Uniform Guidelines “to assist employers, labor organizations, employment agencies, and licensing and certification boards to comply with requirements of Federal law prohibiting employment practices which discriminate on grounds of race, color, religion, sex, and national origin.” 29 C.F.R. § 1607.1(B).

⁷⁰ *Albemarle*, 422 U.S. at 431 (quoting *Griggs v. Duke Power Co.*, 401 U.S. 424, 433 (1971)).

⁷¹ *Griggs*, 401 U.S. at 434; *Albemarle*, 422 U.S. at 431 (quoting *Griggs*, 401 U.S. at 434); *Meritor Sav. Bank, FSB v. Vinson*, 477 U.S. 57, 74 (1986) (Marshall, J., concurring).

⁷² Although the EEOC held a policy session on the impacts of “Big Data in the Workplace,” the Commission did not issue any rules following the session. *See* Equal Emp. Opportunity Comm’n, Meeting of October 13, 2016—Big Data in the Workplace: Examining Implications for Equal Employment Opportunity Law [hereinafter EEOC Big Data in the Workplace], <https://www.eeoc.gov/meetings/meeting-october-13-2016-big-data-workplace-examining-implications-equal-employment> [<https://perma.cc/XJJ6-DX2K>].

⁷³ *See, e.g.*, Michal Kosinski, Written Testimony of Michal Kosinski, Assistant Professor Organizational Behavior Stanford Graduate School of Business (via VTC) (Oct. 13, 2016), <https://www.eeoc.gov/meetings/meeting-october-13-2016-big-data-workplace-examining-implications-equal-employment/kosinski> [<https://perma.cc/3TW9-9XNW>] (“Big Data—coupled with modern computational techniques—can improve person-job fit, increase our ability to identify talent, raise equality in access to jobs and careers, and help overcome implicit and explicit prejudice in the workplace.”).

⁷⁴ *See, e.g.*, Kelly Trindel, Written Testimony of Kelly Trindel, PhD, Chief Analyst Office of Research, Information and Planning, EEOC (Oct. 13, 2016), <https://www.eeoc.gov/meetings/meeting-october-13-2016-big-data-workplace-examining-implications-equal-employment/trindel%2C%20phd> [<https://perma.cc/6QB2-UTRD>] (discussing the rise of big data in the workplace and explaining that although benefits like optimization in talent selection and management offer great potential, employers must not lose sight of the risk that the technology

to articulate any general guidance regarding the effect of algorithms and machine learning on federal employment law.⁷⁵ Consequently, a woman who is discriminated against in hiring must turn to the existing legal approaches by demonstrating that the use of an AI hiring technique caused disparate treatment or a disparate impact due to her gender.

A. *Disparate Treatment*

Disparate treatment is the most blatant form of discrimination because the employer's conduct is intentional.⁷⁶ Liability under the theory of disparate treatment requires a plaintiff to establish that her employer acted with a discriminatory intent or motive.⁷⁷ A plaintiff can establish this in one of two ways.⁷⁸ First, the plaintiff can present evidence of an employer's explicit discriminatory statement,⁷⁹ such as, "I would hire you,

poses when the criteria used to assess employees could have an impact based on characteristics like race, gender, age, national origin, religion, disability status, and genetic information); Ifeoma Ajunwa, Written Testimony of Ifeoma Ajunwa, J.D., Ph.D., Fellow Berkman Klein Center at Harvard University Assistant Professor of Law University of the District of Columbia School of Law (Oct. 13, 2016), <https://www.eeoc.gov/meetings/meeting-october-13-2016-big-data-workplace-examining-implications-equal-employment/ajunwa%2C%20j.d.%2C%20ph.d> [<https://perma.cc/K3EMLU6A-HF7QVTHB>]. Dr. Ajunwa explained that without careful safeguards to regulate the role of big data in the workplace, the proliferation of technology could also implicate privacy concerns for employees where employers have the ability to track their "workplace activities and movements," as well as their health and genetic information. *Id.*

⁷⁵ EEOC Big Data in the Workplace, *supra* note 72. In 2021, the EEOC announced that the agency was launching an initiative to ensure that AI used in hiring and other employment decisions would be consistent with the federal laws that the agency enforces. Press Release, U.S. Equal Emp. Opportunity Comm'n, EEOC Launches Initiative on Artificial Intelligence and Algorithmic Fairness (Oct. 28, 2021), <https://www.eeoc.gov/newsroom/eeoc-launches-initiative-artificial-intelligence-and-algorithmic-fairness> [<https://perma.cc/4NB4-KNMF>]. At the time this Article went to press, the EEOC had not yet issued any general guidance, but the EEOC did adopt a guidance covering the impact of AI hiring tools on people with disabilities under the Americans with Disabilities Act (ADA), 42 U.S.C. §§ 12101, *et seq.* *The Americans with Disabilities Act and the Use of Software, Algorithms, and Artificial Intelligence to Assess Job Applicants and Employees*, U.S. EQUAL EMP. OPPORTUNITY COMM'N (May 12, 2022), https://www.eeoc.gov/laws/guidance/americans-disabilities-act-and-use-software-algorithms-and-artificial-intelligence?utm_content=&utm_medium=email&utm_name=&utm_source=govdelivery&utm_term [<https://perma.cc/4DBH-KFDL>] [hereinafter EEOC, *ADA and the Use of Software, Algorithms, and AI*]. The EEOC guidance describes how AI hiring tools might violate the ADA by screening out qualified candidates due to their disabilities and articulated how employers should ensure that does not happen. *Id.*

⁷⁶ See, e.g., *Int'l Bhd. of Teamsters v. United States*, 431 U.S. 324, 335 (1977).

⁷⁷ *Watson v. Fort Worth Bank & Tr.*, 487 U.S. 977, 986 (1988).

⁷⁸ See *Teamsters*, 431 U.S. at 335.

⁷⁹ *Curry v. SBC Commc'ns, Inc.*, 669 F. Supp. 2d 805, 825 (E.D. Mich. 2009) (quoting *Imwalle v. Reliance Med. Prods., Inc.*, 515 F.3d 531, 544 (6th Cir. 2008)).

but I am not going to because you are [a female].”⁸⁰ And second, the plaintiff can use indirect or circumstantial evidence of the employer’s conduct.⁸¹ An employer can even be liable for disparate treatment if the employer has a mixed motive, such as a legitimate reason for the decision in addition to the discriminatory one.⁸²

In the U.S. Supreme Court case *Price Waterhouse v. Hopkins*, a woman who was passed over for partnership successfully argued intentional sex discrimination.⁸³ The firm admitted that the employee was qualified and stated that she would have been promoted but for her interpersonal problems.⁸⁴ By interpersonal problems, the firm meant that she was “aggressive” or “unduly harsh.”⁸⁵ However, there was also evidence that the firm refused to offer her the partnership because the partners felt that she needed to wear more makeup;⁸⁶ speak, walk, and talk more femininely;⁸⁷ and be less aggressive.⁸⁸ Other statements conveyed that the plaintiff was “macho” and that she should “take ‘a course at charm school.’”⁸⁹

In this mixed motives case, the Court had to decide whether the interpersonal skills rationale was a legitimate nondiscriminatory basis for denying her the partnership or whether it was merely a pretext to disguise sex discrimination.⁹⁰ The Court held that when a plaintiff can demonstrate that gender or gender stereotyping “played a motivating part in an employment decision,”⁹¹ the burden shifts to the defendant, who may avoid liability “only by proving by a preponderance of the evidence that it would have made the same decision even if it had not taken the plaintiff’s gender into account.”⁹² Expanding on the Court’s holding in her concurring opinion, Justice O’Connor explained that the employer’s

⁸⁰ Laina Rose Reinsmith, Note, *Proving an Employer’s Intent: Disparate Treatment Discrimination and the Stray Remarks Doctrine After Reeves v. Sanderson Plumbing Products*, 55 VAND. L. REV. 219, 227 (2002).

⁸¹ See *McDonnell Douglas Corp. v. Green*, 411 U.S. 792, 804–05 (1973).

⁸² When there are mixed motivations for the adverse employment action, an employer who has allowed a discriminatory impulse to play a motivating part in an employment decision must prove by a preponderance of the evidence that it would have made the same decision in the absence of discrimination. *Price Waterhouse v. Hopkins*, 490 U.S. 228, 252–53 (1989).

⁸³ *Id.* at 258.

⁸⁴ *Id.* at 234–35.

⁸⁵ *Id.*

⁸⁶ *Id.* at 235, 256.

⁸⁷ *Id.* at 235.

⁸⁸ See *id.*

⁸⁹ *Id.* at 235, 256.

⁹⁰ *Id.* at 232.

⁹¹ *Id.* at 258.

⁹² *Id.*

statements constituted “direct evidence that decisionmakers placed substantial negative reliance on an illegitimate criterion in reaching their decision.”⁹³ The case was reversed and remanded for further proceedings⁹⁴ and ultimately decided in the employee’s favor.⁹⁵

The second way to establish disparate treatment is by using indirect or circumstantial evidence.⁹⁶ Circumstantial evidence can be used to show that the employer’s proffered reason is a pretext “unworthy of credence”⁹⁷—for example, that the “employer’s explanation was contrary to the facts, insufficient to justify the action or not truly the employer’s motivation.”⁹⁸ The plaintiff can also offer evidence of “suspicious timing, ambiguous statements oral or written, behavior toward or comments directed at other employees in the protected group, and other bits and pieces from which an inference of discriminatory intent might be drawn.”⁹⁹ Evidence showing that the employer hired a less qualified applicant over the plaintiff in question, though not per se proof of pretext, may be evidence that the employer’s reasoning was a pretext for discrimination.¹⁰⁰ This burden of persuading the court of the existence of pretext does not follow a rigid test, and “it is important to avoid formalism in its application, lest one lose the forest for the trees. Pretext is a commonsense inquiry: did the employer fire [or, as here, refuse to hire] the employee for the stated reason or not?”¹⁰¹

As opposed to being denied a job or promotion because they are too macho, some women are rejected as being not macho enough. In a disparate treatment case centering on pretext, *Eldred v. Consolidated Freightways Corp. of Delaware*, an assistant linehaul supervisor, Judith Eldred, was denied a promotion purportedly because she lacked

⁹³ *Id.* at 277 (O’Connor, J., concurring).

⁹⁴ *Id.* at 258 (majority opinion). On remand, the district court ruled that its opinion on discrimination was unchanged after reconsidering the new evidentiary standard. In other words, the district court ruled, once again, that Price Waterhouse was liable for discrimination and ordered the firm to admit Hopkins to partnership and pay lost wages, legal fees, and court costs. Price Waterhouse then appealed the discrimination result again. The case made its way back up to the Court of Appeals for the second time, where the judges on the panel unanimously affirmed the district court on all issues. Ann Hopkins, *Price Waterhouse v. Hopkins: A Personal Account of a Sexual Discrimination Plaintiff*, 22 HOFSTRA LAB. & EMP. L.J. 357, 365 (2005).

⁹⁵ Hopkins, *supra* note 94, at 365.

⁹⁶ See *McDonnell Douglas Corp. v. Green*, 411 U.S. 792, 804–05 (1973).

⁹⁷ *Tex. Dep’t of Cmty. Affs. v. Burdine*, 450 U.S. 248, 256 (1981).

⁹⁸ *EEOC v. Target Corp.*, 460 F.3d 946, 960 (7th Cir. 2006).

⁹⁹ *Troupe v. May Dep’t Stores Co.*, 20 F.3d 734, 736 (7th Cir. 1994).

¹⁰⁰ *Burdine*, 450 U.S. at 258–59; see also *Walker v. Mortham*, 158 F.3d 1177, 1190 (11th Cir. 1998).

¹⁰¹ *Davis v. Cintas Corp.*, 717 F.3d 476, 491–92 (6th Cir. 2013) (quoting *Chen v. Dow Chem. Co.*, 580 F.3d 394, 400 n.4 (6th Cir. 2009)).

aggression.¹⁰² John Bubriski was promoted over Eldred “because he was an enthusiastic and ‘aggressive’ employee, had worked previously as a supervisor in Dock, and had leadership experience as an officer in the Army Reserves.”¹⁰³ Eldred, however, “was substantially more qualified for th[e] promotion”—she had superior evaluations, she was in her prior position longer than Bubriski, and Bubriski was often late to work and had “spotty” evaluations.¹⁰⁴ In fact, the only positive evaluation in evidence that related to Bubriski’s performance in the assistant position came after his promotion and appeared to be “an after-the-fact justification.”¹⁰⁵

Consolidated Freightways stated that it denied Eldred the promotion “because she lacked ‘aggressiveness’ and was too ‘soft’ with the drivers”¹⁰⁶—justifications that were linked to gender stereotypes.¹⁰⁷ The federal district court found that even if these characterizations about Eldred were true—which the court said was highly doubtful—they never affected Eldred’s job performance.¹⁰⁸ Ultimately, the court found that Eldred was more qualified than Bubriski for the promotion, and the proffered reasons for the refusal to promote Eldred were pretexts for gender-based discrimination.¹⁰⁹ The court went as far as to say that “[t]he unavoidable conclusion is not that plaintiff was passed over for the promotion because she was not aggressive; it was because she was not male.”¹¹⁰

An employer’s knowledge that a hiring practice discriminates against women, paired with evidence that shows the employer’s continued use of that same hiring practice, may also support an overall inference of intentional discrimination. Along those lines, in *EEOC v. Joe’s Stone Crab, Inc.*, a restaurant—Joe’s Stone Crab (Joe’s)—sought to provide its customers with an “Old World” dining ambiance.¹¹¹ In doing so, Joe’s management gave silent approval to the notion that male servers were preferable to female servers.¹¹² The Eleventh Circuit Court of

¹⁰² *Eldred v. Consol. Freightways Corp. of Del.*, 898 F. Supp. 928, 935 (D. Mass. 1995).

¹⁰³ *Id.* at 934.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *See id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* at 935.

¹¹⁰ *Id.* at 934.

¹¹¹ *EEOC v. Joe’s Stone Crab, Inc.*, 220 F.3d 1263, 1281 (11th Cir. 2000).

¹¹² *Id.*

Appeals held that, by emulating “Old World traditions” of male servers, Joe’s intentionally excluded women.¹¹³

B. *Disparate Impact*

The theory of disparate impact can be used when an employer’s seemingly neutral policy or practice operates to the disadvantage of women.¹¹⁴ The employer then has a chance to show that its selection criteria are related to job performance and serve the employer’s legitimate business needs.¹¹⁵ The plaintiff can overcome such a showing by proving that alternative selection criteria would serve the employer’s legitimate business needs, but “without a similar discriminatory effect.”¹¹⁶

The Fourth Circuit Court of Appeals decision in *United States v. Chesapeake & Ohio Railway Co.* provides a helpful articulation of the employer’s burden of proof: “The test of business necessity . . . ‘is not merely whether there exists a business purpose for adhering to a challenged practice. The test is whether there exists an overriding legitimate business purpose such that the practice is necessary to the safe and efficient operation of the business.’”¹¹⁷

In disparate impact cases, plaintiffs most often establish their prima facie case of disparate impact by statistical comparison.¹¹⁸ The Supreme Court acknowledges that statistics can be an important source of proof in employment discrimination cases because, assuming an employer is engaged in nondiscriminatory hiring practices, the workforce should be “more or less representative” of the larger community in which it operates.¹¹⁹

¹¹³ *Id.* at 1281–82.

¹¹⁴ *See, e.g.,* *Griggs v. Duke Power Co.*, 401 U.S. 424, 424 (1971). Though *Griggs* examined disparate impact in the context of race-based policies, courts use the same three-part analysis announced in *Griggs* regardless of whether the alleged discrimination is based on sex or race. *See, e.g.,* *United States v. City of Buffalo*, 457 F. Supp. 612, 619 (W.D.N.Y. 1978) (discussing the *Griggs* test and explaining that “since Title VII explicitly prohibits discrimination based upon sex as well as upon race, this standard should also be applied when sex is at issue” (citing *Bowe v. Colgate, Palmolive Co.*, 489 F.2d 896, 900 (7th Cir. 1973))).

¹¹⁵ *Vanguard Just. Soc’y v. Hughes*, 471 F. Supp. 670, 698 (D. Md. 1979).

¹¹⁶ *Id.*

¹¹⁷ *United States v. Chesapeake & Ohio Ry. Co.*, 471 F.2d 582, 588 (4th Cir. 1972) (quoting *Robinson v. Lorillard Corp.*, 444 F.2d 791, 798 (4th Cir. 1971)).

¹¹⁸ *Watson v. Fort Worth Bank & Tr.*, 487 U.S. 977, 994 (1988); *Int’l Bhd. of Teamsters v. United States*, 431 U.S. 324, 339–40 (1977).

¹¹⁹ *Hazelwood Sch. Dist. v. United States*, 433 U.S. 299, 307 (1977) (quoting *Teamsters*, 431 U.S. at 339 n.20).

The plaintiff is not required to show a disproportionate impact based on a comparative analysis of the actual applicants¹²⁰ because courts recognize that “[t]he application process might itself not adequately reflect the actual potential applicant pool, since otherwise qualified people might be discouraged from applying because of a self-recognized inability to meet the very standards challenged as being discriminatory.”¹²¹

One statistical benchmark for assessing whether a selection procedure results in a disparate impact is the “four-fifths rule” enumerated in the EEOC’s Uniform Guidelines on Employee Selection Procedures.¹²² The Uniform Guidelines explain that “[a] selection rate for any race, sex, or ethnic group which is less than four-fifths (4/5) (or eighty percent) of the rate for the group with the highest rate will generally not be regarded by the Federal enforcement agencies as evidence of adverse impact.”¹²³

The Supreme Court in *Griggs v. Duke Power Co.*, a racial discrimination case,¹²⁴ provides the framework and the theory for discriminatory impact cases.¹²⁵ Prior to the passage of the Civil Rights Act, Duke Power Company prohibited African Americans from working in any department other than the janitorial department.¹²⁶ The employees in that department were the lowest paid at the plant—even the highest paid employee in the janitorial department was paid less than the lowest paid employee in other departments.¹²⁷ After the Act’s passage, Duke had to abolish the rule that African American employees were permitted only to work as janitors, but the company developed two new employment

¹²⁰ See *Dothard v. Rawlinson*, 433 U.S. 321, 330 (1977).

¹²¹ *Id.*

¹²² 29 C.F.R. § 1607.4(D).

¹²³ *Id.* However, the “four-fifths rule” is not the only metric available to plaintiffs. See *Teamsters*, 431 U.S. at 339–340 (“We caution only that statistics are not irrefutable; they come in infinite variety and, like any other kind of evidence, they may be rebutted. In short, their usefulness depends on all of the surrounding facts and circumstances.”). And in *Hazelwood*, for example, the U.S. Supreme Court endorsed the use of a standard deviation analysis to determine the significance of a statistical disparity. See *Hazelwood*, 433 U.S. at 308 n.14. Standard deviations measure the amount of variation between two sets of values. The *Hazelwood* Court explained that, generally, “if the difference between the expected value and the [actual value] is greater than two or three standard deviations,” the argument that the results of a particular hiring activity is facially neutral “would be suspect.” *Id.* (quoting *Castaneda v. Partida*, 430 U.S. 482, 496 n.17 (1977)).

¹²⁴ *Griggs*, 401 U.S. at 424.

¹²⁵ See generally *id.* at 431.

¹²⁶ See *id.* at 427.

¹²⁷ *Id.*

requirements for the other departments: (1) a high school degree and (2) a passing grade on standardized general intelligence tests.¹²⁸

In holding that Duke's employment requirements violated Title VII, the Court explained that the scope of the Act reached "the *consequences* of employment practices, not simply the motivation."¹²⁹ Under the Act, any employment criteria, while "fair in form," cannot be maintained if "they operate to 'freeze' the status quo of prior discriminatory employment practices."¹³⁰ Even when there is no evidence of prior discriminatory practices,¹³¹ and even if Duke enacted their diploma and testing requirements in good faith,¹³² under Title VII, "good intent or absence of discriminatory intent does not redeem employment procedures or testing mechanisms that operate as 'built-in headwinds' for minority groups and are unrelated to measuring job capability."¹³³

In a case involving sex discrimination in choosing apprentice boilermakers, *Bailey v. Southeastern Area Joint Apprenticeship Committee*,¹³⁴ those "built-in headwinds"¹³⁵ resulted from points being awarded to applicants for criteria that were less likely to have been experienced by women—such as an extra five points for service in the military and an extra ten points for time spent in vocational school.¹³⁶ As a result, 2,227 of 7,287 male applicants were accepted into the apprentice program, while only 2 of 94 female applicants were accepted.¹³⁷ The female plaintiffs who brought the lawsuit were rejected from the apprenticeship program even though they actually had experience as boilermakers.¹³⁸

¹²⁸ *Id.* at 426–28. The "general intelligence" tests that Duke used were the Wonderlic Personnel Test and the Bennett Mechanical Comprehension Test. *Id.* at 428.

¹²⁹ *Id.* at 432 (emphasis added).

¹³⁰ *Id.* at 430–31.

¹³¹ *Eatman v. UPS*, 194 F. Supp. 2d 256, 266 (S.D.N.Y. 2002) (explaining that an employer violates Title VII under a disparate impact theory of liability if their facially neutral employment practice burdens one group more harshly than the other, "regardless of whether or not reliance on those characteristics serves to perpetuate the effects of pre-Title VII intentional discrimination").

¹³² Michael Selmi, *Was the Disparate Impact Theory a Mistake?*, 53 UCLA L. REV. 701, 719 (2006) ("Importantly, all of the courts to analyze the issue accepted the company's stated explanation of a desire to upgrade the quality of its workforce at face value. This was true even though the test had not been shown to provide reliable information regarding the necessary skills for the positions, and even though the controversy over standardized tests was not a new one.").

¹³³ *Griggs*, 401 U.S. at 432.

¹³⁴ *Bailey v. Se. Area Joint Apprenticeship Comm.*, 561 F. Supp. 895 (N.D.W. Va. 1983).

¹³⁵ *Griggs*, 401 U.S. at 432.

¹³⁶ *Bailey*, 561 F. Supp. at 902.

¹³⁷ *Id.* at 904.

¹³⁸ *Id.* at 901–02.

The court acknowledged that the apprenticeship committee “undoubtedly developed its screening mechanism in good faith,” albeit “informally and unprofessionally”¹³⁹ because they did not perform any validation study of the selection, screening, or ranking procedures they used in their hiring process.¹⁴⁰ The court opined that the screening questions were likely “developed in blissful ignorance of [their] possible impact on women as a protected class under Title VII.”¹⁴¹ The court recognized that there may be some “tangential relevance” between military service, shop classes, vocational training, and performance on the job, in that those activities are “conceivably indicative of [the applicant’s] general ability to work in a group,”¹⁴² but on the whole, the defendant failed to meet its burden of showing a legitimate business necessity for these questions, nor were the questions a “reasonable measure of job performance.”¹⁴³ Finally, the court determined that there were likely less restrictive alternatives to questions about prior military service, vocational training, and shop classes.¹⁴⁴

Neither discriminatory intent nor previous discriminatory practice are prerequisites for a showing of disparate impact, thereby fashioning Title VII as a defense against more subtle forms of discrimination.¹⁴⁵ Even where there is no conscious effort on the part of the employer to discriminate against a protected class, if its hiring policies or practices cause a disparate impact, the employer cannot escape scrutiny under Title VII.¹⁴⁶

Previous disparate impact cases challenging pre-employment testing have often involved tests for civil service positions such as police

¹³⁹ *Id.* at 911.

¹⁴⁰ *Id.* at 910.

¹⁴¹ *Id.* at 911.

¹⁴² *Id.* at 912 n.20.

¹⁴³ *Id.* at 912–913 (quoting *Griggs v. Duke Power Co.*, 401 U.S. 424, 436 (1971)).

¹⁴⁴ *Id.* at 912.

¹⁴⁵ *Watson v. Fort Worth Bank & Tr.*, 487 U.S. 977, 988 (1988) (“This Court has repeatedly reaffirmed the principle that some facially neutral employment practices may violate Title VII even in the absence of a demonstrated discriminatory intent. We have not limited this principle to cases in which the challenged practice served to perpetuate the effects of pre-Act intentional discrimination.”); *Eatman v. UPS*, 194 F. Supp. 2d 256, 266 (S.D.N.Y. 2002) (explaining that an employer violates Title VII under a disparate impact theory of liability if their facially neutral employment practice burdens one group more harshly than the other, “regardless of whether or not reliance on those characteristics serves to perpetuate the effects of pre-Title VII intentional discrimination”).

¹⁴⁶ See *Griggs*, 401 U.S. at 432; *Watson*, 487 U.S. at 988.

officers,¹⁴⁷ firefighters,¹⁴⁸ and corrections officers.¹⁴⁹ Employers posit that these positions require a minimum level of physical or mental skill,¹⁵⁰ and they rely on pre-employment tests to determine whether an applicant meets their desired standard.¹⁵¹ But such tests have been routinely challenged for having a disparate impact on a protected class like women or minority candidates.¹⁵² Pre-employment tests for civil service positions therefore provide a useful frame of reference for the kinds of challenges that might be brought against an employer who uses AI hiring technologies that seek to measure skills which the employer believes are necessary for success in the position. A key aspect of this jurisprudence is that even reasonable-seeming testing criteria (such as strength or math ability) will be struck down if it disproportionately disadvantages women, unless it is necessary for the “safe and efficient”¹⁵³ performance of the job.

In *Berkman v. City of New York*, a case involving a physical exam, a twenty-nine-year-old woman was the lead plaintiff in a class action against the New York City Fire Department.¹⁵⁴ She had passed the written exam but failed the physical exam, resulting in her disqualification as an applicant.¹⁵⁵ The physical test had a passage rate of 46% for men and 0% for women.¹⁵⁶ The court determined that the test did not meet the EEOC’s validation metrics for pre-employment testing.¹⁵⁷ The *Berkman* court

¹⁴⁷ See, e.g., *Isabel v. City of Memphis*, 404 F.3d 404 (6th Cir. 2005).

¹⁴⁸ See, e.g., *Berkman v. City of New York*, 536 F. Supp. 177 (E.D.N.Y. 1982), *aff’d*, 705 F.2d 584 (2d Cir. 1983).

¹⁴⁹ See, e.g., *Dothard v. Rawlinson*, 433 U.S. 321 (1977).

¹⁵⁰ See, e.g., *id.* at 324 n.2, 324–25, 327.

¹⁵¹ See *Easterling v. Connecticut*, 783 F. Supp. 2d 323, 326 (D. Conn. 2011).

¹⁵² See, e.g., *Albemarle Paper Co. v. Moody*, 422 U.S. 405, 410–11 (1975) (challenging, among other employment practices, the use of the Revised Beta Examination (an alleged measure of nonverbal intelligence) and the Wonderlic Personnel Test (an alleged measure of verbal facility)); *Isabel*, 404 F.3d at 408 (challenging written examination used for promotion to the rank of lieutenant in city police department); *United States v. Massachusetts*, 781 F. Supp. 2d 1 (D. Mass. 2011) (challenging the use of a physical abilities test to select correctional officers); *Fickling v. N.Y. State Dep’t of Civ. Serv.*, 909 F. Supp. 185 (S.D.N.Y. 1995) (challenging written examination for entry level position as a civil service officer); *Berkman*, 536 F. Supp. at 179 (challenging physical portion of exam for entry level firefighter position in New York City fire department).

¹⁵³ *United States v. Chesapeake & Ohio Ry. Co.*, 471 F.2d 582, 588 (4th Cir. 1972) (quoting *Robinson v. Lorillard Corp.*, 444 F.2d 791, 798 (4th Cir. 1971)).

¹⁵⁴ *Berkman*, 536 F. Supp. at 179.

¹⁵⁵ See *id.*

¹⁵⁶ *Id.* at 204.

¹⁵⁷ *Id.* at 208. The EEOC Uniform Guidelines provide a framework that employers can use to validate their pre-employment test through any one of three methods. These methods are known as (1) content validation, (2) criterion validation, and (3) construct validation. 29 C.F.R. § 1607.5(B). Very broadly, content validation shows that the employment test measures the knowledge, skills, or abilities that are used on the job; criterion validation demonstrates that an

concluded that “it [was] possible” that the tests contained “isolated references to work behaviors bearing superficial resemblance”¹⁵⁸ to actual job performance, but, on the whole, the test did not “represent appropriate abilities”¹⁵⁹ that would predict an applicant’s success on the job.¹⁶⁰

Similarly, in *Fickling v. New York State Department of Civil Service*, plaintiffs brought suit under Title VII alleging that they were unlawfully terminated for failing an examination given as part of their job as Welfare Eligibility Examiners.¹⁶¹ The court assessed whether the content of the test was related to the content of the job and whether the scoring system “usefully selects” those applicants who are best suited to perform the job.¹⁶² The court determined that the test failed to comply with EEOC test validation metrics under the Uniform Guidelines because, among other things, 38% of the questions on the exam required arithmetic, even though the ability to do arithmetic was found to be “unimportant” to job performance based on an earlier analysis of the knowledge, skills, and ability of the ideal candidate.¹⁶³

In *United States v. Massachusetts*, the United States sought to enjoin the Commonwealth of Massachusetts and the Massachusetts Department of Corrections from using the Caritas Physical Abilities Test to select entry-level correctional officers, arguing that the test had a disparate impact on women applicants.¹⁶⁴ While the court understood that, as a matter of common sense and safety,¹⁶⁵ factors like an individual’s speed, strength, and ability could be relevant to determining whether someone is suited to the job of a corrections officer, the court nevertheless determined that Massachusetts failed to show that the test was consistent with business necessity¹⁶⁶ and necessary for “effective, efficient, or safe job performance.”¹⁶⁷

applicant’s performance on the test is “predictive of or significantly correlated with” job performance; and construct validation measures the degree to which the exam tests applicants for “identifiable characteristics which have been determined to be important in successful performance in the job.” *Id.*; see also *Fickling*, 909 F. Supp. at 189–90.

¹⁵⁸ *Berkman*, 536 F. Supp. at 207.

¹⁵⁹ *Id.* at 208.

¹⁶⁰ *Id.* at 207–08.

¹⁶¹ *Fickling*, 909 F. Supp. at 186.

¹⁶² *Id.* at 190.

¹⁶³ *Id.* at 191.

¹⁶⁴ *United States v. Massachusetts*, 781 F. Supp. 2d 1, 4 (D. Mass. 2011).

¹⁶⁵ *Id.* at 18.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

III. APPLICATION OF TITLE VII TO AI TECHNOLOGIES IN HIRING

A. *Resume Scanning*

1. The Technological Underpinnings of Resume-Scanning, Its Current Uses, and Its Gendered Impacts

Employers use artificial intelligence technologies to rate job applicants' resumes.¹⁶⁸ Resume scanning has been used by entities such as JCDcaux,¹⁶⁹ University of Pennsylvania,¹⁷⁰ MoneyCorp,¹⁷¹ Monster,¹⁷² Nissan,¹⁷³ PharmEasy,¹⁷⁴ Wal-Mart,¹⁷⁵ General Electric,¹⁷⁶ Starbucks,¹⁷⁷ McDonald's,¹⁷⁸ Hyatt,¹⁷⁹ UNICEF,¹⁸⁰ and Chick-fil-A.¹⁸¹ Employers claim that AI technologies are necessary to deal with the torrent of resumes they receive for any given job.¹⁸² Proctor & Gamble,

¹⁶⁸ See, e.g., *Resume Screening*, FRESHWORKS, <https://www.freshworks.com/hrms/recruitment/resume-screening> [<https://perma.cc/KK63-S72L>].

¹⁶⁹ *Freshteam*, FRESHWORKS, https://www.freshworks.com/hrms/?source=fworks&medium=referral&campaign=second_fold [<https://perma.cc/6P56-63HY>]. As Freshworks advertises on its website, "7000+ companies chose Freshteam to elevate their Hiring and HR Operations." *Resume Screening Software*, FRESHWORKS, <https://www.freshworks.com/hrms/features/resume-screening> [<https://perma.cc/KK63-S72L>]. Freshteam is an applicant tracking system (ATS) that includes a resume screening feature. *Id.*

¹⁷⁰ *Freshteam*, *supra* note 169.

¹⁷¹ *Id.*

¹⁷² *Id.*

¹⁷³ *Id.*

¹⁷⁴ *Id.*

¹⁷⁵ Ben Bradford, *Why Companies Use Software to Scan Resumes*, NPR: ALL THINGS CONSIDERED (Oct. 6, 2012, 3:00 PM), <https://www.npr.org/2012/10/06/162440531/why-companies-use-software-to-scan-resumes> [<https://perma.cc/ZA8H-A2E5>].

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ MYINTERVIEW, *supra* note 20.

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² See, e.g., Rebecca Heilweil, *Artificial Intelligence Will Help Determine If You Get Your Next Job*, VOX (Dec. 12, 2019, 8:00 AM), <https://www.vox.com/recode/2019/12/12/20993665/artificial-intelligence-ai-job-screen> [<https://perma.cc/X7UK-B3Y4>] ("[R]ecruiters are increasingly using AI to make the first round of cuts and to determine whether a job posting is even advertised to you. Often trained on data collected about previous or similar applicants, these tools can cut down on the effort recruiters need to expend in order to make a hire."); Lilia Shkuropat, *AI-Based Resume Screening: Does Your ATS Need It?*, MINDK, <https://www.mindk.com/blog/ai-based-resume-screening> [<https://perma.cc/KFL3-CD7V>].

for example, received 1,000,000 applications for 2,000 jobs.¹⁸³ The average number of resumes per job is actually a more manageable number, about 250 resumes per job posting.¹⁸⁴

One approach to resume scanning is for the developers to decide in advance which words on the resume should lead to a job applicant either being rejected or moved to the next stage.¹⁸⁵ Kathryn Dill of *The Wall Street Journal* reported on hospitals scanning nurses' resumes to find those who had listed "computer programming" when hospitals needed nurses who could enter their patient data into the computer.¹⁸⁶ Yet nursing candidates might emphasize care skills on their resumes and not think to add computer skills that they actually possess. Other examples include a power company scanning for customer service experience when hiring power line repair employees¹⁸⁷ and a store's algorithm only selecting for "retail clerks" if they have "floor-buffing" experience.¹⁸⁸

Resume scanning technology can alternatively use artificial intelligence and machine learning to analyze the resumes and rank the candidates.¹⁸⁹ Resume scanning companies claim their software analyzes and can select for traits such as attention to detail,¹⁹⁰ leadership skills,¹⁹¹ and other qualities that "stand[] out."¹⁹² To identify the characteristics thought to predict success, employers use resumes submitted by their current roster of top employees as the model for the dataset.¹⁹³ The resulting hindsight bias may operate to the disadvantage of groups of individuals historically excluded from the workplace, including women.¹⁹⁴ For example, if most managers in a company are men, and many happened to have been varsity football players, a resume scanning

¹⁸³ David D. Savage & Richard Bales, *Video Games in Job Interviews: Using Algorithms to Minimize Discrimination and Unconscious Bias*, 32 A.B.A. J. LAB. & EMP. L. 211, 215 (2017) (citing Lauren Weber, *Your Résumé vs. Oblivion*, WALL ST. J. (Jan. 24, 2012), <https://www.wsj.com/articles/SB10001424052970204624204577178941034941330> [<https://perma.cc/BX3F-ZCJF>]).

¹⁸⁴ Deshpande, Pan & Foulds, *supra* note 43, at 268.

¹⁸⁵ See generally Kathryn Dill, *Companies Need More Workers. Why Do They Reject Millions of Résumés?*, WALL ST. J. (Sept. 4, 2021, 12:00 AM), https://www.wsj.com/articles/companies-need-more-workers-why-do-they-reject-millions-of-resumes-11630728008?st=gwlc6wtzi15iaw8&reflink=article_email_share [<https://perma.cc/YTJ3-KYV7>].

¹⁸⁶ *Id.*

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

¹⁸⁹ See *Resume Screening*, *supra* note 168.

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ See RIEKE & BOGEN, *supra* note 26, at 8; *AI for Recruiting: A Definitive Guide for HR Professionals*, *supra* note 30.

¹⁹⁴ Hensler, *supra* note 55, at 44.

algorithm will give priority to resumes that also include “varsity football” credentials. Since very few women play varsity football, the algorithm will give priority to male candidates—even when playing the sport has no bearing on job performance. This is the process that led to the algorithm identifying the name Jared and having played high school lacrosse as the keys to success.¹⁹⁵

Resume scans can also discriminate against women due to differences in language that men and women have been socialized to use. Women are more likely to use “we” when describing a project, while men are more likely to say “I” when talking about achievements,¹⁹⁶ so an algorithm trained mostly on men will be biased to choose candidates with “I” language on their resume. Men are more likely to use active verbs like “executed”; in choosing resumes with male-gendered verbs, such as “executed” or “captured,” the Amazon algorithm disadvantaged women.¹⁹⁷

The application of resume scanning programs that privilege maleness are reminiscent of the situation of Simone de Beauvoir and Jean-Paul Sartre, who both studied philosophy at the Sorbonne.¹⁹⁸ They both sat for the *agrégation*, a civil service exam where the higher-ranked candidate got his or her pick of professorial jobs.¹⁹⁹ They were neck and neck to be declared the top candidate.²⁰⁰ But the honor went to Sartre. Why? He received points for attending a prestigious high school.²⁰¹ Since the school was for boys only, there is no way de Beauvoir could have matched him under that faulty “algorithm.”²⁰²

Discrimination can also result from the lack of context in resume scanning. A large and unexplained gap on a person’s resume is often a red flag for a prospective employer²⁰³ and will result in automatic rejection by the algorithm. If a human were reading an applicant’s resume, context clues (i.e., a more suburban address, a more distant graduation year, volunteer experience at a local elementary school) surrounding a large

¹⁹⁵ Gershgorn, *supra* note 50; *see also* Friedman & McCarthy, *supra* note 50.

¹⁹⁶ Deborah Tannen, *The Power of Talk: Who Gets Heard and Why*, HARV. BUS. REV. (Sept.–Oct. 1995), <https://hbr.org/1995/09/the-power-of-talk-who-gets-heard-and-why> [<https://perma.cc/VXR2-H3KZ>].

¹⁹⁷ *Id.*

¹⁹⁸ *See generally* DEIRDRE BAIR, SIMONE DE BEAUVOIR: A BIOGRAPHY 145–46 (1991).

¹⁹⁹ *See id.*

²⁰⁰ *Id.*

²⁰¹ *Id.*

²⁰² *See id.*

²⁰³ *See* Caroline Castrillon, *5 Ways to Handle an Employment Gap on Your Resume*, FORBES (Mar. 14, 2021, 4:30 PM), <https://www.forbes.com/sites/carolinecastrillon/2021/03/14/5-ways-to-handle-an-employment-gap-on-your-resume> [<https://perma.cc/K27U-GHYS>].

gap between professional experiences on a woman's resume could indicate a break taken to raise children. To a resume scanning algorithm, none of this context is considered—the program merely red flags and downgrades a resume with a large work experience time gap,²⁰⁴ and the resume may never be seen by a human recruiter.

A 2021 joint study conducted by professors at Harvard Business School and professionals from Accenture found that around 27,000,000 people have been stopped by resume scanning from finding full-time employment.²⁰⁵ The study did not provide a gender breakdown of those who were, as they described it, “missing from the workforce.”²⁰⁶ The study notes that 88% of the employers said “that *qualified high-skills candidates* are vetted out of the process because they do not match the exact criteria established by the job description. That number rose to 94% in the case of middle-skills workers.”²⁰⁷

The researchers were critical of resume scanning algorithms because they can reject qualified candidates. They reject resumes with significant gaps in work experience,²⁰⁸ which can “eliminate huge swaths of the population such as veterans, working mothers, immigrants, caregivers, military spouses and people who have some college coursework but never finished their degree.”²⁰⁹

2. The Potential Role of Existing Law in Response to Gender Discrimination in Resume Scanning

a. Disparate Treatment

What recourse does a woman have if she is rejected for a job by a resume scanning algorithm? She might be able to show disparate treatment if the algorithm downgrades an applicant based on sexist criteria, such as the use of “women” on the resume (such as “Captain, Women's Lacrosse Team”) as in the Amazon algorithm example.

²⁰⁴ The artificial intelligence software is already here and able to do just that. See JOBSCAN, <https://www.jobscan.co/home-v2> [<https://perma.cc/4X6V-BDMP>] (navigate to “How Jobscan works” then “Upload your resume” and fill in the job description); Castrillon, *supra* note 203.

²⁰⁵ Stephen Jones, *AI Tools That Companies Use to Scan Resumes Are Stopping 27 Million People Finding New Jobs, a Harvard Report Says*, BUS. INSIDER (Sept. 8, 2021, 6:55 AM), <https://www.businessinsider.com/ai-recruitment-tools-cv-scanners-automated-hiring-overlook-hidden-workers-2021-9> [<https://perma.cc/2EDU-4ZZ7>]; see also FULLER, RAMAN, SAGE-GAVIN & HINES, *supra* note 21, at 2–3.

²⁰⁶ FULLER, RAMAN, SAGE-GAVIN & HINES, *supra* note 21, at 2–3.

²⁰⁷ *Id.* at 3.

²⁰⁸ See, e.g., Dill, *supra* note 185.

²⁰⁹ *Id.*

It could also be argued that an employer is engaged in disparate treatment if the process by which the technology is created is known to be biased in favor of men. Training a model on a dataset that overrepresented men would invariably lead to devaluing female candidates and thus is akin to intentional bias. In tech companies, for example, the existing representation of women is less than the four-fifths ratio suggested by the Uniform Guidelines. According to Google's 2022 Diversity Annual Report, women made up 30.6% of the company's tech hires in the United States, while men accounted for 69.4% of the company's new recruits.²¹⁰ Since tech companies can be expected to know that algorithms reflect the dataset on which they are trained, use of such an algorithm could be viewed as intentional discrimination based on sex.

Similarly, an intent to discriminate could be established if the employer has actual knowledge of the discriminatory effect of the algorithm through its own data of the gender breakdown of the people the algorithm ranks highly or through publication of a study about it. This would be similar to the studies done by ProPublica, which revealed that criminal sentencing algorithms discriminate against Black people.²¹¹ If a resume-scanning algorithm disfavors female applicants, the employer should realize the process is discriminating based on a protected characteristic. As one set of commentators opined, "it is not difficult to imagine courts taking a *res ipsa loquitur* attitude" in such circumstances.²¹²

b. Disparate Impact

A woman could alternatively bring a disparate impact claim if resume scanning leads to a significant difference in the hiring of women versus men. *Griggs v. Duke Power Co.* noted that any employment criteria, while "fair in form," cannot be maintained if "they operate to 'freeze' the status quo of prior discriminatory employment practices."²¹³ The use of the resumes of existing employees²¹⁴ to serve as the benchmark for the

²¹⁰ GOOGLE, GOOGLE DIVERSITY ANNUAL REPORT 2022 app. at 67, https://static.googleusercontent.com/media/about.google/en//belonging/diversity-annual-report/2022/static/pdfs/google_2022_diversity_annual_report.pdf?cachebust=1093852 [<https://perma.cc/27AY-2GQX>]. Note, Google did not disclose the selection procedures used to recruit and hire new talent, so these numbers reflect only those top-line figures as reported by the company.

²¹¹ Julia Angwin, Jeff Larson, Surya Mattu & Lauren Kirchner, *Machine Bias*, PROPUBLICA (May 23, 2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing> [<https://perma.cc/Z99G-XXNM>].

²¹² Matthew U. Scherer, Allan G. King & Marko J. Mrkonich, *Applying Old Rules to New Tools: Employment Discrimination Law in the Age of Algorithms*, 71 S.C. L. REV. 449, 494 (2019).

²¹³ *Griggs v. Duke Power Co.*, 401 U.S. 424, 430–31 (1971).

²¹⁴ Hensler, *supra* note 55, at 42–44.

resume-scanning algorithm is problematic in that it privileges men over women. The algorithm results in hindsight bias because it has the tendency to discount groups of individuals historically excluded from the workplace, including women.²¹⁵

A female plaintiff might be able to show disparate impact if the algorithm scans for criteria that are much more likely to apply to men than women, such as playing football or military service. (Recall that in *Bailey v. Southeastern Area Joint Apprenticeship Committee*, the employer's use of previous military service or participation in shop classes was held to be discriminatory.)²¹⁶ If the algorithm scans for missing time periods in the resume²¹⁷ (such as a year off between jobs, which may be more common to women who tend to take time off after childbirth), that, too, might be seen as discriminatory.

The burden would then be on the employer to show that the resume scanning technique was identifying job-related traits. In *Griggs*, the Court rejected the company's argument that it should be allowed to use standardized intelligence tests in spite of the disparate impact they caused.²¹⁸ The Court explained that an employer must demonstrate that any hiring metric must bear a "manifest relationship to the employment in question"²¹⁹ and a "demonstrable relationship to successful performance of the jobs for which it [is] used."²²⁰

Think of the situation in which women are disproportionately rejected because men tend to use more active verbs²²¹ and are more likely to use "I" to claim credit instead of "we."²²² Is it really likely that those speech styles are tied to better performance on the job—or do they demonstrate that the person is more likely to be arrogant and take credit for another person's work? Given the lack of objective studies of the ability of resume scanning to predict future job performance—and the

²¹⁵ *Id.* at 44.

²¹⁶ *Bailey v. Se. Area Joint Apprenticeship Comm.*, 561 F. Supp. 895 (N.D.W. Va. 1983).

²¹⁷ See, e.g., FULLER, RAMAN, SAGE-GAVIN & HINES, *supra* note 21, at 42–43; Dill, *supra* note 185 ("Harvard said the use of a résumé-gap scan can eliminate huge swaths of the population such as veterans, working mothers, immigrants, caregivers, military spouses and people who have some college coursework but never finished their degree.").

²¹⁸ *Griggs*, 401 U.S. at 433, 436.

²¹⁹ *Griggs*, 401 U.S. at 432.

²²⁰ *Id.* at 431.

²²¹ Goodman, *supra* note 14. When Amazon was developing its resume scanning algorithm, it used training data of the company's existing employees who were "overwhelmingly male." *Id.* As a result, the code largely ignored the resumes listing skills that were typical among all applicants (e.g., the ability to write computer code) and instead highlighted the resumes of applicants who used male-gendered verbs like "executed" or "captured" to describe their IT abilities. *Id.*

²²² Tannen, *supra* note 196.

sexist nature of algorithms like the Amazon one that was developed using a mostly male workforce—it will be difficult for employers to make a showing that the traits were job-related.

For some traits, the employer might have a better chance of clearing the job-related hurdle. For example, being on the football team might show leadership abilities or team skills. Or a time gap might indicate that someone is not devoted to their career. Then, it would be up to the woman to come up with an alternative to the challenged metric. For example, the woman could argue that she has alternative leadership or team skills, such as participation in other sports.²²³ And she could argue that rather than using a gap on her resume after childbirth to suggest a lack of devotion to a career, the potential employer could check references to see how well she performed in her previous jobs.

B. *One-Way Video Interviews*

1. The Technological Underpinnings of One-Way Video Interviews, Their Current Uses, and Their Gendered Impacts

One-way video interviews differ from standard interviews because they happen without a human interviewer.²²⁴ The job applicant logs in online and records herself or himself responding to prompts in the absence of a human representative of the employer.²²⁵ As with resume scanning algorithms, one-way video interviews are marketed as a more efficient way for employers to evaluate large numbers of candidates²²⁶ and to remove bias and subjectivity from the hiring process.²²⁷

²²³ For example, 90% of female CEOs have played sports. Abigail Johnson Hess, *If You Want to Be a CEO Later, Play Sports Now*, CNBC (Jan. 11, 2017, 4:41 PM), <https://www.cnbc.com/2017/01/11/want-to-be-a-ceo-later-play-sports-now.html> [<https://perma.cc/SD2D-TDEN>].

²²⁴ See Indeed Editorial Team, *One-Way Video Interview Guide (With Tips and FAQs)*, INDEED (Dec. 14, 2021), <https://www.indeed.com/career-advice/interviewing/one-way-video-interview> [<https://perma.cc/RH46-GRET>]; Drew Harwell, *A Face-Scanning Algorithm Increasingly Decides Whether You Deserve the Job*, WASH. POST (Nov. 6, 2019, 12:21 PM), <https://www.washingtonpost.com/technology/2019/10/22/ai-hiring-face-scanning-algorithm-increasingly-decides-whether-you-deserve-job> [<https://perma.cc/5XQM-SGTH>].

²²⁵ See Indeed Editorial Team, *supra* note 224.

²²⁶ See Harwell, *supra* note 224.

²²⁷ See Iris Bohnet, *How to Take the Bias Out of Interviews*, HARV. BUS. REV. (Apr. 18, 2016), <https://hbr.org/2016/04/how-to-take-the-bias-out-of-interviews> [<https://perma.cc/R7RJ-5Z5R>].

One-way interviewing purportedly uses AI to analyze whether an applicant is creative,²²⁸ strategic,²²⁹ disciplined,²³⁰ driven,²³¹ friendly,²³² outgoing,²³³ assertive,²³⁴ persuasive,²³⁵ stress tolerant,²³⁶ and optimistic.²³⁷ This technology has been used for positions including customer operations clerks,²³⁸ warehouse workers,²³⁹ fast food crew members,²⁴⁰ retail supervisors,²⁴¹ and by entities such as Six Flags,²⁴² Facebook,²⁴³ Chick-fil-A,²⁴⁴ CA.gov,²⁴⁵ and McDonald's.²⁴⁶

After the interviews are recorded, an algorithm can analyze the video components, the audio components, or a written transcript of the

²²⁸ “Creative” inquires as to whether the applicant “[s]hows creativity, innovation, appreciates good design, and likes solving problems creatively.” Clayton Donnelly, *Save Time, Find Hidden Gems—Use Smart Shortlisting*, MYINTERVIEW (Feb. 14, 2022, 3:13:31 PM), <https://blog.myinterview.com/save-time-find-hidden-gems-use-smart-shortlisting> [<https://perma.cc/Z8P3-4X73>] (listing the “myInterview Smart Shor[t]listing Behavior Library” traits and their descriptions).

²²⁹ “Strategic” inquires as to whether the applicant “[f]ocuses on strategic concepts, enjoys the big picture, and enjoys working with ideas.” *Id.*

²³⁰ “Disciplined” inquires as to whether the applicant “[p]ays attention to detail, enjoys closing the loop, and prefers being reliable.” *Id.*

²³¹ “Driven” inquires as to whether the applicant “[l]ikes to achieve or obtain goals, focuses on getting things done quickly, and enjoys feeling productive.” *Id.*

²³² “Friendly” inquires as to whether the applicant “[t]akes a warm and friendly approach with others, enjoys teamwork, and takes an interest in other people.” *Id.*

²³³ “Outgoing” inquires as to whether the applicant “[e]njoys presenting, public speaking, and engages with people with ease.” *Id.*

²³⁴ “Assertive” inquires as to whether the applicant “[s]how[s] confidence, takes the lead, and shares opinions strongly.” *Id.*

²³⁵ “Persuasive” inquires as to whether the applicant “[e]njoys convincing others, uses influence, and likes negotiating.” *Id.*

²³⁶ “Stress Tolerant” inquires as to whether the applicant “[e]njoys working under high pressure, takes ownership, and welcomes development feedback.” *Id.*

²³⁷ “Optimistic” inquires as to whether the applicant “[s]ees the positive always, faces challenges with determination, and dislikes negativity from others.” *Id.*

²³⁸ *The myInterview Experience*, MYINTERVIEW, <https://www.myinterview.com/product-features> [<https://perma.cc/D36A-BNKD>] (navigate to the scrolling boxes under “You’re in Good Company”).

²³⁹ *Id.*

²⁴⁰ *Id.*

²⁴¹ *Id.*

²⁴² *Our Customers*, MYINTERVIEW, <https://www.myinterview.com/customers> [<https://perma.cc/N6KG-A5GW>] (noting that company used myInterview, a one-way video interview platform, in its list of clients).

²⁴³ *Id.*

²⁴⁴ *Id.*

²⁴⁵ *Id.*

²⁴⁶ *Id.*

interview.²⁴⁷ One-way interviewing AI can assess how the applicant's face moved when responding to each question to determine, for example, how excited the applicant seemed about a certain task or how they would deal with an angry customer.²⁴⁸ For one company's algorithm, these facial analyses counted for 29% of the applicant's score.²⁴⁹ The Chief Technology Officer of the company told Business Insider about its video interview analysis.²⁵⁰ She explained that the artificial intelligence algorithm analyzed different features important for different jobs²⁵¹: if a job required client work, the algorithm weighted certain characteristics it read differently: "[T]hings like eye contact, enthusiasm . . . Do they smile or are they down cast? Are they looking away from the camera?"²⁵²

When an employer decides to use a one-way video interview, the developer can create a tailored algorithm by recording existing employees and choosing employees whose traits match those of the current successful employees.²⁵³ HireVue asked employers to use the one-way video interviews on all existing employees, "from high to low achievers," and then used their scores to create a "benchmark of success."²⁵⁴ After new applicants sat for their assessments, HireVue would generate a "report card," which showed how well the applicant's score matched up with the existing high-performing workers in the job for which they applied.²⁵⁵

Hilton International used HireVue's one-way video interviewing for "thousands of applicants for reservation-booking, revenue management and call center positions."²⁵⁶ Although job recruiters at companies like Hilton have access to recordings of all the applicants, they generally will let the algorithm filter out the lower ranked candidates to save time. According to Sarah Smart, Hilton's Vice-President of Global Recruitment, "[i]t's rare for a recruiter to need to go out of [the top-ranked] range."²⁵⁷

²⁴⁷ See Harwell, *supra* note 224.

²⁴⁸ *Id.*

²⁴⁹ *Id.*

²⁵⁰ Joe Avella & Richard Feloni, *We Tried the AI Software Companies Like Goldman Sachs and Unilever Use to Analyze Job Applicants*, BUS. INSIDER (Aug. 29, 2017, 5:39 AM), <https://www.businessinsider.com/hirevue-uses-ai-for-job-interview-applicants-goldman-sachs-unilever-2017-8> [<https://perma.cc/9WRZ-U7TZ>].

²⁵¹ *Id.*

²⁵² *Id.*

²⁵³ Harwell, *supra* note 224.

²⁵⁴ *Id.*

²⁵⁵ *Id.*

²⁵⁶ *Id.*

²⁵⁷ *Id.*

The risk of creating ideal candidate profiles based on the characteristics of existing employees is that the AI will discount the candidates who look, speak, express, dress, or present themselves differently from the current employees for reasons that have nothing to do with their qualifications for the job. If the technology is trained on a mostly male sample, the algorithm can erroneously presume that male traits, such as being tall, wearing a tie, or having a deep voice, are correlated with success on the job. Speech patterns, whether assessed via audio or transcripts, are also gendered.²⁵⁸ Comparing speech patterns of a mostly male workforce to that of female applicants can work to the disadvantage of female applicants (as it did with Amazon's failed resume scanning attempts, which privileged the use of words more commonly used by men).²⁵⁹

A person's linguistic style (i.e., their "characteristic speaking pattern"), will come through even when the content is transcribed into text.²⁶⁰ Linguistic style involves features such as "directness or indirectness, pacing and pausing, word choice, and the use of such elements as jokes, figures of speech, stories, questions, and apologies."²⁶¹ Essentially, "linguistic style is a set of culturally learned signals by which we not only communicate what we mean but also interpret others' meaning and evaluate one another as people."²⁶² And, because different linguistic styles reflect different cultural norms, the patterns often differ for men and women.²⁶³ For example, girls and boys are socialized to communicate differently from a young age.²⁶⁴ Deborah Tannen, a

²⁵⁸ See Tannen, *supra* note 196.

²⁵⁹ Dastin, *supra* note 5.

²⁶⁰ Tannen, *supra* note 196.

²⁶¹ *Id.* An early linguistic study conducted by researchers at Illinois State University noted that women use more language that expresses uncertainty than men. Julie R. McMillan, A. Kay Clifton, Diane McGrath & Wanda S. Gale, *Women's Language: Uncertainty or Interpersonal Sensitivity and Emotionality?*, 3 *SEX ROLES* 545, 558 (1977). Similar findings have been consistently repeated. For example, "[w]omen are more likely to employ questions . . . in verbal interactions, whereas men are more likely [to] use directives . . . as part of the conversation." Mark D. Shermis, Liyang Mao, Matthew Mulholland & Vincent Kieftenbeld, *Use of Automated Scoring Features to Generate Hypotheses Regarding Language-Based DIF*, 17 *INT'L J. TESTING* 351, 354 (2017) (first citing Anthony Mulac, John M. Weimann, Sally J. Widenmann & Toni W. Gibson, *Male/Female Language Differences and Effects in Same-Sex and Mixed-Sex Dyads: The Gender-Linked Language Effect*, 55 *COMMUN MONOGRAPHS* 315 (1988); and then citing Matthew L. Newman, Carla J. Groom, Lori D. Handelman & James W. Pennebaker, *Gender Differences in Language Use: An Analysis of 14,000 Text Samples*, 45 *DISCOURSE PROCESSES* 211 (2008)). For more examples of speech pattern differences between men and women, see *id.*

²⁶² Tannen, *supra* note 196.

²⁶³ *Id.*

²⁶⁴ *Id.*

professor of linguistics at Georgetown University, dubbed the way women learn to communicate as “rapport-talk” and the way men learn to communicate as “report-talk.”²⁶⁵ Girls tend to learn and engage in conversational styles that focus on building relationships with their peers, speaking modestly, and downplaying their own achievements, whereas boys engage in conversational styles that focus on status, self-promotion, and one-upmanship.²⁶⁶

Even small differences in communication styles, like the choice of which pronouns a person uses, can affect who gets credit for an idea in the workplace, or even who gets a job.²⁶⁷ Professor Tannen found that men say “I” in situations where women say “we.”²⁶⁸ These linguistic cues were so ingrained that she even recorded instances of women saying “we” when referring to the work they performed alone.²⁶⁹

Given the difference in communication styles between men and women, it is possible that a female applicant who applies for a position will be rejected because she makes “we” statements that highlight team- and relationship-building. Linguistic style differences were part of the reason that gender discrimination occurred in Amazon’s attempt to create a resume scanning algorithm. Trained on a dataset of mostly males, the algorithms learned to favor candidates who described themselves using verbs more commonly found on male engineers’ resumes, such as “executed” and “captured.”²⁷⁰ The use of one-way video interviews thus raises serious questions of discrimination based on an applicant’s gender, race, and age,²⁷¹ leading critics to call it “a license to discriminate.”²⁷²

Nor will the one-way video interview necessarily identify competent potential employees because the technology looks for commonalities between existing employees without in-depth assessments of their performance and skills. While the AI systems may be able to tell the difference between a smile and a frown, they are less able to interpret the

²⁶⁵ DEBORAH TANNEN, *YOU JUST DON’T UNDERSTAND: WOMEN AND MEN IN CONVERSATION* 76–77 (HarperCollins 2007) (1990).

²⁶⁶ Tannen, *supra* note 196.

²⁶⁷ *Id.*

²⁶⁸ *Id.*

²⁶⁹ *Id.*

²⁷⁰ Dastin, *supra* note 5.

²⁷¹ See generally Harwell, *supra* note 224; Will Knight, *Job Screening Service Halts Facial Analysis of Applicants*, WIRE (Jan. 12, 2021, 8:00 AM), <https://www.wired.com/story/job-screening-service-halts-facial-analysis-applicants> [<https://perma.cc/4TZK-WLSW>]; Complaint and Request for Investigation, Injunction, and Other Relief Submitted by the Electronic Privacy Information Center (EPIC) ¶¶ 39–45, *In re HireVue, Inc.* (Nov. 6, 2019) [hereinafter “EPIC HireVue Complaint”].

²⁷² Harwell, *supra* note 224.

intent behind those physical expressions.²⁷³ A neuroscientist who studies emotion described the system as “worryingly imprecise in understanding what those movements actually mean and woefully unprepared for the vast cultural and social distinctions in how people show emotion or personality.”²⁷⁴ Even a former provider of video analysis in hiring, HireVue, has stepped away from analyzing the video images themselves after finding that “visual analysis has far less correlation to job performance than other elements of [their] algorithmic assessment.”²⁷⁵

2. The Potential Role of Existing Law in Response to Gender Discrimination in One-Way Video Interviews

a. Disparate Treatment

One-way video interviews present some of the same barriers to the hiring of women as does resume scanning, leading to similar potentials for disparate treatment claims. If the AI was trained on existing employees who are mainly men, it may erroneously assume that all sorts of male traits are prerequisites for performing well in the job—such as having shorter hair, a louder voice, a particular type of clothes, the use of “I” instead of “we,” or the use of more active verbs. Women who would have excelled in the actual job might never even get an in-person interview because they have been downgraded by the algorithm on frivolous grounds that have to do with maleness, not ability.

A disparate treatment claim would be appropriate when gender-based questions are posed in the video interview, such as asking women about how many children they have, if they plan to have children,

²⁷³ Knight, *supra* note 271.

²⁷⁴ Harwell, *supra* note 224.

²⁷⁵ 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/9EKB-2RYM>]. Another reason why HireVue stopped using facial analysis in its screening algorithm is probably that their use of it was challenged as a deceptive business practice. See EPIC HireVue Complaint, *supra* note 271, ¶¶ 55–57.

if they are married,²⁷⁶ or about their salary history.²⁷⁷ As the EEOC makes clear,

Questions about an applicant's sex . . . , marital status, medical history of pregnancy, future child bearing plans, number and/or ages of children or dependents, provisions for child care, abortions, birth control, ability to reproduce, and name or address of spouse or

²⁷⁶ 42 U.S.C. § 2000e-2(a) provides that:

It shall be an unlawful employment practice for an employer—

(1) to fail or refuse to hire or to discharge any individual . . . because of such individual's . . . sex, or . . .

(2) to limit, segregate, or classify his employees or applicants for employment in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's . . . sex

In addressing discrimination based on sex, the EEOC has issued informal guidance on whether certain questions about a prospective employee's marital status or family planning can be considered a "proxy" for questions about sex. The EEOC has explained that these questions would not be considered job-related and are therefore problematic under Title VII. *See Pre-Employment Inquiries and Gender*, U.S. EQUAL EMP. OPPORTUNITY COMM'N, <https://www.eeoc.gov/pre-employment-inquiries-and-gender> [<https://perma.cc/Z8JW-27X9>]; *Pre-Employment Inquiries and Marital Status or Number of Children*, U.S. EQUAL EMP. OPPORTUNITY COMM'N, <https://www.eeoc.gov/pre-employment-inquiries-and-marital-status-or-number-children> [<https://perma.cc/XZ5W-28SU>].

²⁷⁷ Outside the scope of Title VII, some courts have found prohibitions on questions related to an applicant's salary history to be constitutional. *See Greater Phila. Chamber of Com. v. City of Philadelphia*, 949 F.3d 116 (3d Cir. 2020). In 2020, the Third Circuit Court of Appeals determined that a local ordinance prohibiting employers from asking about an applicant's salary history did not violate the First Amendment's speech clause. *Id.* at 121. The City of Philadelphia, after learning about the gender wage gap between men and women in the city, issued an ordinance making it unlawful for an employer "[t]o inquire about a prospective employee's wage history, require disclosure of wage history, or condition employment or consideration for an interview or employment on disclosure of wage history, or retaliate against a prospective employee for failing to comply with any wage history inquiry." *Id.* at 123 (quoting PHILA., PA., PHILA. CODE § 9-1131(2)(a)(i) (2017)). When the ordinance, known as the Philadelphia Wage Equity Ordinance, was first passed in 2017, Philadelphia became the first city to prohibit inquiries into an applicant's wage histories. Kelly Dobbs Bunting & Adam Roseman, Greenberg Traurig, LLP, *Philadelphia Becomes First City to Prohibit Employers from Asking Applicants About Salary History*, NAT'L L. REV. (May 13, 2017), <https://www.natlawreview.com/article/philadelphia-becomes-first-city-to-prohibit-employers-asking-applicants-about-salary> [<https://perma.cc/LU3Z-EUNN>]. However, the Greater Philadelphia Chamber of Commerce challenged the ordinance as a violation of the First Amendment, alleging it improperly regulated commercial speech. *Greater Phila. Chamber of Com.*, 949 F.3d at 136–37. The case ultimately reached the Third Circuit, where the court applied intermediate scrutiny and determined that the city had a "substantial interest in closing the wage gap" and that the ordinance "directly advance[d] the city's interest in pay equity." *Id.* at 137, 142–43.

children are generally viewed as not job-related and problematic under Title VII.²⁷⁸

Similarly problematic issues might arise if an example is given in the question, such as asking whether the applicant participated in leadership programs like the Eagle Scouts or the Reserve Officers' Training Corps (ROTC). Only 22% of ROTC cadets in the Class of 2020 were women,²⁷⁹ and most female job applicants never had an opportunity to participate in the Boy Scouts of America, since the organization only graduated their first class of female Eagle Scouts in 2021.²⁸⁰

Even when an employer does not ask gender-based questions, it is possible that AI can be harnessed to capture physical responses that carry an explicit connection to gender. For example, studies have shown that an estimated 60–70% of women experience shortness of breath during pregnancy.²⁸¹ This symptom is linked to a variety of factors, including the development and movement of the fetus and the associated compression of a woman's diaphragm.²⁸² If an employer uses facial analysis, or even tracks and transcribes an applicant's speaking patterns during a one-way video interview, the results may show that the applicant is pregnant based on the pauses or pacing to accommodate extra breaths. And, if the employer uses these findings to decide whether the applicant gets the job, it could likely be seen as an explicit and impermissible classification or differentiation based on gender and childbearing capacity.

If the AI awards a greater number of points to candidates who resemble or speak like men, this would seem analogous to the sexist treatment of Judith Eldred who was criticized as not being aggressive enough to be promoted—a justification that was found by the court to be impermissibly linked to a gender stereotype.²⁸³ And if an employer continues to use the algorithm after it disproportionately favors men, the employer could be found liable for disparate treatment, akin to what happened when an employer continued to use a discriminatory practice in *EEOC v. Joe's Stone Crab, Inc.*²⁸⁴

²⁷⁸ *Pre-Employment Inquiries and Gender*, *supra* note 276.

²⁷⁹ *Army Sees Increase in Female Academy, ROTC Cadets*, ASS'N OF THE U.S. ARMY (May 31, 2017, 5:38 AM), <https://www.USA.org/news/army-sees-increase-female-academy-rotc-cadets> [<https://perma.cc/PSU9-LWGZ>].

²⁸⁰ Anjali Huynh, *For the First Time, Girls Were Eligible to Be Eagle Scouts—And Nearly 1,000 Earned the Elite Rank*, CNN (Mar. 8, 2021, 12:45 PM), <https://www.cnn.com/2021/03/08/us/first-female-eagle-scouts-trnd/index.html> [<https://perma.cc/VMG7-747H>].

²⁸¹ Rachel Nall, *Causes of Shortness of Breath During Pregnancy*, MED. NEWS TODAY (Jan. 30, 2022), <https://www.medicalnewstoday.com/articles/322316> [<https://perma.cc/K3MR-SBXD>].

²⁸² *Id.*

²⁸³ *Eldred v. Consol. Freightways Corp. of Del.*, 898 F. Supp. 928, 934–35 (D. Mass. 1995).

²⁸⁴ *EEOC v. Joe's Stone Crab, Inc.*, 220 F.3d 1263, 1282 (11th Cir. 2000).

b. Disparate Impact

Employers can be liable under the theory of disparate impact when a seemingly neutral policy or practice disadvantages individuals based on their protected class.²⁸⁵ Video interview analysis might, for example, downgrade female candidates because they use a different style of language than male candidates. As with resume scanning, women may be less likely to use aggressive words like “executed.”²⁸⁶ If the algorithm favored responses of the applicants who used those words or those who used “I” statements, the applicant could demonstrate that the process disadvantaged female applicants.²⁸⁷ As shown in the distinction between “report-talk” and “rapport-talk,”²⁸⁸ women tend to be more generous about giving credit to others,²⁸⁹ but that does not mean they are worse employees. And, to the extent that one of the justifications for hiring men was that they participated in team sports and would be better team players, women who speak in “we” statements may actually be better suited to contribute to team projects by allocating both responsibility and credit to others.

Joy Buolamwini, a researcher with the MIT Media Lab, has analyzed the risk of training AI with the inputs from an employer’s existing workforce—a risk magnified when using AI that performs voice and facial recognition.²⁹⁰ As she pointedly asks, “how do we know a qualified candidate whose verbal and nonverbal cues tied to age, gender, sexual orientation or race depart from those of the high performers used to train the algorithm will not be scored lower than a similar candidate who more closely resembles the in-group?”²⁹¹ Thus, if the verbal cues and facial expressions of a largely homogenous workforce are used to train the patterns identified by an AI platform measuring enthusiasm for the job, the risk remains that people who do not use the same expressions or verbal cues will be discounted by an algorithm that is trained to search for similarities.

²⁸⁵ See *Griggs v. Duke Power Co.*, 401 U.S. 424, 430 (1971).

²⁸⁶ See Goodman, *supra* note 14.

²⁸⁷ See *Davis v. Cintas Corp.*, 717 F.3d 476, 496–97 (6th Cir. 2013).

²⁸⁸ See TANNEN, *supra* note 265.

²⁸⁹ See Tannen, *supra* note 196.

²⁹⁰ See Joy Buolamwini, *When the Robot Doesn’t See Dark Skin*, N.Y. TIMES (June 21, 2018), <https://www.nytimes.com/2018/06/21/opinion/facial-analysis-technology-bias.html> [<https://perma.cc/5LWM-PAW4>].

²⁹¹ *Id.*

In a variety of cases challenging the hiring tests administered to fire department applicants²⁹² and police department applicants,²⁹³ women were able to successfully bring disparate impact claims when the selection criteria (such as written tests and strength requirements)²⁹⁴ disproportionately led to the exclusion of female candidates and could not be shown to be job-related.²⁹⁵ A woman may be able to succeed with a disparate impact challenge to one-way video interviews because, like the questions used for police officers in *Harless v. Duck*,²⁹⁶ they lack a reasonable “degree of correctness” because they were developed using biased training data (i.e., the substantive responses and speaking patterns of men) and there has not been a relationship shown to success on the job.²⁹⁷ Even where enthusiasm and linguistic analyses claim to be facially neutral selection methods, much like the facially neutral and “blissful[ly] ignoran[t]”²⁹⁸ design of the boilermaker apprenticeship application in *Bailey*, “good intent or absence of discriminatory intent”²⁹⁹ will not suffice as a defense in the face of a disparate impact.

In the case of one-way video interviews, the hype that companies have used to market the technology to employers may come back to haunt them when employers are challenged to show empirically that the

²⁹² See, e.g., *Berkman v. City of New York*, 705 F.2d 584, 598 (2d Cir. 1983) (affirming district court’s finding that the New York City Fire Department’s physical agility tests were not job-related); *Legault v. aRusso*, 842 F. Supp. 1479, 1481 (D.N.H. 1994), *aff’d sub nom.* *Legault v. Zambarano*, 105 F.3d 24 (1st Cir. 1997) (granting preliminary injunction to female plaintiff challenging physical ability tests used by the Rhode Island Fire Department and alleging she was wrongfully denied employment).

²⁹³ See, e.g., *Isabel v. City of Memphis*, 404 F.3d 404, 408, 414 (6th Cir. 2005) (finding that the lieutenant’s written exam unlawfully discriminated against minority candidates); *Lanning v. Se. Pa. Transp. Auth.*, 181 F.3d 478, 481 (3d Cir. 1999) (reversing the decision of the district court and finding that the lower court employed the incorrect legal standard when considering the Transportation Authority’s justification for its physical ability exam used to assess applicants).

²⁹⁴ See, e.g., *Harless v. Duck*, 619 F.2d 611, 614 (6th Cir. 1980).

²⁹⁵ In *Harless*, a class of female plaintiffs was able to show that bias pervaded the interview component of a police officer entrance exam and, in so doing, satisfied their burden in a disparate treatment claim. *Id.* at 617. While the interviews were “structured” in the sense that each applicant was asked the same questions, the court determined that they were not conducted under standardized conditions, nor did the department provide any objective criteria for evaluating the “degree of correctness” of the applicants’ answers. *Id.* These circumstances raised the specter of rater bias and, in the court’s opinion, made the structured interviews “rife with the potential for discrimination.” *Id.* Moreover, the questions related only to the applicant’s training at the police academy and not to the actual performance of the job, and expert testimony suggested that there was little relevance between “success in training and success on the job.” *Id.* at 616–17.

²⁹⁶ *Id.* at 617.

²⁹⁷ *Id.*

²⁹⁸ *Bailey v. Se. Area Joint Apprenticeship Comm.*, 561 F. Supp. 895, 911 (N.D.W. Va. 1983).

²⁹⁹ *Griggs v. Duke Power Co.*, 401 U.S. 424, 432 (1971).

technology identifies traits that are actually job-related. If, as one company claimed, the AI can assess 15,000 data points that have to do with appearance, speech, eye contact, facial expressions, and more,³⁰⁰ it would take a study of tens of thousands or even hundreds of thousands of people to statistically correlate that number of traits with job performance. No studies of that magnitude have been performed. Employers cannot prove that the one-way video interviews have been validated empirically.

C. *The Use of Video Games for Pre-Employment Testing*

1. The Technological Underpinnings of Video Games in Pre-Employment Testing, Their Current Uses, and Their Gendered Impacts

Developers are marketing video games³⁰¹ and companies are employing video games,³⁰² for use in lieu of traditional hiring tests, to determine a job applicant's traits and abilities. The developers claim that employers can "replac[e] archaic resumes with behavioral data"³⁰³ and by "captur[ing] thousands of behavioral data points,"³⁰⁴ their game assessments "build[] a profile of what makes a person and job unique."³⁰⁵ Companies also claim they save about \$3,000 per applicant if they can reject someone before the interview stage.³⁰⁶

³⁰⁰ See Sarah Butcher, *The New Screening Interviews Used by Investment Banks*, EFINANCIALCAREERS (Mar. 3, 2021), <https://www.efinancialcareers.com/news/2021/03/hirevue-interview-bank> [<https://perma.cc/6L48-LW3J>]; see also Rachel Withers, *Should Robots Be Conducting Job Interviews?*, SLATE (Oct. 5, 2020, 9:00 AM), <https://slate.com/technology/2020/10/artificial-intelligence-job-interviews.html> [<https://perma.cc/34T6-4WJ5>].

³⁰¹ See, e.g., *Hrtechcube Interview with CEO and Founder, pymetrics—Frida Polli*, HRTECH CUBE (Apr. 21, 2021) [hereinafter *Frida Polli*], <https://hrtechcube.com/hrtechcube-interview-with-ceo-and-founder-pymetrics-frida-polli> [<https://perma.cc/3XA7-26BB>] ("Models based on the soft skills behavioral data (collected through the exercises) of a company's successful incumbents in a particular role can be used to evaluate applicant fit for the role.").

³⁰² See *infra* notes 312–16.

³⁰³ *Gamified Soft Skills Assessments Are the New Standard for Understanding Talent*, PYMETRICS [hereinafter *Gamified Soft Skills*], <https://www.pymetrics.ai/assessments#core-games> [<https://perma.cc/L6WD-458V>].

³⁰⁴ *Id.*

³⁰⁵ *Id.*

³⁰⁶ Savage & Bales, *supra* note 183, at 220 (citing Taylor Casti, *Video Games Could One Day Replace Job Interviews*, HUFFINGTON POST (Jan. 23, 2014), https://www.huffpost.com/entry/video-games-job-interviews-applications-startups_n_4647245 [<https://perma.cc/R9QW-Z7Z5>]).

General success in video gaming might be viewed by the employer as useful for certain jobs. It might measure the small motor skills needed by a surgeon³⁰⁷ or a drone pilot.³⁰⁸ But pre-employment video game screening has been used for positions that are not linked to gaming skills, including investment bankers,³⁰⁹ entry-level engineers,³¹⁰ and project managers,³¹¹ and by companies such as JP Morgan,³¹² PwC,³¹³ Daimler Trucks North America,³¹⁴ Royal Bank of Canada,³¹⁵ and Kraft Heinz.³¹⁶ The video games are created by companies such as Knack³¹⁷ and pymetrics³¹⁸ to assess applicants' traits. These video game assessments purportedly collect "thousands of behavioral data points"³¹⁹ to analyze thousands of traits at one time, including attention,³²⁰ assertiveness,³²¹

³⁰⁷ See, e.g., James C. Rosser, Jr. et al., *The Impact of Video Games on Training Surgeons in the 21st Century*, 142 ARCHIVES SURGERY 181 (2007).

³⁰⁸ See, e.g., Jacqueline M. Wheatcroft, Mike Jump, Amy L. Breckell & Jade Adams-White, *Unmanned Aerial Systems (UAS) Operators' Accuracy and Confidence of Decisions: Professional Pilots or Video Game Players?*, COGENT PSYCH., May 22, 2017, at 1, 1.

³⁰⁹ See, e.g., Sarah Butcher, *The pymetrics Games That Will Get You a Job at JPMorgan and Elsewhere*, EFINANCIALCAREERS (Nov. 3, 2020), <https://www.efinancialcareers.com/news/2019/08/jpmorgan-pymetrics> [<https://perma.cc/C3PE-DP66>].

³¹⁰ See, e.g., Sarah E. Needleman, *Play This Game and Win a Job!*, WALL ST. J. (Mar. 14, 2016, 12:01 AM), <https://www.wsj.com/articles/play-this-game-and-win-a-job-1457921553> (last visited Sept. 10, 2022).

³¹¹ *Id.*

³¹² Andrea Murad, *The Computers Rejecting Your Job Application*, BBC (Feb. 8, 2021), <https://www.bbc.com/news/business-55932977> [<https://perma.cc/P4EU-Z8BP>].

³¹³ *Id.*

³¹⁴ Needleman, *supra* note 310.

³¹⁵ *Id.*

³¹⁶ Murad, *supra* note 312.

³¹⁷ KNACK, *supra* note 20.

³¹⁸ *Gamified Soft Skills*, *supra* note 303.

³¹⁹ *Id.*

³²⁰ Jordan Ingersoll, *pymetrics Factors + What They Measure*, PYMETRICS (June 9, 2020), <https://www.pymetrics.ai/pygest/pymetrics-factors-what-they-measure> [<https://perma.cc/LDX2-67XH>] ("Attention is conceptualized as an individual's approach to managing incoming information and distractions. Individuals can range from being very methodical to very biased towards action. More methodical individuals tend to be thorough and restrained, preferring accuracy over speed in order to avoid mistakes. More action-[]focused individuals tend to be quick to react, not easily flustered by mistakes, and open to information outside of the focal task.")

³²¹ *Cf.* "Assertive" inquires as to whether the applicant is "[s]howing confidence, takes the lead, and shares opinions strongly." Donnelly, *supra* note 228 (listing the myInterview "Smart Shortlisting Behavior Library" traits and their descriptions) (noted in one-way video interviewing context).

decision making,³²² effort,³²³ emotion,³²⁴ fairness,³²⁵ focus,³²⁶ generosity,³²⁷ learning,³²⁸ and risk tolerance.³²⁹

Video game assessment companies ask current employees of an organization to play the game with the goal of ranking applicants in terms

³²² Ingersoll, *supra* note 320 (“Decision making focuses on an individual’s approach to making decisions in terms of how much time and/or planning is involved. Individuals can range from being very deliberative to very instinctive. Individuals who are more deliberative tend to be thoughtful planners who reflect before reacting or making decisions. Individuals who are more instinctive tend to trust their intuition more and thus, can act more quickly and decisively.”).

³²³ *Id.* (“Effort is measured in terms of how much effort an individual invests, based on the size of reward and probability of success. Individuals can range from being very hard-working to very outcome-driven. Hard-working individuals tend to work hard on all tasks, regardless of the reward. Outcome-driven individuals work more selectively, focusing their efforts on more high-reward tasks.”).

³²⁴ *Id.* (“Emotion is conceptualized as individuals’ strategies for interpreting others’ emotions in terms of use of facial and/or contextual cues. Individuals can range from being very expression-oriented to very context-oriented. Expression-oriented individuals tend to rely on facial expressions to read other’s emotions as opposed to context cues, whereas context-oriented individuals tend to do the opposite.”).

³²⁵ *Id.* (“Fairness focuses on individuals’ perceptions of fairness in social situations. Individuals can range from being very accepting to very critical. More accepting individuals tend to be quick in judging most situations as fair, whereas more critical individuals tend to take their time when judging the fairness of social situations.”).

³²⁶ *Id.* (“Focus is conceptualized as individuals’ concentration styles for one or more tasks. Individuals can range from being very focused to very adept at multitasking. More focused individuals are very effective at attending to a single task, even in the presence of distracting information. These individuals also tend to be focused and consistent in their work, with above-average memory. Individuals who tend to be stronger with multi-[]tasking are quick thinkers with shorter attention spans. They tend to be better at handling challenges in multiple tasks and adapting to dynamic circumstances with fast responses.”).

³²⁷ *Id.* (“Generosity is measured in terms of individuals’ tendencies to prioritize the needs of others above their own in resource allocation and transactions. Individuals can range from very sharing to very frugal. More sharing individuals tend to trust the good intentions of others and balance their personal desires with others’ needs. More frugal or conservative individuals tend to invest their resources more cautiously, focusing on achieving their personal goals and being self-sufficient.”).

³²⁸ *Id.* (“Learning focuses on individuals’ tendencies to change behavior based on new information. Individuals can range from being very adaptive to very consistent. Individuals who are more adaptive tend to recognize patterns in the environment, learn quickly from mistakes and can modify their behavior on immediate feedback. Individuals who are more consistent tend to take time to deliberate before changing their approach to a problem and they are not deterred by mistakes.”).

³²⁹ *Id.* (“Risk tolerance is conceptualized as individuals’ comfort with risk-taking. Individuals can range from being very adventurous to very cautious. More adventurous individuals tend to respond quickly with less concern about negative outcomes whereas more cautious individuals tend to carefully test options and choose safer alternatives in order to avoid negative outcomes.”).

of the skills currently valued by that employer.³³⁰ The goal is to use machine learning on the video games' data "to evaluate the cognitive and behavioral characteristics that differentiate a role's high-performing incumbents to make predictions about job seekers applying to that role."³³¹

When an applicant plays a game, data is collected every millisecond to provide a list of qualities exhibited by the player.³³² This data includes how long a player hesitates to make a decision,³³³ where on the screen a player touches,³³⁴ and the moves the player makes.³³⁵ The games vary³³⁶—one involves shooting water balloons at fast-approaching fire emojis,³³⁷ while another asks the applicant to select which side of the screen shows a larger or smaller proportion of colored dots.³³⁸

The company Knack offers three primary games—Meta Maze, Dashi Dash (also known as Wasabi Waiter), and Bomba Blitz. Meta Maze has the player arrange shapes from Point A to Point B. Dashi Dash has the player serve food to avatars representing people based on the avatar's facial expressions. Bomba Blitz has a player save flowers by throwing water balloons at fireballs coming from a volcano. Knack's founder claims that these games can assess "how you deal with stress, how you

³³⁰ See *Frida Polli*, *supra* note 301 ("Models based on the soft skills behavioral data (collected through the exercises) of a company's successful incumbents in a particular role can be used to evaluate applicant fit for the role.").

³³¹ Christo Wilson et al., *Building and Auditing Fair Algorithms: A Case Study in Candidate Screening*, 2021 FACCT '21: PROC. ACM CONF. ON FAIRNESS, ACCOUNTABILITY, & TRANSPARENCY 666, 668; Schellmann, *supra* note 39 ("When a new client signs up with Pymetrics, it must select at least 50 employees who have been successful in the role it wants to fill. These employees play Pymetrics's games to generate training data. Next, Pymetrics's system compares the data from those 50 employees with game data from more than 10,000 people randomly selected from over two million. The system then builds a model that identifies and ranks the skills most specific to the client's successful employees.").

³³² Jacob Morgan, *Want to Work Here? Play This Game First!*, FORBES (Dec. 17, 2013, 1:33 AM), <https://www.forbes.com/sites/jacobmorgan/2013/12/17/want-to-work-here-play-this-game-first/#61af87854249> [<https://perma.cc/UC5L-6ER3>].

³³³ *Id.*

³³⁴ *Id.*

³³⁵ *Id.*

³³⁶ One provider, Knack, has four games that it designed itself, see *KnackApp Platform: Personal*, KNACK, <https://knackapp.com/personal> [<https://perma.cc/T9H5-PFRE>], while pymetrics has a series of twelve games, see *Gamified Soft Skills*, *supra* note 303, that it says are based on "peer-reviewed [psychological] research." See *Frida Polli*, *supra* note 301 ("pymetrics did not create these exercises—they all come from highly regarded peer-reviewed research. pymetrics simply put them online and gamified them.").

³³⁷ *KnackApp Platform: Personal*, *supra* note 336 (describing the game entitled Bomba Blitz).

³³⁸ *Gamified Soft Skills*, *supra* note 303.

collaborate with people, [and] how much you listen.”³³⁹ The company also offers to analyze its data for specific sets of traits. For example, a Knack assessment for “High Potential Leadership Talent”³⁴⁰ claims to assess the following skills based on game play: self-discipline,³⁴¹ solution thinking,³⁴² relationship building,³⁴³ composure,³⁴⁴ reading people,³⁴⁵ critical thinking,³⁴⁶ striving,³⁴⁷ and agile leadership.³⁴⁸ After an applicant completes the series of games, the data collected is analyzed by the developer’s proprietary algorithms,³⁴⁹ and a profile of the applicant is created. This profile is then used by the company to determine whom to hire.

Game play technology—even if the results are shown to employers without the name or gender of the player listed—does not guarantee a gender-blind process. Men and women play games differently and value different aspects of game play.³⁵⁰ Any gender differences in game play may reduce a woman’s chance of having her traits match those of current model employees, leading to her being rejected without an interview.

Like the Amazon algorithms, not only can the use of video games discriminate against women, but it might not even lead to the hiring of the best employees. Correlation does not mean causation in terms of

³³⁹ Savage & Bales, *supra* note 183, at 220 (citing Tim Adams, *Job Hunting Is a Matter of Big Data, Not How You Perform at an Interview*, GUARDIAN (May 10, 2014, 4:00 PM), <https://www.theguardian.com/technology/2014/may/10/job-hunting-big-data-interview-algorithms-employees> [<https://perma.cc/4FMA-CQTF>]).

³⁴⁰ See *KnackApp Platform: Employer*, KNACK, <https://knackapp.com/guide/employer> [<https://perma.cc/FYG3-M4E4>] (navigate to “High Potential Leadership Talent” pack and select “See What’s Inside”).

³⁴¹ *Id.*

³⁴² *Id.*

³⁴³ *Id.*

³⁴⁴ *Id.*

³⁴⁵ *Id.*

³⁴⁶ *Id.*

³⁴⁷ *Id.*

³⁴⁸ *Id.*

³⁴⁹ Knack’s CEO assembled a team “comprised of behavioral and data scientists, software and game developers, and game designers and artists” to develop the Knack games. Morgan, *supra* note 332. However, more information about the employees of the company is not listed in the article or on the Knack App company website, and no expert names are provided either. See *id.*; *Story*, KNACK, <https://www.knackapp.com/story> [<https://perma.cc/92X9-CXQD>]; Catherine Rampell, *Your Next Job Application Could Involve a Video Game*, N.Y. TIMES MAG. (Jan. 22, 2014), <https://www.nytimes.com/2014/01/26/magazine/your-next-job-application-could-involve-a-video-game.html> [<https://perma.cc/7PHV-V3SK>].

³⁵⁰ *Male and Female Gamers: How Their Similarities and Differences Shape the Games Market*, NEWZOO (May 3, 2017), <https://newzoo.com/insights/articles/male-and-female-gamers-how-their-similarities-and-differences-shape-the-games-market> [<https://perma.cc/82ZP-KJN4>].

previous success,³⁵¹ creating a disconnect between what the video game measures and what is important for a job. It is not immediately apparent how an applicant's game play might affect the way a system's algorithm scores the applicant. For instance, when we asked law students and their friends to play the Knack games, people who had no useful skills or interest in certain areas were nonetheless told they would make a good investment banker or doctor.

The games are often simplistic and seemingly unrelated to the actual job task, such as the use of Wasabi Waiter (now called Dashi Dash), a video game where the player is a waiter, to analyze how good a surgeon someone will be.³⁵² In that game,³⁵³ perhaps the player's ability to ascertain risk is analyzed based on whether a player focuses on serving restaurant customer emojis at risk of becoming dissatisfied, or cuts his or her losses by ignoring the emoji with the lowest level of satisfaction.³⁵⁴ But there is no empirical basis for believing that those actions assess emotional intelligence or other personality traits and predict job performance in an array of jobs from surgeon to investment banker to McDonald's worker.

Employers use video games to assess applicants without proof that these technologies provide an adequate assessment of an individual's capabilities and value. No truly independent research exists to judge the validity of these games because researchers studying the efficacy of the approach had conflicts of interest because they either owned stock in Knack,³⁵⁵ received fees from Knack to do the research,³⁵⁶ or, in the case of pymetrics, were asked to perform an analysis by the company and paid \$104,465 to do so.³⁵⁷ Even these studies are deficient because they did not

³⁵¹ *Correlation vs. Causation*, JMP STAT. DISCOVERY, https://www.jmp.com/en_us/statistics-knowledge-portal/what-is-correlation/correlation-vs-causation.html [https://perma.cc/2W63-7VPK].

³⁵² Rampell, *supra* note 349.

³⁵³ See *KnackApp Platform: Personal*, *supra* note 336.

³⁵⁴ For information on how risk is measured in other hiring games, see Shlomik Silbiger, *The Pymetrics Games—Overview and Practice Guidelines*, OXFORD UNIV. CAREER SERVS. (Nov. 24, 2021), <https://www.careers.ox.ac.uk/article/the-pymetrics-games-overview-and-practice-guidelines> [https://perma.cc/5D96-J337].

³⁵⁵ In one study highlighted on Knack's "How it Works" page, the conflict of interest note disclosed that six of the study's seven authors "have received either fees or have stock/warrants." See *How It Works?*, KNACK, <https://knackapp.com/how-it-works> [https://perma.cc/WV4J-85VY]; Kenneth A. Egol et al., *Can Video Game Dynamics Identify Orthopaedic Surgery Residents Who Will Succeed in Training?*, 8 INT'L J. MED. EDUC. 123, 125 (2017).

³⁵⁶ See *supra* note 355 and accompanying text.

³⁵⁷ See *Cross-Functional Innovation*, PYMETRICS, <https://www.pymetrics.ai/science-copy-do-not-touch> [https://perma.cc/K5D6-58QM]; Schellmann, *supra* note 39 (discussing the pymetrics audit).

follow up to determine how people chosen by the algorithm actually performed in the job.

2. The Potential Role of Existing Law in Response to Gender Discrimination in Video Games in Pre-Employment Testing

a. Disparate Treatment

Under Title VII, employers are permitted to use pre-employment tests to screen candidates and to assist in making hiring decisions.³⁵⁸ In the past, employers have used such tests to measure a candidate's cognitive abilities,³⁵⁹ physical abilities,³⁶⁰ personality,³⁶¹ or other desired characteristics.³⁶² However, as the Court explained in *Griggs v. Duke Power Co.*, pre-employment tests, while "obviously . . . useful,"³⁶³ must be evaluated in light of the employment testing procedures developed by the EEOC.³⁶⁴ The Uniform Guidelines describe the standards such tests should meet. First, there needs to be an assessment of what characteristics are related to success on the job and how to test for those characteristics.³⁶⁵ Then, there must be a determination that there is

³⁵⁸ 42 U.S.C. § 2000e-2(h) ("[N]or shall it be an unlawful employment practice for an employer to give and to act upon the results of any professionally developed ability test provided that such test, its administration or action upon the results is not designed, intended or used to discriminate because of race, color, religion, sex or national origin.").

³⁵⁹ *Employment Tests and Selection Procedures*, U.S. EQUAL EMP. OPPORTUNITY COMM'N (Dec. 1, 2007), <https://www.eeoc.gov/laws/guidance/employment-tests-and-selection-procedures> [<https://perma.cc/K2EH-YZT9>].

³⁶⁰ *Id.*

³⁶¹ *Id.*

³⁶² *Id.* Though challenges to pre-employment tests are raised more commonly under a theory of disparate impact, the Eighth Circuit Court of Appeals affirmed the holding of a lower court determining that Anheuser-Busch engaged in intentional discrimination under a theory of disparate treatment when it failed to hire an African American woman as a bottler, even after she passed a pre-employment test. *Easley v. Anheuser-Busch, Inc.*, 758 F.2d 251, 259 (8th Cir. 1985). The company alleged that they did not hire her because bottler jobs were no longer available by the time she had completed the application process. However, in rejecting this argument, the Eighth Circuit pointed to evidence in the record demonstrating that the company scheduled applicants for testing in a racially discriminatory manner. *Id.* at 259–60. In the plaintiff's case, she was tested nearly nine months after she filed her application, a period substantially longer than the average wait for Black or white men. *Id.* at 261. And, even after the plaintiff passed the test, she was not hired, despite the fact that she was clearly qualified for the position. *Id.* On this evidence, the Eighth Circuit determined that the district court did not err in finding that Anheuser-Busch intentionally discriminated against the plaintiff. *Id.*

³⁶³ *Griggs v. Duke Power Co.*, 401 U.S. 424, 436 (1971).

³⁶⁴ *Id.* at 433–34.

³⁶⁵ 29 C.F.R. § 1607.14(A).

“empirical data demonstrating that the selection procedure is predictive of or significantly correlated with important elements of job performance.”³⁶⁶

Even if a video game does not ask for information about the sex of the player, a certain style of play may be more associated with being a woman and thus allow the AI (and the employer) to distinguish between women and men. Women typically score higher than men on such tests in the following areas: “agreeableness, openness, extraversion, and warmth.”³⁶⁷ “[I]f an employer were to manipulate the requirements of the job or otherwise unfairly categorize female applicants based on their [personality test] scores,” then it would be engaging in a disparate treatment violation.³⁶⁸

Under the *EEOC v. Joe’s Stone Crab, Inc.* precedent, a disparate treatment claim might also be brought in a situation where an employer with knowledge that the video game discriminated against women continued to use the game. Ultimately, employers are “unlikely to escape disparate treatment liability if they deploy algorithms that make facially discriminatory classifications.”³⁶⁹

b. Disparate Impact

If job applicants are required to play a video game, a disparate impact claim could be brought if significantly fewer women are selected to be interviewed or hired after playing the game, either according to the four-fifths rule enumerated in the Uniform Guidelines³⁷⁰ or a standard deviation analysis.³⁷¹ A disparate impact claim against the use of video games in pre-employment testing does not require proof of intentional discrimination. Statistical bias can be present in an algorithm due to the way that certain variables can be omitted or downgraded.³⁷² Or, the algorithms may even be “built using biased, error-ridden, or

³⁶⁶ *Id.* § 1607.5(B).

³⁶⁷ Robert A. Smith, Kauther S. Badr & Alison E. Wall, *Personality Testing by Employers: Balancing the Need for Qualified Workers with Individual Rights*, 16 COMPETITION F. 76, 80 (2018) (citing Benjamin P. Chapman, Paul R. Duberstein, Silvia Sörensen & Jeffrey M. Lyness, *Gender Differences in Five Factor Model Personality Traits in an Elderly Cohort: Extension of Robust and Surprising Findings to an Older Generation*, 43 PERSONALITY & INDIVIDUAL DIFFERENCES 1594 (2007)).

³⁶⁸ *Id.*

³⁶⁹ Scherer, King & Mrkonich, *supra* note 212, at 478.

³⁷⁰ 29 C.F.R. § 1607.4(D).

³⁷¹ See *Hazelwood Sch. Dist. v. United States*, 433 U.S. 299, 308 n.14 (1977).

³⁷² Pauline T. Kim, *Data-Driven Discrimination at Work*, 58 WM. & MARY L. REV. 857, 886–87 (2017).

unrepresentative data” which could also lead to statistical bias.³⁷³ As Professor Pauline T. Kim notes, “data miners implicitly assume that the dataset used to train the model is complete enough and accurate enough to identify meaningful patterns among applicants or employees.”³⁷⁴ But by using data from a male-skewed workforce, the algorithm will likely privilege male traits.³⁷⁵

A disparate impact analysis of the video gaming algorithms in hiring will likely rely on precedents about testing for mental and physical abilities.³⁷⁶ Video game AI analyzes data about the applicants’ video game-playing style such as the order in which tasks are undertaken, where a person clicks on the page, and how the person reads the emotions of an avatar.³⁷⁷ If these analyses lead to significantly more men than women being hired, it is unlikely that an employer could prove these “were necessary for effective, efficient, or safe job performance.”³⁷⁸ While success at video games might be related to the skills needed to be a drone pilot, it would be hard to prove it is related to other jobs, such as being a store manager. An audit performed by one of the enterprises that markets video games for hiring conceded that there is no independent research to suggest that the company’s tests actually measure the skills correlated with job performance.³⁷⁹ Even if an employer could prove a relationship between a video game involving water balloons and a particular job, such as being a manager, the plaintiffs could still prevail by identifying an alternative screening practice that does not result in a disparate impact and is as effective in meeting the employer’s business needs.

D. *Revising the Algorithm*

If a developer realizes that its AI hiring algorithm is disfavoring women because it was trained on a mainly male workforce or because women behave differently in the eyes of the algorithm, the developer or

³⁷³ *Id.* at 887.

³⁷⁴ *Id.* at 919.

³⁷⁵ *See id.* at 920. Professor Kim explains that even where an algorithm does not exhibit discriminatory effects when tested on training data collected from a sample of the existing workforce, this should not be taken as “conclusive evidence that outcomes will be unbiased when a particular employer applies the model in the real world.” *Id.* She notes that where the training data is unrepresentative or otherwise inaccurate, the algorithm could still “systematically disadvantage certain groups” within the workforce. *Id.*

³⁷⁶ *See supra* notes 117–67 and accompanying text.

³⁷⁷ Morgan, *supra* note 332.

³⁷⁸ *United States v. Massachusetts*, 781 F. Supp. 2d 1, 18 (D. Mass. 2011).

³⁷⁹ Wilson et al., *supra* note 331, at 671.

an employer using the algorithm might attempt to “correct” the bias after the fact. For example, if women use “we” and men use “I” on a resume or in a one-way video interview, additional points could be added, after the fact, to individuals who use “we.” But tweaking the results after the fact to favor women can itself run afoul of Title VII.

Various entities have attempted to undo the gender bias in their hiring and recruitment algorithms. LinkedIn’s algorithms recommended different jobs based on a person’s gender (even when gender was not specified on a resume) because the algorithm analyzed the behavior of each applicant.³⁸⁰ Women, LinkedIn found, were less likely to apply for jobs that required work experience beyond their qualifications than men.³⁸¹ Because of this gender difference, the job recommendations tended to disadvantage women.³⁸² LinkedIn added a correction,³⁸³ explaining that “before referring the matches curated by the original [i.e. the one that can discern gender through behavior] engine, the recommendation system includes a representative distribution of users across gender.”³⁸⁴ Using an alternative approach, ZipRecruiter attempted to correct for gender bias in the algorithm on its platform by eliminating or changing words on a resume, such as waitress, that are associated with women.³⁸⁵

These after-the-fact attempts to balance gender are analogous to the situation in *Ricci v. DeStefano*, where the city of New Haven, Connecticut decided not to certify the results of an examination administered for promotions within the City’s fire department because the test disadvantaged minority candidates.³⁸⁶ The examination results showed that white candidates outperformed minority candidates,³⁸⁷ and, concerned about the possibility of a disparate impact lawsuit, the City threw out the results of the examination.³⁸⁸

Subsequently, white and Hispanic firefighters—who likely would have been promoted based on their test performance—sued the City.³⁸⁹

³⁸⁰ Wall & Schellmann, *supra* note 1.

³⁸¹ *Id.*

³⁸² *Id.*

³⁸³ *Id.*

³⁸⁴ *Id.*

³⁸⁵ See MIT Tech. Rev., *Podcast: In Machines We Trust—Hired by an Algorithm*, YOUTUBE (June 23, 2021), https://www.youtube.com/watch?v=ztcVB_zh_M0 [<https://perma.cc/XN3G-MCVB>] (interview with Ziprecruiter CEO Ian Siegel begins at around 16:00 and the waitress example occurs at 17:16).

³⁸⁶ *Ricci v. DeStefano*, 557 U.S. 557, 562 (2009).

³⁸⁷ *Id.*

³⁸⁸ *Id.*

³⁸⁹ *Id.* at 562–63.

The plaintiffs alleged that the City's refusal to certify the test results constituted disparate treatment discrimination in violation of Title VII.³⁹⁰ The Supreme Court held that despite the City's "well intentioned" and "benevolent" objective, "the City made its employment decision because of race" which amounted to disparate treatment.³⁹¹ Similarly, a well-intentioned effort to correct for an inherent gender bias in a hiring algorithm might also be vulnerable to a challenge from men alleging disparate treatment under Title VII.

IV. POLICY APPROACHES TO COMBATTING AI GENDER DISCRIMINATION IN EMPLOYMENT

When information collected in the hiring process poses risks of discrimination or privacy risks, or when any type of technology creates a potential risk to individuals or groups, there are three possible legislative approaches to regulating the practice or the technology. The employer could be required to disclose information about the practice or technology, could be prohibited from discriminating based on the information gleaned through that practice or technology, or could be banned from using that practice or technology. All three approaches are present in current employment law and in lawmakers' attempts to regulate the use of technology in the employment sphere.

A. *A Disclosure Policy Approach*

A person who submits a resume or who undergoes a one-way video interview may have no idea that these items will be screened by AI rather than by a human. As a result, if a woman is not offered a job after applying, she may think the chosen candidate had better credentials and not think to inquire about whether she was a victim of biased AI. Under a policy of disclosure, an employer is permitted to use a technology or collect certain information but must disclose to candidates what technology the employer is using.

³⁹⁰ *Id.* at 563.

³⁹¹ *Id.* at 579–80.

In the first AI interviewing legislation in the nation,³⁹² Illinois in 2019 enacted the Artificial Intelligence Video Interview Act.³⁹³ The Act requires an employer to obtain the applicant's consent before conducting AI analysis of a video interview.³⁹⁴ Additionally, any employer using AI in that situation must “[p]rovide each applicant with information before the interview explaining how the artificial intelligence works and what general types of characteristics it uses to evaluate applicants,”³⁹⁵ as well as maintain the confidentiality of any information shared by the applicant, and agree to destroy all copies of the interview within thirty days of the applicant requesting such action.³⁹⁶

A disclosure approach to the other hiring technologies described in this Article would similarly require advance disclosure of and require that consent be sought for a hiring process that uses AI assistance and machine learning. By disclosing how the process works, job applicants will become aware that the technology is developed through machine learning with mostly male employees. This could lead to pressure on employers not to use these biased tools.

B. *An Anti-Discrimination Policy Approach*

Disclosure to job applicants about a practice or technology may be of limited use unless the legislation also prohibits using the information collected in a discriminatory way. Disclosure alone means little if the only option for the applicant on learning that AI is being used is to seek a different job. At the very least, the disclosure approach should be coupled with a ban on the use of the information collected by the AI in a discriminatory way.

Prohibitions on discrimination are at the heart of Title VII, which prohibits employers from “fail[ing] or refus[ing] to hire . . . any individual . . . because of such individual’s race, color, religion, sex, or national origin.”³⁹⁷ EEOC guidelines and opinions drill down into what behaviors are prohibited. For example, the EEOC has issued agency guidance explaining that an applicant’s salary history, by itself, cannot

³⁹² Daniel Waltz, Molly DiRago & Ronald I. Raether, Jr., *Illinois Employers Must Comply with Artificial Intelligence Video Interview Act*, SHRM (Sept. 5, 2019), <https://www.shrm.org/resourcesandtools/legal-and-compliance/state-and-local-updates/pages/illinois-artificial-intelligence-video-interview-act.aspx> [<https://perma.cc/CMC7-K8KG>].

³⁹³ Artificial Intelligence Video Interview Act, 820 ILL. COMP. STAT. 42/1–4/20 (2020).

³⁹⁴ *Id.* 42/5(3).

³⁹⁵ *Id.* 42/5(2).

³⁹⁶ *Id.* 42/10 (confidentiality), 42/15 (destruction).

³⁹⁷ 42 U.S.C. § 2000e-2(a)(1).

“justify a compensation disparity”³⁹⁸ between men and women—an important provision to attempt to stop the practice of underpaying women relative to men. “Women job applicants, especially women of color, are likely to have lower prior salaries than their male counterparts.”³⁹⁹ “In 2020, women earned 84% of what men earned, according to a Pew Research Center analysis of median hourly earnings of both full- and part-time workers.”⁴⁰⁰ And because of the pervasiveness of the gender pay gap, “employers who rely on salary history to select job applicants and to set new hires’ pay will tend to perpetuate gender- and race-based disparities in their workforce.”⁴⁰¹

In an effort to mitigate the perpetuation of this gender disparity, the EEOC has issued agency guidance explaining that an applicant’s salary history, by itself, cannot “justify a compensation disparity” between men and women.⁴⁰² Rather, “permitting prior salary alone as a justification for a compensation disparity ‘would swallow up the rule and inequality in [compensation] among genders would be perpetuated.’”⁴⁰³

An anti-discrimination approach to AI-assisted hiring technologies would allow their use only if the employer could prove in advance that technologies would not create any built-in headwinds for women by institutionalizing male norms (for example, of speech, education, looks, or experiences).

C. *Banning a Practice or Technology*

In some cases, however, nothing short of a ban may work to achieve gender parity. This is especially true in the case of algorithms created through machine learning, where an employer may not even realize the machine has modified the algorithm to include discriminatory variables.

Bans are not uncommon in employment law. Bans on certain hiring practices or hiring-related technologies are used to avoid discrimination,

³⁹⁸ *Section 10 Compensation Discrimination*, U.S. EQUAL EMP. OPPORTUNITY COMM’N (Dec. 5, 2000), https://www.eeoc.gov/laws/guidance/section-10-compensation-discrimination#N_77 [<https://perma.cc/89N5-NSAP>].

³⁹⁹ NAT’L WOMEN’S L. CTR., WORKPLACE JUSTICE: ASKING FOR SALARY HISTORY PERPETUATES PAY DISCRIMINATION FROM JOB TO JOB 1 (2018), <https://nwlc.org/wp-content/uploads/2018/12/Asking-for-Salary-History-Perpetuates-Discrimination-1.pdf> [<https://perma.cc/U5PU-4S6D>].

⁴⁰⁰ Amanda Barroso & Anna Brown, *Gender Pay Gap in U.S. Held Steady in 2020*, PEW RSCH. CTR. (May 25, 2021), <https://www.pewresearch.org/fact-tank/2021/05/25/gender-pay-gap-facts> [<https://perma.cc/TRD5-P2ML>].

⁴⁰¹ NAT’L WOMEN’S L. CTR., *supra* note 399, at 1.

⁴⁰² *Section 10 Compensation Discrimination*, *supra* note 398.

⁴⁰³ *Id.* (quoting *Irby v. Bittick*, 44 F.3d 949, 955 (11th Cir. 1995)).

to protect privacy, and to avoid the use of technologies that do not function properly.

Employers are banned, for example, from using lie detectors tests in hiring.⁴⁰⁴ The reasons for the ban are similar to the reasons we might consider banning certain uses of AI in hiring. Lie detector tests are prohibited because they do not adequately predict a potential employee's future behavior on the job.⁴⁰⁵ In fact, the Senate Committee on Labor and Human Resources found that “many employers and polygraph examiners abuse and manipulate the [polygraph] examination process, and frequently use inaccurate or unfounded results to justify employment decisions which otherwise would be suspect.”⁴⁰⁶ Approximately 400,000 “honest workers” had been inaccurately labeled as deceptive by polygraphs and thus faced adverse employment consequences.⁴⁰⁷

Employment laws also commonly ban the collection of certain information or the use of a particular technology to collect certain information. The logic behind such laws is that a ban on discriminatory uses of such information is not sufficient because it is difficult for a person denied a job to prove she was not chosen (or was offered a lower salary) based on that information or for some other reason. An employer might indeed be discriminating but the job applicant may have no way of knowing it or proving it if the employer is allowed to collect the information in the first place. As opposed to the federal guideline telling employers not to discriminate based on a woman's past salary, many state laws prohibit the employer from collecting that information at all. The City of Philadelphia, after learning about the gender wage gap between men and women in the city, issued an ordinance⁴⁰⁸ that makes it unlawful for an employer “[t]o inquire about a prospective employee's wage history, require disclosure of wage history, or condition employment or consideration for an interview or employment on disclosure of wage history, or retaliate against a prospective employee for failing to comply with any wage history inquiry.”⁴⁰⁹ In 2020, the Third Circuit determined

⁴⁰⁴ See 29 U.S.C. § 2002(2); 29 C.F.R. § 801.4(a). The law covers private employers. Congress did not include government employers in the Act because they were already prohibited from using lie detector tests by the Constitution. S. REP. NO. 100-284 (1988), *reprinted in* 1988 U.S.C.C.A.N. 726, 735.

⁴⁰⁵ See S. REP. NO. 100-284 (1988), *reprinted in* 1988 U.S.C.C.A.N. 726, 730.

⁴⁰⁶ *Id.* at 734; see also Jennifer Leonard Nevins, Comment, *Measuring the Mind: A Comparison of Personality Testing to Polygraph Testing in the Hiring Process*, 109 PENN. ST. L. REV. 857, 859 (2005) (summarizing this legislative history).

⁴⁰⁷ S. REP. NO. 100-284 (1988), *reprinted in* 1988 U.S.C.C.A.N. 726, 729.

⁴⁰⁸ PHILA., PA., PHILA. CODE § 9-1131(2)(a)(i) (2017).

⁴⁰⁹ *Greater Phila. Chamber of Com. v. City of Philadelphia*, 949 F.3d 116, 123 (3d Cir. 2020) (quoting PHILA., PA., PHILA. CODE § 9-1131(2)(a)(i)).

that the ordinance did not violate employers' First Amendment right to free speech.⁴¹⁰ Twenty-three other states and municipalities similarly enacted bans on employers asking people for past salary history information.⁴¹¹

There are other prominent bans on employers obtaining certain information because it might facilitate discrimination or invade privacy. Some states ban employers from asking for job applicants' social media passwords to get at private information about the employee.⁴¹² And courts have prohibited the use of certain screening tests once in common use (such as the Minnesota Multiphasic Personality Inventory (MMPI)) because they can generate information about a person's health condition in violation of the federal Americans with Disabilities Act.⁴¹³ Sometimes, the bans focus on technologies that elicit certain information that can lead to employment discrimination. The federal Genetic Information Nondiscrimination Act of 2008, for example, prohibits employers from requiring job applicants to undergo predictive genetic tests that indicate that they have a predisposition to later develop a genetic disease.⁴¹⁴

D. *Developing a Policy Response to AI-Assisted Hiring Technologies*

AI-assisted hiring raises many of the problems that have led to bans in the past. Like the use of polygraphs, there is no proof that AI-assisted hiring correctly measures the traits that make a good employee. Like the

⁴¹⁰ *Id.* at 121.

⁴¹¹ Martha Keon & William Simmons, *When Hiring for Jobs Located in Philadelphia, Salary History Will Soon Be Off Limits Unless Voluntarily and Willingly Disclosed*, JDSUPRA (Feb. 20, 2020), <https://www.jdsupra.com/legalnews/when-hiring-for-jobs-located-in-93825> [<https://perma.cc/DRW7-2JKE>].

⁴¹² *See, e.g.*, 820 ILL. COMP. STAT. 55/10(b)(1)(A) (2017) (“[I]t shall be unlawful for any employer or prospective employer to . . . request, require, or coerce any employee or prospective employee to provide a user name and password or any password or other related account information in order to gain access to the employee’s or prospective employee’s personal online account or to demand access in any manner to an employee’s or prospective employee’s personal online account . . .”).

⁴¹³ *Karraker v. Rent-A-Center, Inc.*, 411 F.3d 831, 837 (7th Cir. 2005). The EEOC has already expressed its concern for the impact of AI hiring tools on people with disabilities. *See* EEOC, *ADA and the Use of Software, Algorithms, and AI*, *supra* note 75.

⁴¹⁴ Genetic Information Nondiscrimination Act of 2008, Pub. L. No. 110-233, § 202, 122 Stat. 907 (2008) (codified at 42 U.S.C. § 2000ff-1).

MMPI, one-way video interviewing and video games can identify medical⁴¹⁵ and psychiatric⁴¹⁶ conditions.

Because AI hiring technologies discriminate and may not even identify qualified applicants, there is a sufficient rationale for a ban on their use. In a complaint filed with the Federal Trade Commission (FTC), the Electronic Privacy Information Center (EPIC) provided the policy rationale for a ban. EPIC argued that HireVue, a one-way video interview platform, “lack[ed] a ‘reasonable basis’ to support the claims”⁴¹⁷ that HireVue’s “video-based algorithmic assessments ‘provide[] excellent insight into attributes like social intelligence (interpersonal skills), communication skills, personality traits, and overall job aptitude.’”⁴¹⁸ Specifically, EPIC argued that the use of such technology was “unfair” and “deceptive” within the meaning of the FTC Act,⁴¹⁹ and, moreover, that the use of AI can result in gender,⁴²⁰ racial,⁴²¹ and neurological bias.⁴²² As an unfair trade practice, EPIC noted, the tool “causes or is likely to cause substantial injury to consumers which is not reasonably avoidable by consumers themselves and not outweighed by countervailing benefits to consumers or to competition.”⁴²³ Before the FTC could act on EPIC’s complaint, however, HireVue issued a statement that it would discontinue the use of facial analysis in its screening technology.⁴²⁴

⁴¹⁵ Even where an employer does not ask gender-based questions, it is possible that AI can be harnessed to capture physical responses that carry an explicit connection to gender. For example, scientific studies have shown that an estimated 60–70% of women experience shortness of breath during pregnancy. Nall, *supra* note 281. This symptom is linked to a variety of factors, including the development and movement of the fetus and the associated compression of a woman’s diaphragm. *Id.* If an employer uses facial analysis, or even tracks and transcribes an applicant’s speaking patterns during a virtual interview, the results may show that the applicant is pregnant based on the pauses or pacing to accommodate extra breaths. And, if the employer uses these findings to decide whether the applicant gets the job, it may be seen as an explicit and impermissible classification or differentiation based on gender and childbearing capacity.

⁴¹⁶ For example, video games can reveal whether the player has autism. *See generally* Colin Willis, Tracy Powell-Rudy, Kelsie Colley & Joshua Prasad, *Examining the Use of Game-Based Assessments for Hiring Autistic Job Seekers*, J. INTEL., Nov. 3, 2021, at 53, 8.

⁴¹⁷ EPIC HireVue Complaint, *supra* note 271, ¶ 47 (quoting Daniel Chapter One v. FTC, 405 F. App’x 505, 506 (D.C. Cir. 2010)).

⁴¹⁸ *Id.* ¶ 38 (quoting NATHAN MONDRAGON, CLEMENS AICHHOLZER & KIKI LEUTNER, THE NEXT GENERATION OF ASSESSMENTS 4 (2019), <https://hrlens.org/wp-content/uploads/2019/11/The-Next-Generation-of-Assessments-HireVue-White-Paper.pdf> [<https://perma.cc/AL65-Z5SL>]).

⁴¹⁹ *Id.* ¶¶ 55, 60.

⁴²⁰ *Id.* ¶ 41.

⁴²¹ *Id.* ¶ 43.

⁴²² *Id.* ¶ 42.

⁴²³ *Id.* ¶ 48 (quoting 15 U.S.C. § 45(n)).

⁴²⁴ *See* Zuloaga, *supra* note 275. Acknowledging the “public concern” about the lack of transparency in their AI, HireVue explained that the company had conducted an assessment of its

Given the limits of AI-assisted hiring technologies, a ban is an appropriate approach and would avoid the need to challenge the practices one by one in front of the FTC. Even short of a total ban, it would be useful to limit the situations in which AI-assisted hiring practices were permissible. If a ban cannot be achieved, we should adopt guidelines to help ensure appropriate gender representation—such as not being able to create or refine the algorithm on current employees if the representation of women among leaders of the company does not meet a four-fifths standard. This would serve to prohibit the use of AI-assisted hiring in many well-known tech companies⁴²⁵ and Fortune 500 corporations⁴²⁶ that are led primarily by men.

We could also require that, for any AI-assisted hiring, the algorithm be shown as valid in advance for the type of job at issue before it is applied. Along those lines, Congress or state legislatures could codify, with stiff penalties, the Uniform Guidelines approach that before using a selection tool for hiring, an employer should perform a job analysis to determine which measures of work behaviors or performance are relevant to the job

facial analysis program, which concluded that “visual analysis has far less correlation to job performance than other elements of [their] algorithmic assessment.” *Id.*

⁴²⁵ For example, in 2021 at Apple, 77.0% of executives, senior officials, and managers were male, and 23.0% were female. EQUAL EMP. OPPORTUNITY, 2021 EMPLOYER INFORMATION REPORT EEO-1 (2022) (Apple, Inc.), <https://www.apple.com/diversity/pdf/2021-Consolidated-EEO-1-Certified.pdf> [<https://perma.cc/GU29-9J5Q>]. In 2020 at Amazon, 75.9% of executives, senior officials, and managers were male, while 24.1% were female. EQUAL EMP. OPPORTUNITY, 2020 EMPLOYER INFORMATION REPORT EEO-1 (2021) (Amazon.com, Inc.), <https://assets.aboutamazon.com/01/fb/29cebd144ec59269fe8ffda1ea07/amazon-2020-consolidated-type-2-eo-1-report-r2.pdf> [<https://perma.cc/A8FM-4V5L>]. And at Meta (Facebook) in 2020, 64.7% of the high-level officials were male and 35.3% were female. EQUAL EMP. OPPORTUNITY, 2020 EMPLOYER INFORMATION REPORT EEO-1 (Facebook Inc.), https://about.fb.com/wp-content/uploads/2021/07/EEO-1_Report.pdf [<https://perma.cc/J977-2C8N>].

⁴²⁶ In 2020, for example, 66.7% of the corporate officers at Walmart were men, while only 33.3% were women. WALMART, BETTER TOGETHER: CULTURE, DIVERSITY, EQUITY & INCLUSION 6 (2021), https://corporate.walmart.com/media-library/document/2020-culture-diversity-equity-and-inclusion-report/_proxyDocument?id=00000178-fc22-db6f-adfe-fca721920000 [<https://perma.cc/9Z3J-MTEB>]. Similarly, at CVS Health, men comprised 69% of the corporate Board of Directors in 2020 and 58% of the corporate officers in 2021, while women comprised 31% of the Board of Directors in 2020 and 42% of the corporate officers in 2021. CVS HEALTH, 2020 STRATEGIC DIVERSITY MANAGEMENT REPORT 25, <https://cvshealth.com/sites/default/files/cvs-health-sdm-report-2020.pdf> [<https://perma.cc/QY8B-PSEH>]. And at JPMorgan Chase in 2020, 60% of the people on the Board of Directors were men and 40% were women. JPMORGAN CHASE & CO., 2020 WORKFORCE COMPOSITION DISCLOSURE (2020), <https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/documents/workforce-composition-disclosure.pdf> [<https://perma.cc/P74Z-HQHY>].

or group of jobs in question.⁴²⁷ Then the employer must assess whether there is “empirical data demonstrating that the selection procedure is predictive of or significantly correlated with important elements of job performance.”⁴²⁸

CONCLUSION

The quest for fairness in hiring practices is not just about preventing discrimination. Gender diversity is also a driver of innovation and a stronger economy. A host of studies show that diverse teams make better decisions. Men working with other men tend to agree with each other. Adding women to the groups makes men prepare better and anticipate alternative arguments.⁴²⁹ As a result, mixed groups create more innovative solutions.⁴³⁰ Gender diversity can also help the bottom line. When business school professors assessed the companies that make up the Standard & Poor’s 1500, they found that having female representation in top management correlated to a \$42 million increase in firm value.⁴³¹

The use of resume scanning, one-way video interviews, and video games to screen applicants stifles diversity and creates for female applicants the sort of “headwinds”⁴³² which have been viewed by the U.S. Supreme Court as impermissible under Title VII of the Equal

⁴²⁷ 29 C.F.R. § 1607.14(A). The Uniform Guidelines define “job analysis” as “[a] detailed statement of work behaviors and other information relevant to the job,” *id.* § 1607.16(K), and “work behavior” as “[a]n activity performed to achieve the objectives of the job.” *Id.* § 1607.16(Y) (“Work behaviors involve observable (physical) components and unobservable (mental) components. A work behavior consists of the performance of one or more tasks. Knowledges, skills, and abilities are not behaviors, although they may be applied in work behaviors.”). Effective January 1, 2023, employers in New York City will be required to commission an independent bias audit of their AI hiring tools. N.Y.C., N.Y., ADMIN. CODE tit. 20, ch. 5, §§ 20-870–874. In an article for Bloomberg Law, J. Edward Moreno reports that “employers aren’t clear what, exactly, is expected of them and how to prepare.” J. Edward Moreno, *New York City AI Bias Law Charts New Territory for Employers*, BLOOMBERG L. (Aug. 29, 2022, 4:59 AM), <https://news.bloomberglaw.com/daily-labor-report/new-york-city-ai-bias-law-charts-new-territory-for-employers> [https://perma.cc/CC63-KNAT]. But actually, employers should have been performing this sort of scrutiny of their AI hiring tools all along, through the process laid out in the Uniform Guidelines.

⁴²⁸ 29 C.F.R. § 1607.5(B).

⁴²⁹ See Katherine W. Phillips, *How Diversity Makes Us Smarter*, SCI. AM. (Oct. 1, 2014), <https://www.scientificamerican.com/article/how-diversity-makes-us-smarter> [https://perma.cc/648B-8YJV].

⁴³⁰ JOANNE LIPMAN, *THAT’S WHAT SHE SAID: WHAT MEN AND WOMEN NEED TO KNOW ABOUT WORKING TOGETHER* 33 (2018).

⁴³¹ Cristian L. Dezső & David Gaddis Ross, *Does Female Representation in Top Management Improve Firm Performance? A Panel Data Investigation*, 33 STRATEGIC MGMT. J. 1072, 1080 (2012).

⁴³² *Griggs v. Duke Power Co.*, 401 U.S. 424, 432 (1971).

Employment Opportunities Act. The developer of a social bookmarking site called Pinboard, Maciej Cegłowski, referred to the phenomenon more bluntly, “call[ing] machine learning ‘money laundering for bias.’ . . . ‘[A] clean, mathematical apparatus that gives the status quo the aura of logical inevitability.”⁴³³

As with Title VII itself, our policy recommendations are not designed to give women an unfair advantage. They are instead an attempt to level the playing field so that women are not discriminated against by AI in ways that perpetuate existing bias. In that sense, we are asking no more than Ruth Bader Ginsburg asked of the Supreme Court at oral argument in *Frontiero v. Richardson*⁴³⁴ when she quoted the words of 19th century abolitionist and feminist Sarah Grimké: “I ask no favor for my sex. All I ask of our brethren is that they take their feet off our necks.”⁴³⁵ And their biased AI out of our job prospects.

⁴³³ Gershgorn, *supra* note 50 (quoting Maciej Cegłowski, Remarks at The Moral Economy of Tech (June 26, 2016), https://idlewords.com/talks/sase_panel.htm [<https://perma.cc/9ZES-SJ73>]).

⁴³⁴ *Frontiero v. Richardson*, 411 U.S. 677 (1973).

⁴³⁵ Oral Argument at 27:39, *Frontiero*, 411 U.S. 677 (No. 71-1694) (quoting SARAH MOORE GRIMKÉ, *Letter II: Woman Subject Only to God.*, in LETTERS ON THE EQUALITY OF THE SEXES, AND THE CONDITION OF WOMAN: ADDRESSED TO MARY S. PARKER, PRESIDENT OF THE BOSTON FEMALE ANTI-SLAVERY SOCIETY 9, 10 (1838)), <https://www.oyez.org/cases/1972/71-1694> [<https://perma.cc/JPH8-E8S8>].