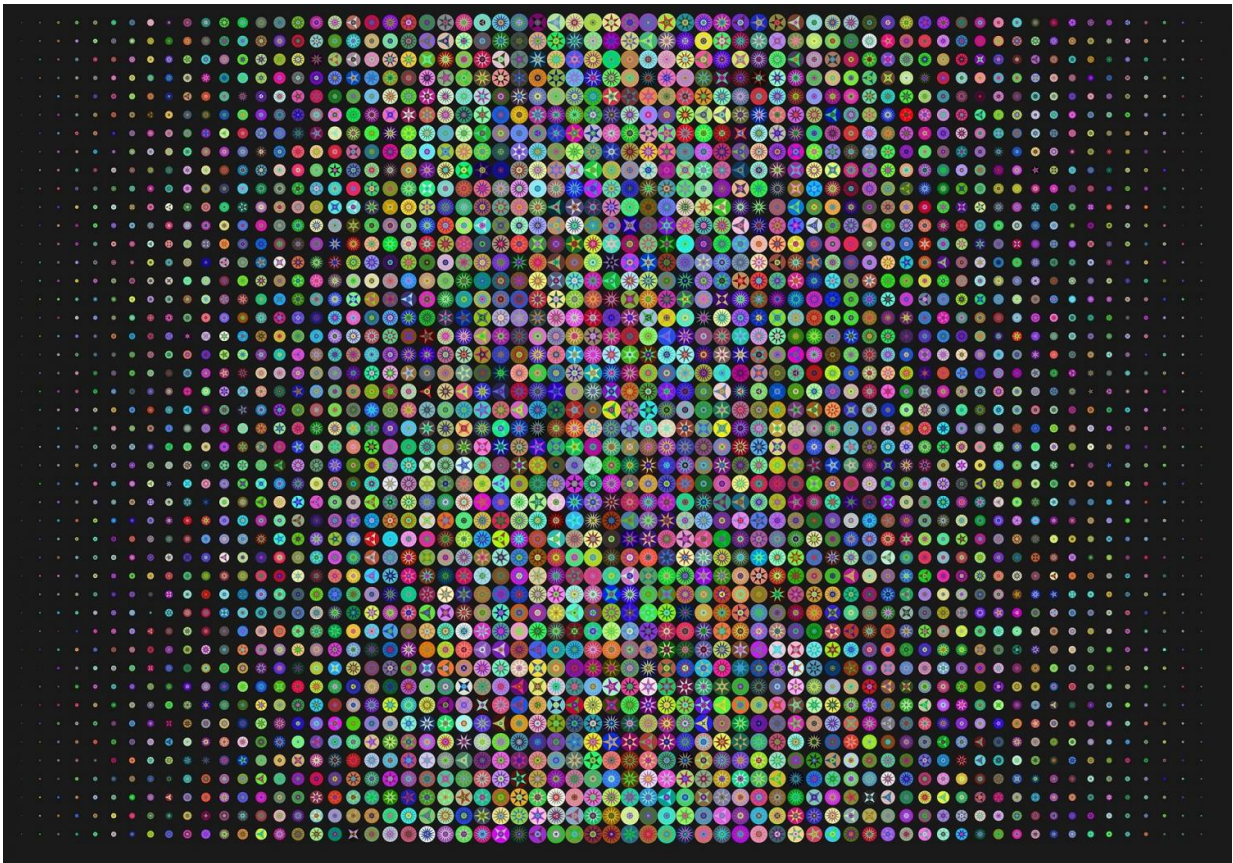


Are hiring algorithms fair? They're too opaque to tell, study finds

November 21 2019, by Louis Dipietro



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Time is money and, unfortunately for companies, hiring new employees takes significant time—more than a month on average, research shows.

Hiring decisions are also rife with human [bias](#), leading some organizations to hand off at least part of their employee searches to outside [tech companies](#) who screen applicants with machine learning algorithms. If humans have such a hard time finding the best fit for their companies, the thinking goes, maybe a machine can do it better and more efficiently.

But new research from a team of Computing and Information Science scholars at Cornell University raises questions about those algorithms and the tech companies who develop and use them: How unbiased is the automated screening process? How are the algorithms built? And by whom, toward what end, and with what data?

They found companies tend to favor obscurity over transparency in this emerging field, where lack of consensus on fundamental points—formal definitions of "bias" and "fairness," for starters—have enabled tech companies to define and address algorithmic bias on their own terms.

"I think we're starting to see a growing recognition among creators of algorithmic decision-making tools that they need to be particularly cognizant of how their tools impact people," said Manish Raghavan, a doctoral student in computer science and first author of "Mitigating Bias in Algorithmic Employment Screening: Evaluating Claims and Practices," to be presented in January at the Association for Computing Machinery Conference on Fairness, Accountability and Transparency.

"Many of the vendors we encountered in our work acknowledge this (impact) and they're taking steps to address bias and discrimination," Raghavan said. "However, there's a notable lack of consensus or direction on exactly how this should be done."

The researchers scoured available public information to begin to understand these tools and what measures, if any, companies have in

place to evaluate and mitigate algorithmic bias. Shielded by intellectual property laws, tech companies don't have to disclose any information about their algorithmic models for pre-employment screenings—though some companies did choose to offer insight.

The researchers honed in on 19 vendors who specialize in algorithmic pre-employment screenings, which, they found, include questions, video interview analysis and games. They combed [company](#) websites, webinars and any available documents for insights into vendor claims and practices.

Very few vendors offer concrete information about how they validate their assessments or disclose specifics on how they mitigate algorithmic bias, researchers found.

"Plenty of vendors make no mention of efforts to combat bias, which is particularly worrying since either they're not thinking about it at all, or they're not being transparent about their practices," Raghavan said.

Even if they use such terms as "bias" and "fairness," these can be vague. A vendor can claim its assessment algorithm is "fair" without revealing how the company defines fairness.

It's like "[free-range](#)" eggs, Raghavan said: There is a set of conditions under which eggs can be labeled [free range](#), but our intuitive notion of free range may not line up with those conditions.

"In the same way, calling an [algorithm](#) 'fair' appeals to our intuitive understanding of the term while only accomplishing a much narrower result than we might hope for," he said.

The team hopes the paper will encourage transparency and conversation around what it means to act ethically in this domain of pre-employment

assessments through machine learning.

Given the challenges, could it be that algorithms are just not up to the job of screening applicants? Not so fast, Raghavan said.

"We know from years of empirical evidence that humans suffer from a variety of biases when it comes to evaluating employment candidates," he said. "The real question is not whether algorithms can be made perfect; instead, the relevant comparison is whether they can improve over alternative methods, or in this case, the human status quo.

"Despite their many flaws," he said, "algorithms do have the potential to contribute to a more equitable society, and further work is needed to ensure that we can understand and mitigate the biases they bring."

The paper's co-authors are Solon Barocas, assistant professor of information science, currently at Microsoft Research; Jon Kleinberg, Tisch University Professor of Computer Science and interim dean of CIS; and Karen Levy, assistant professor of information science.

More information: Mitigating Bias in Algorithmic Hiring: Evaluating Claims and Practices, arXiv:1906.09208 [cs.CY]
arxiv.org/abs/1906.09208

Provided by Cornell University

Citation: Are hiring algorithms fair? They're too opaque to tell, study finds (2019, November 21) retrieved 7 May 2024 from
<https://techxplore.com/news/2019-11-hiring-algorithms-fair-theyre-opaque.html>

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