9 Intriguing Uses of AI in Recruitment in 2019

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The use of AI in recruitment isn’t a trend. Because trends tend to blow over at some point. If you’re old enough to know the Spice Girls (if not, just Google them), you may remember the hilarious platforms shoes they used to wear in the nineties.
Now, that’s what we like to call a trend.

Those shoes popped up, all of a sudden everyone (in Europe) between the age of 10 and 15 seemed to be wearing them, and about 9 months later they had disappeared again.

AI, however, has been around for a long time already. In fact, the very first, basic forms of artificial intelligence were created back in the 1930’s. Sure, applications of the technology in HR have only been around for several years, but AI as such is anything but a temporary phenomenon.

In the recruitment technology landscape, AI has been strengthening its position for a few years now. 2018 already showed us that, in one form or another, AI is becoming a must-have in the recruiter’s toolbox.

Think of the application of artificial intelligence in pre-employment assessments, conversational chatbots, or video interviewing tools for instance.

But 2018 wasn’t all fun and games for AI in recruitment.
A few cases came to light where AI had been used in a suboptimal way hence having an undesired effect. One of the most recent examples is that of an AI used in a recruitment process that turned out to be privileging men over women.

On the upside, innovation in HR and recruitment is still booming and more and more new AI-driven solutions for various problems are emerging.

So, just like last year, we’ve picked out 9 intriguing and inventive uses of AI in recruitment that we believe will be trending in 2019.

1. Automated Candidate Sourcing
2. Candidate Rediscovery
3. Candidate Matching
4. Hiring Remote Workers
5. Internal/Employee Referrals
6. Diversity Hiring
7. Customized Employee Value Propositions
8. Natural Language Processing (NLP)
9. Facial Expression Analysis
1. Automated Candidate Sourcing

Finding talent starts with sourcing potential candidates and building a pipeline. But even if you know where to find those potential candidates (job boards, social media, etc.), this can be quite a challenging – and time-consuming – task.

Developments in AI for recruitment now enable recruiters to automate their sourcing process and extend their reach at the same time; certain solutions are able to analyze more than 300 million social profiles, something that even a small army of human beings wouldn’t be able to do.

Among other things, and speaking of time-consuming tasks that can be taken over by this kind of solutions, the sourcing automation technology is also able to send personalized messages to candidates in the pipeline to keep them engaged.

2. Candidate Rediscovery

Let’s stick with the candidate pipeline a little longer. Sometimes, we’ve got so many profiles in our database that certain potentially interesting candidates just end up getting buried.
Especially in today’s job market, where many companies struggle to find top talent, this is a shame – those great candidates may actually be there, right in front of you already!

Rather than spending a lot of time and money on finding ‘fresh meat’ and trying to get them interested in your company, you could get in touch with candidates that already know your business and have shown interest in the past.

Speaking about hidden treasures, right?

Several providers use AI technology to **screen your existing candidate pool** for strong past candidates that could be a good fit for a new role. **Ranking can even include** promising profiles that have been forgotten about for months or years.

When you’re looking for talent, take a look into your own talent database. The best candidate for the role is probably there already!
3. Candidate Matching

Another intriguing use of AI in recruitment – still in the sourcing space – can be found in the candidate matching part of the process. Here too, we see a shift towards a customized candidate experience.

We say here ‘too’ since this ‘tailor-made’ element is something we’ve been seeing for a while now across various parts of the HR function. Employee learning and development (L&D) is a good example of this.

L&D programs are becoming more and more customized to the needs of individual employees. Not only in terms of their content, but also in the way that content is delivered to employees (some may prefer a desktop version, others rather use their smartphones, etc.).

Now AI technology is also being used to optimize the prospect experience (if we can call it that), meaning to truly understand what jobs and type of content your prospects are interested in.

What does this mean, you wonder?

That it’s possible to track candidate behavior on your website and then automatically send them customized content and messages based on their interests, for example.

4. Hiring Remote Workers

In today’s job market, companies sometimes don’t have a choice but to hire remote workers. There can be several reasons for this. Perhaps there simply are no suitable candidates available in their area of business.
Or maybe the right candidate wants to be able to work remotely and if you don’t offer them this possibility, they’ll go and work for a competitor who does.

In any case, for most organizations, having remote workers as a (big) part of their workforce is a reality already.

In the US for example, around 5% of all workers in each state work remotely, a number that is likely to grow in the near future.

As you may have expected, hiring remote workers comes with its own challenges.

Especially if the entire recruitment process needs to take place remotely too.

Luckily, there’s a whole array of AI-powered tools recruiters can use to help them hire remote workers.

The use of a pre-employment assessment tool, for example, can be useful to assess a candidate's personality, skills, and organizational fit.

Once your candidates reach the in-person interview stage but can’t make the interview in person since they are – indeed – based elsewhere, a video interview is a good alternative.

Even more so when that video interview is combined with a hint of AI to help you assess candidates.
...and continues to grow. Hiring remote workers with the help of AI will be more and more important in the near future.

5. Internal/Employee Referrals

In today’s job-seeking driven market, recruiters and hiring managers need to work smart to get that top talent through the door.

One of the ways to do so is, as we mentioned above, releasing the power of the forgotten profiles in your existing talent pool.

Another great way to hire high-quality people is via your existing employees. Referred new hires are often a better (culture) fit, they are more engaged, less likely to leave, and they are more productive.

So it’s no surprise that employee referrals, and employee referral programs, are on the rise.

AI technology is now taking employee referrals to the next level. It helps companies to proactively identify the best passive talent in your workforce’s network and automatically engages the right employee to refer.
6. Diversity Hiring

AI may be a hot topic in recruitment land, but so is diversity hiring. A diverse workforce has a lot of proven advantages for companies:

- It improves employee happiness, productivity, and retention
- It improves innovation and creativity
- It’s positive for your employer brand
- It increases your workforce’s range of skills, talents & experiences

Diversity was on numerous 2018 trends lists and surely will be among this year’s trends as well.

But the fact that we human beings are biased (even if we try really hard not to be) isn’t always great when it comes to diversity hiring.

Which is why it’s a good thing that there are quite a few providers out there offering **AI-driven solutions to help recruiters with their diversity hiring efforts**.

This can mean various things, from using an AI-powered chatbot and pre-employment assessments to blind hiring and writing inclusive job adverts.
AI is a tool to help fight bias and discrimination, which will lead to increased diversity at your organization.
7. Customized Employee Value Propositions

Most companies currently have a single Employee Value Proposition (EVP); a unique set of benefits which an employee receives in return for the skills, capabilities and experience they bring to a company.

When you think about it, however, this doesn’t really make sense.

After all, every employee is different, so while a specific set of benefits may be perfect for one employee, it may not quite work for another.

Thanks to AI (analyzing personalities, among other things) it could soon be possible for companies to offer an EVP that’s adapted not just to their various candidate personas, but to each and every individual applicant.

Yet another development of AI that fits right in the customized experience trend we mentioned before.

8. Natural Language Processing (NLP)

Although natural language processing techniques have been used by HR for several decades, there is still a lot more that can be done with it.

The most well-known and straightforward example of natural language processing (put simply: text analysis) in recruitment is probably the use of Boolean keyword searches to identify good resumes.

In their article for our friends over at AIHR, Raja Sengupta and Soumyasanto Sen explain how NLP can revolutionize human resources – and present a business case for natural language processing in the hiring process.
Among other things, NLP can help on resume classification, ranking, deep extraction, identification and semi-automation in the recruitment process.

Both Sengupta and Sen believe that HR and recruitment are a prime candidate for the adoption of NLP-based technologies and that we'll increasingly see applications of it in HR.

### 9. Facial Expression Analysis

We already briefly mentioned the combination of video and AI above when talking about hiring remote workers.

But video interviews are a great tool to use for non-remote candidates too.

Because even if the candidate lives more or less close to your company’s offices, a video interview can save both them and you a lot of time. And yet, it still allows you to get a feel for someone’s energy, the way they present themselves, etc., as well as an option to review the interview multiple times.

And if you add a bit of AI to the mix, things can get even better.

The technology is able to analyze a candidate’s facial expressions during the video interview, hence capturing their mood, and assess their personality traits.

Sure, not everyone is a big fan of this AI-infused facial recognition technology as part of the recruitment process. Some say that people who know that their facial expressions are analyzed may be tempted to show self-consciousness, for example.
AI video interviews are still a bit of a shaky ground. Can the technology reliably analyze every face and form of expression? *(Image source)*

However, so far, companies who use the AI video interviewing technology seem to be very pleased with it. Some of them even claim it has increased their ethnic and socioeconomic diversity.

**On a final note**

Well, there you have it, 9 intriguing uses of AI in recruitment we believe you’ll see (a lot more of) in 2019. Just like last year, applications of artificial intelligence will become even more widespread in the recruitment technology landscape.

So, if you haven’t done so yet, this brand new year might be a good time to start looking into the various different AI options that could help you optimize (parts of) your recruitment process.
Because whether we like it or not – and despite some unfortunate cases where AI had an undesired effect – the AI train continues to run at full speed and it doesn’t wait for anyone.

Before you decide to invest in any kind of (AI-driven) recruitment technology, here are 10 considerations to take into account.

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RECRUITING

AI and the Search for a More Diverse Workforce
By Ashutosh Garg, CEO, Eighfold.ai  |  Jul 3, 2018  |  Recruiting (https://hrdailyadvisor.blr.com/category/recruiting/)

Any executive or hiring professional, particularly in tech, knows that recruiting and retaining diverse talent is one of the biggest challenges in the industry.

Competition is fierce, and the pool for top candidates is seemingly small. That means finding, recruiting, and retaining talented employees is more challenging than ever before. By hiring and retaining a diverse workforce, businesses experience many benefits, such as increased organization performance, an influx of innovative perspectives, and high diversification of the labor market. In fact, in one U.K. study (http://www.onrec.com/news/news-archive/just-how-important-is-ai-in-terms-of-improving-diversity-levels-within-the), researchers discovered that greater gender diversity on the executive team could positively affect performance. Furthermore, for every 10% increase in a diverse workforce that enterprises executed, profits increased by 3.5%, a notable jump.

But even armed with these statistics and the best of intentions to make good on diversity-minded goals, businesses often struggle to actually execute. They often lack the capacity and proper resources to do anything about removing barriers to equality in hiring and retention. In other words, they have not been supplied with an efficient technological method of ensuring diversity in their talent acquisition practices.
Artificial intelligence (AI) is opening up new opportunities to help enterprises of all sizes make more informed decisions and unlocks the potential to make a significant impact in creating large-scale change in the tech industry's Diversity & Inclusion initiative. Diversity doesn't just refer to race; talented employees have also missed opportunities because of disabilities, ageism, gender, sexual orientation, and other protected criteria because of a flawed hiring system.

How can AI play a role in recruiting diverse candidates? Research shows that both conscious and subconscious biases play an enormous role when it comes to hiring and recruitment operations, and sometimes many of these biases simply stem from an utter lack of data. A Harvard study from 2017 (https://www.hbs.edu/recruiting/blog/post/simple-ways-to-take-gender-bias-out-of-your-jobs) notes that poorly written job descriptions are a deterrent to female applicants because they usually don't apply unless they are a very good fit for the job. Data from our platform, in addition, have also revealed that female candidates with the same capabilities fare 10% worse than the male candidates in the initial filtering process. Even worse—female candidates with the same capabilities fare 35% worse than the male candidates during in-person interviews. In case of a tie, the preference often leans toward male candidates. Due to these subconscious biases, it is highly likely that recruiters are failing to identify the best talent, which can result in the elimination of female candidates and people of color without even being aware of it. Ultimately, this leaves the business falling short—despite best intentions—of building a diverse workforce.

To aid companies' intent on overcoming bias at work, we have made sure that our platform has the ability to mask anything in a candidate's profile that would reveal their background—name, picture, college (if applicable), etc. This forces the hiring managers to focus on capabilities and future potential, not on gender or background.

Purpose-built models for people and jobs give millions of applicants much higher probability of landing the “best fit job” and simultaneously gives employers an opportunity to find the “best fit talent” quickly, including those who may not have been previously considered. In addition, casting a wider net, coupled with a matching engine driven by machine learning—can improve person-job match and assist in overcoming implicit and explicit prejudice in the workplace.

While hiring talent, AI can find those coveted purple squirrels and unicorns within the candidate pool by both predicting the most qualified applicant and showcasing someone who might also meet the company's diversity preferences. Talent acquisition teams using AI—such as those at AdRoll Group and DigitalOcean—are able to see which applicants are the most advantageous fit for available positions within the company by correlating career aspirations to capabilities. AI emphasizes applicants with the best fit, creating the likelihood of a strong match and future productivity and success in the position.

When it comes to diversity-based hiring, companies cannot solely make the hire to fill the objective of having a diverse workforce, although AI can help track those important initiatives to learn how you're doing and make sure you're on track. But the objective should not only be to hire diverse applicants; instead, companies should focus on how to hire and then retain these applicants, provide them with internal mobility, and make their work life both fulfilling and inviting. CEOs can now build more diverse, open, and inclusive organizations by having their Hiring professionals and HR executives use the power of AI to transparently transform every level and every group across the organization for better business outcomes.

At current rate, one out of every five employees is likely to leave his or her current employer at any given time. We believe companies should have succession planning for every employee. This is not feasible if done manually. But AI can solve it at scale. Every hiring opportunity—whether the candidate is coming from inside or outside the company—is an opportunity to make the company more diverse. Now you are moving quickly toward building a more diverse and more productive company—and a company that walks the talk.

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https://hrdailyadvisor.blr.com/2018/07/03/ai-search-diverse-workforce/
TECHNOLOGY

Auditing Algorithms for Bias

by Rumman Chowdhury and Narendra Mulani

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In 1971, philosopher John Rawls proposed a thought experiment to understand the idea of fairness: the veil of ignorance. What if, he asked, we could erase our brains so we had no memory of who we were — our race, our income level, our profession, anything that may influence our opinion? Who would we protect, and who would we serve with our policies?

The veil of ignorance is a philosophical exercise for thinking about justice and society. But it can be applied to the burgeoning field of artificial intelligence (AI) as well. We laud AI outcomes as mathematical, programmatic, and perhaps, inherently better than emotion-laden human decisions. Can AI provide the veil of ignorance that would lead us to objective and ideal
be a method of perpetuating bias, leading to unintended negative consequences and inequitable outcomes.

Today’s conversation about unintended consequences and fair outcomes is not new. Also in 1971, the U.S. Supreme Court established the notion of “disparate impact“ — the predominant legal theory used to review unintended discrimination. Specifically, the Griggs vs. Duke Power Company ruling stated that independent of intent, disparate and discriminatory outcomes for protected classes (in this case, with regard to hiring), were in violation of Title VII of the Civil Rights Act of 1964. Today, this ruling is widely used to evaluate hiring and housing decisions, and it is the legal basis for inquiry into the potential for AI discrimination. Specifically, it defines how to understand “unintended consequences“ and whether a decision process’s outcomes are fair. While regulation of AI is in early stages, fairness will be a key pillar of discerning adverse impact.

The field of AI ethics draws an interdisciplinary group of lawyers, philosophers, social scientists, programmers, and others. Influenced by this community, Accenture Applied Intelligence* has developed a fairness tool to understand and address bias in both the data and the algorithmic models that are at the core of AI systems.

How does the tool work?
Our tool measures disparate impact and corrects for predictive parity to achieve equal opportunity. The tool exposes potential disparate impact by investigating the data and model. The process integrates with the existing data science processes. Step 1 in the tool is used in the data investigation process. Step 2 and 3 occur after a model has been developed. In its current form, the fairness evaluation tool works for classification models, which are used, for example, to determine whether or not to grant a loan to an applicant. Classification models group people or items by similar characteristics. The tool helps a user determine whether this grouping occurs in an unfair manner, and provides methods of correction.

There are three steps to the tool:

- The first part examines the data for the hidden influence of user-defined sensitive variables on other variables. The tool identifies and quantifies what impact each predictor variable has on the model’s output in order to identify which variables should be the focus of step 2 and 3. For example, a popular use of AI is in hiring and evaluating employees, but studies show that gender and race are related to salary and who is promoted. HR organizations could use the tool to ensure that variables like job roles and income are independent of peoples’ race and gender.
- The second part of the tool investigates the distribution of model errors for the different classes of a sensitive variable. If there is a discernibly different pattern (visualized in the tool) of the error terms for men and women, this is an indication that the outcomes may be driven by gender. Our tool applies statistical distortion to fix the error term — that is, the error term becomes more homogeneous across the different groups. The degree of repair is determined by the user.
- Finally, the tool examines the false positive rate across different groups and enforces a user-determined equal rate of false positives across all groups. False positives are one particular form of model error: instances where the model outcome said “yes” when the answer should have been “no.” For example, if a person was deemed a low credit risk, granted a loan, and then defaulted on that loan that would be a false positive. The model falsely predicted that the person had low credit risk.
One priority in developing this tool was to align with the agile innovation process competitive organizations use today. Therefore, our tool needed to be able to handle large amounts of data so it wouldn’t keep organizations from scaling proof-of-concept AI projects. It also needed to be easily understandable by the average user. And it needed to operate alongside existing data science workflows so the innovation process is not hindered.

Our tool does not simply dictate what is fair. Rather, it assesses and corrects bias within the parameters set by its users who ultimately need to define sensitive variables, error terms and false positive rates. Their decisions should be governed by an organization's understanding of what we call Responsible AI — the basic principles that an organization will follow when implementing AI to build trust with its stakeholders, avert risks to their business, and contribute value to society.

The tool's success depended not just on offering solutions to improve algorithms, but also on its ability to explain and understand the outcomes. It is meant to facilitate a larger conversation among data scientists and non-data scientists. By creating a tool that prioritizes human engagement over automation in human-machine collaboration, we aim to inspire the continuation of the fairness debate into actionable ethical practices in AI development.

* An early prototype of the fairness tool was developed at a data study group at the Alan Turing Institute. Accenture thanks the institute and the participating academics for their role.

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This article is about TECHNOLOGY

Related Topics: Social Responsibility
Ethics of Artificial Intelligence in the Legal Field

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ABSTRACT
Artificial Intelligence (“AI”) is the application of computer algorithms to perform intellectual tasks. In the distant past the big breakthrough was the creation of machines to do simple mathematics. Today, computers are called to duty on a number of gigantic intellectual tasks. The intellectual tasks facing society and the legal field are information problems. Since they are information problems, smart creative humans such as lawyers can solve them with enough data and the ability to analyze it. Some of these modern tasks have surprising depth. Complex technology can have unpredictable risks and powerful technology always has the risk of being misused. The question this document answers is “what ethics must we be mindful of when creating AI and applying it to the legal field?”

Categories and Subject Descriptors
K.4.1 [Public Policy Issues; Ethics]

General Terms
Design, Security, Human Factors, Theory, Legal Aspects

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1. INTRODUCTION
This paper will discuss ethics from the point of view of the builders of AI and the users of AI. It does not address AI rights. While AI rights may become an issue in the future, they are not an issue today, in the manner of the topics discussed. This paper will touch upon Net Existential Risk, also known as the Theory of Singularity (Wikipedia, 2014), a belief that Artificial Intelligence can destroy civilization. Also discussed are the risks of AI to the legal system, which are much more contained and require special consideration. By discussing the actual level of threat that AI can represent today and in the near future, we can define a clear set of values and ethos for our ethical use of AI as it applies to the legal field.

The ethics of artificial intelligence has been a topic of discussion going back to the 1940’s. It begins with the brilliant imagination of Professor Isaac Asimov who made a career writing books about robots, among other achievements. His 3, and later 4, Laws of Robotics (Wikipedia, 2014) became the first expression of an ethical system for artificial intelligence. They describe how robots should act. However, an ethical system should do more than just describe how the AI acts. It should discuss how we use it and interact with it as well. There are also unintended consequences that come naturally from complex systems (European Physical Society, 2014), which is an important consideration.

2. WHAT IS ARTIFICIAL INTELLIGENCE
Artificial Intelligence describes an intelligent agent, able to act upon a task, determine the level of success at completion, learn from that experience and alter future behavior in order to improve future performance on the task. Some AI is static, in that it has learned to perform a task as best as can be expected. Some AI is constantly learning. Some AI is supervised in its learning where a human is teaching the AI to perform the task. Other AI is unsupervised and able to learn from raw data. AI has been applied to many tasks. No sophisticated demonstrations of general purpose AI currently exist in the same way that human intelligence is general purpose. AI applications tend to be focused on particular and narrow problems. Almost all eDiscovery platforms have some form of machine learning using narrow AI for helping people solve intellectual tasks involved with evidence understanding, and complex reasoning.

Some tasks are considered transhuman problems. They are problems that individuals and organizations of humans are inefficient at solving. The so-called connecting the dots problem, prior to the September 11, 2001 terror attacks in America, is an excellent example. The information was collected but not concentrated. The information was beyond the technological and organizational capability to create a valid argument that could have led to preventative measures against the attack.

Understanding very large amounts of unstructured information is a transhuman problem because finding the relationships and connections in the data is limited by the ability of humans to read and recall the data. A large corpus could be broken up and read in parts by a team of humans, but then each human must have conversations with each of the other members. The importance of the data points each knows depends upon the relationships it has with other data points. Discovering all of the connections leads to a factorial number of conversations being necessary for true understanding. 10 people would need to have millions of conversations for a modest corpus of 15,000 documents.

AI working with humans can help us understand the data far more effectively than we can on our own. AI has
certain limitations. Currently, AI is not creative. While a human can imagine a wide ranging set of scenarios and then devise experiments for proving any hypothesis supported by these scenarios, computational creativity lacks in this area. AI does not have the intuition necessary for devising scientific thoughts. AI can in no way show leadership. Its understanding of leadership is the difference between having a human leader and a book on leadership. AI lacks an ability for empathy. According to noted computer science and AI researcher Joseph Wiezenbaum this lack of ability means that AI is not suitable for performing tasks that require care and respect (MIT’s The Tech, 2008).

These limitations are considerable and demonstrate human-like artificial intelligence may not be realized for a long time. This points to a problem with humans and not machines. Humans tend to anthropomorphize issues in order to understand them. We think of AI as having to be human-like. However, even with the examples of AI we have built today, they do not think like we do. We studied birds, developed aerodynamics and produced planes. Those planes do not fly like birds, even though we started with birds to create an ability to fly. Humans aided by machines now fly higher, faster and longer than any bird has ever been able to do. AI research and development is going in the same way – we are not recreating the human mind but creating tools that are different. The difference is that AI can help us solve transhuman problems. Paired, we can solve greater problems together than either machines or humans can do alone.

3. WHAT IS NET EXISTENTIAL THREAT

Recently, noted futurist and investor Elon Musk wrote the following:

“The pace of progress in artificial intelligence (I’m not referring to narrow AI) is incredibly fast. Unless you have direct exposure to groups like Deepmind, you have no idea how fast-it is growing at a pace close to exponential. The risk of something seriously dangerous happening is in the five year timeframe. 10 years at most. This is not a case of crying wolf about something I don't understand. I am not alone in thinking we should be worried. The leading AI companies have taken great steps to ensure safety. They recognize the danger, but believe that they can shape and control the digital superintelligences and prevent bad ones from escaping into the Internet. That remains to be seen...” –Elon Musk (Reddit, 2014)

Mr. Musk has invested in a company that does Artificial Intelligence work and is regarded by many to be an extremely smart person. The idea of AI Net Existential Threat goes back many decades. It is sometimes referred to as Singularitarianism (Wikipedia, 2014) – the belief that an artificial intelligence will bring about the end of civilization. Those humans that can then perform a mind to machine transfer will survive this event. Science fiction writer Ken MacLeod refers to this event as “the Rapture for nerds.” However, in terms of what a sentient AI could be capable of, Net Existential Threat often refers to a transformation of society for the worse because of the existence of an AI hostile to people. There are unseen long tail risks in complex systems and the consequences of artificial intelligence are largely unknown.

There is another threat, however. It is more subtle. AI is capable of solving intellectual problems humans cannot alone. In free style chess competition the most effective teams are not composed of all humans or all computers. The most effective teams are man and machine teamed together. They are often referred to as centaurs. A centaur team with an unethical human lead could wreak great damage. A centaur team with an unethically built AI could unwittingly wreak damage as well. The dangers are not Net Risk necessarily but can lead to far ranging disasters. At issue is that centaur teams can perform transhuman tasks. The issues that such a team could create range from the extremely overt to the extremely subtle and would be hard to detect.

Others who have worried about a coming singularity are Stephen Hawking, Ray Kurzweil, Eliezer Yudkowsky and many others. Yudkowsky’s experiment on “AI in a Box” is fascinating reading (Yudkowsky, 2002). That experiment’s results state that should a transhuman superintelligence manage to be created and contained securely in a closed system and accessible to only a few people, it would still manage eventual escape. It is worth reading the papers on that experiment.

Net Existential Risk means that a superintelligence will have great abilities such as being able to control the economy, order human activities, have control of machines and then seek goals for its own benefit, eventually enslaving mankind or removing it as a threat. This has been in the realm of fiction for a long time. In “Colossus: The Forbin Project” a non-sentient superintelligence is created, but within hours of being connected to our nuclear deterrent system, gains sentience, discovers the Russians have their own superintelligence, takes over that machine and they combine to form a greater superintelligence. Naturally, the next step is to enslave mankind. That is the shallow take one can get from movies and books.

In real life we see other ways in which AI is being used to the detriment of people and systems. High frequency trading has become something the stock markets are dealing with, introducing risk and high stakes to an already risky endeavor. Decisions being made within thousandths of a second are necessary to compete in this realm. Various types of sentiment analysis are being used to help manipulate human decisions, giving the humans who control the technology an advantage they otherwise would not have. An unexpected result of AI came from an experiment at the Laboratory of Intelligent Systems in the Ecole Polytechnique Fédérale of Lausanne, Switzerland, where robots were tasked with gathering and communicating with each other about a needed resource and to avoid a poisonous one. The robots developed a strategy of maximizing their cache of the needed resource by lying to the other robots and directing them to the poisoned resource. This is something
that isn’t even covered by the Three Laws of Robotics. (Fox, 2008)

Another consideration is that AI has competence without comprehension. This is the general idea behind Turing’s and Darwin’s ideas on computing and evolution. “A strange inversion of reason,” as one of Darwin’s critics put it, the idea that complex things can come from simple systems, without design, is accurate and not the critique intended. The point, though, is that something like Evolution isn’t progressing towards any goal. Evolution is not very good at optimizing. The strongest and fittest do not always survive. The only aspect that is important to Evolution is adaptability. Our intelligence is a curious and odd thing. It indeed makes us very adaptable, but at the same time gives us plenty of ways of creating our own Net Existential Risk. Evolution does not judge creatures to be good or bad. The Mosquito and Man are on the same playing field and considered equal. Adaptability and long term survival are all that Evolution cares about. So if Evolution is just a process then Turing’s In Silico evolution directs us to believe that AI can indeed be competent but not have any actual comprehension. This is the present state of AI. They are very competent but they do not understand the meaning of what they are doing. AI has competent utility but because they do not have comprehension they likely will not develop a sense of self and possibly become unfriendly.

4. What Risks do AI Pose

The true risks of AI are similar to the risks posed by many technologies. People can be displaced. Economies can shift dramatically. Privacy can be lost. They can enable bad actors to do enormously dangerous things. Most technologies are double edged. They offer a benefit and a disadvantage. We have always accepted this dichotomy. Risk management is about the evaluation of risk, with a cost benefit analysis, analysis of mitigation strategies and making informed decisions. The presence of unanticipated decision variables, factors that are unforeseen and rare, but which have dire consequences, makes risk management a bit trickier. So long as AI is constrained to particular tasks and its performance can be carefully measured the AI itself does not present a risk of these dire consequences, unless it makes a Yudkowsky Escape. Any tool can be misused, however. Omitted from this section are specific examples of what an unethical builder or user of AI can do. There is a balance being struck in this paper between being informative, versus creating a blue print for unethical behavior that favors the best interests of society. No list of examples for this paper would be exhaustive enough to anticipate future creative thinking for unethical behavior. This list contains general risks that should be the start of discussion concerning the risks of artificial intelligence.

4.1 To Justice

Justice must be served in all cases. All lawyers are officers of the court. In America we have the finest system of justice in existence. Artificial Intelligence can be a risk to justice itself if it is used to manipulate opinion with dissonance or to hide, either intentionally or unintentionally, important responsive and relevant information. All lawyers have the duty to protect justice from the misuse of AI.

4.2 To Lawyers

AI systems can cause great harm to lawyers. Lawyers can be saddled with extra tasks they are not prepared to handle or do not have time to perform properly. Lawyers can be displaced by AI. Lawyers can be blinded by AI that produces more confusion than it does illumination. A lawyer should be a better, enhanced lawyer by using AI and not cast aside and demoted by an AI.

4.3 To Litigants

It has already been shown that high eDiscovery costs have forced many cases into an early settlement phase. Cases should not be reduced to budget battles. People should get their day in court. eDiscovery systems should be making it easier to get there, not harder. It should never be possible, as a tactic, to overwhelm the opposition with cost burdens. Justice is served by having a day in court. In America we have equal access to information in order to serve Justice.

4.4 To Society

Society should benefit from the presence of AI in Law. AI should enhance all aspects of the legal system it touches. The risk to society if AI harms the legal system is to drag society back to previous periods of history where Justice was denied more frequently.

4.5 To Our Ideals

Privacy is one we are all aware of lately as being at risk to technology. This risk deepens with AI involved. We depend upon laws and regulations to keep insurance, finance and banking to be dependable, accountable and fair. AI can pose risks to people, institutions and our basic assumptions of fairness if abused in these systems.

4.6 Values for Ethical Legal AI

The basis of any ethical system are the values and ethos of that system. In the case of Artificial Intelligence and Machine Learning we see there are values that must take in several different considerations. We consider here the values of the lawyer and the Justice System and use those to develop the values of the AI as applied to law.

4.7 Values of the Justice System

We believe the values of the Justice System are as follows.

- Equal access to the justice system by all;
- Right to speedy justice;
- Independence and integrity of the judge/tribunal;
- Right to a jury of your peers;
- Right to privacy;
- Openness of all proceedings;
- Right of appeal on errors of law;
• The law of precedent;
• Protections against tyranny of the executive, the prosecution, and the government.

These values inform us what an AI must conform to in serving Justice. Many of these are ideals that we fight for every day in our courts. AI must not make this harder. It must enhance our ability to deliver justice. In many ways AI can aid in the tasks needed to serve these values. In other ways it can, if not properly built or used, work against these ideals. There are many ways in which AI can aid humans by standing up for the values of the Justice system. They can help humans more quickly find precedence. They can help detect errors of law; possibly early enough to mitigate them.

In order for the AI to be properly wielded in the service of Justice a lawyer must be paired with it. The human lawyer will understand the intent of the values of the justice system, where a machine would not have true understanding.

4.8 Values of the Lawyer

In wielding AI in the context of law, the lawyer must be mindful of their own values and the AI must support those values. The lawyer is believed to be ethical and stands for the following values.
• Candor to the Tribunal;
• Confidentiality;
• Respect of the Court and the entire Justice System;
• Respect for the Opposing Lawyers;
• Adherence to the Professional Code of Ethics;
• Contemporary knowledge of law, facts, and technology;
• Zealous advocacy of clients.

An ethical lawyer respects the values of the Justice System. The lawyer’s values are modified by it. Combined, both sets of values leave some grey area though. A zealous defense of clients has led to the practice of dumping extreme volumes of “responsive evidence”, forcing the opposition into an expensive eDiscovery phase, as just one example (TRAHAN, 2011). While this may seem like simply providing equal access to information to some, it’s a tactic that has invited the introduction of artificial intelligence into legal proceedings. This has consequences and brings us to the point of this essay.

5. VALUES AND ETHICS OF ARTIFICIAL INTELLIGENCE

All technologies have ethical and non-ethical uses. If the non-ethical use is the more likely for a given tool then society often works to make rules against it. These rules are not always effective and often are so specific that they miss particular cases. It is better to have a culture of ethical behavior than a set of overly specific rules that try to cover every situation but are unable to do so.

Ethical considerations in engineering have a long history. The idea of Professions is not something from the distant past, but from within the past few centuries and gaining prominence in the 19th Century. This caused the rise of professional societies from which a set of ethics eventually come, that went beyond the idea of personal ethics. The idea of having ethics surrounding technology is not new. Following major engineering failures in the 20th Century (the collapse of bridges, munition processing disasters, ecological contaminations, and other examples) the code of ethics arose which we can apply here.

There are two halves to this set of ethics. The first half is in the ethical creation of Artificial Intelligence. The second half is in the ethical use of Artificial Intelligence.

5.1 Ethics of AI Construction
• Use the Precautionary Principle to protect society from harmful AI; (Taleb, 2014)
• Use the Precautionary Principle to protect society from AI features where the unethical use is more likely than the ethical use;
• The AI must enhance ethical Lawyers at performing their tasks and within their workflow;
• The AI must enhance the Law and the System of Justice, not take undue advantage of either.

5.2 Ethics of AI Use
• Enhancing Justice;
• Increasing value of legal services to the client;
• Promoting clarity and diminishing obscurity of information;
• Enhancing the skills of the lawyer.

5.3 LAWYER-MACHINE SYMBIOSIS

Englishman George Boole was a mathematical genius. In 1847, Boole created a system utilizing algebra for logical reasoning. Boole’s revolutionary methodology found ways to express logical statements utilizing symbols and equations. By giving true propositions the value of 1 and false propositions the value of 0, he developed the ability to perform a set of logical operations such as “and”, “or”, “not”, “either/or”, and “if/then” as if they were mathematical equations. Unfortunately, Boole had a distribution of knowledge problem. The power of his logic did not have a technological partner in the nineteenth century that could amplify the potential of his groundbreaking intellectual accomplishment.

Fortunately for the world, this began to change in the years leading up to World War II. At that time, mathematical heavyweights, engineers and geniuses were working simultaneously and independently across the world on machines that would lead the world into the computing age. One of these individuals was Claude Shannon.
Shannon’s MIT master’s thesis entitled “A Symbolic Analysis of Relay and Switching Circuits” established how the wiring together of circuits could execute Boolean logic. His discovery that it was possible to perform mathematical calculations by means of relay circuits became the foundation of all digital computers. He achieved a remarkable symbiosis between the mathematical knowledge of man and the ability to amplify and distribute this knowledge through an advanced machine. It would be another MIT man, psychologist and engineer J.C.R. Licklider who would coin the phrase “man-computer symbiosis.” Licklider helped design the U.S. air defense system consisting of network computers in twenty-three tracking centers. His vision of the future was a world in which “human brains and computing machines will be coupled very tightly.”

In the legal world, we do not have a shortage of knowledge. There are approximately 1 million lawyers practicing in the United States. The vast majority of which provide high quality representation and have specialized expert knowledge about complex areas of the law. However, we do have a serious distribution of knowledge problem in this country and across the world. Studies report that the largest 200 corporations in the world account for 80-90% of the world’s legal spending and that approximately 80% of citizens in common law countries have faced legal issues and not hired a lawyer usually due to the lack of affordable options. Access to justice is a severe problem for not only the poor but the middle class as well as small and mid-sized businesses.

The challenges brought upon by the increasing complexity of globalization, information and the regulatory state are real and are having a significant impact on the business of law and legal spending. Gone are the days of bespoke representation where companies and individuals facing another unit legal or regulatory risk simply ordered another unit of legal service from the high quality firm or attorney that has served them in the past. Budgets simply cannot keep up with the exponentially increasing complexity of the world.

The new way of dealing with risk is not to call the leading and perhaps most expensive brand in the market but to systematize processes for dealing with risk. In order to design appropriate processes to deal with risk, knowledge of the law is an absolute pre-requisite. Without such knowledge, it will be impossible to design the appropriate process and deploy the right technology to address the risk. Importantly, knowledge of the law will not be enough either. Successful lawyers of today and the future will live in harmony with the machine in order to distribute their knowledge effectively. This ultimately requires a knowledge of what a particular technology can and cannot do.

All industries and individuals in society are coming to grips with this challenge. The key questions regarding your future success will be: Can you work effectively with intelligent machines? Do your skills complement the skills of a computer? If your skills and the machine do complement each other, then your prospects are likely rosy. Lawyers who can discern that there’s more to the matter than software can handle; lawyers who understand that there’s a different kind of software for a particular problem; lawyers who know when to leave the software alone and get out of its way will be invaluable because they can successfully bridge the gap between technical skills and knowing the law and persuading others in a more creative or intuitive way.

6. CONCLUSIONS

A set of ethics regarding the construction and use of artificial intelligence is not a guarantee that future calamity will not happen. However, our decedents will judge us on the actions we took today in recognizing the danger and the steps we took to help prevent a regrettable future. The basis for ethics concerning AI and law is to look at the values of the Justice System and at the values of ethical lawyers and form a consensus on how AI should work in the context of legal cases.

Machines have weaknesses just as humans do. Together our separate strengths cover the other’s weaknesses and make us stronger. Machines already enhance us by working with us. We must be humanists and build technology that enhances all of humanity. In this way we can have a better chance at avoiding calamity. Just as engineers take an oath to follow the ethics of their profession, we must all swear oaths to build safe AI and to use that AI ethically. We must also remember, we are the responsible agents, and no matter how intelligent we think our machines have become, they are just tools we created.

7. EPILOG

Oren Etzioni is the CEO for the Allen Institute for AI. He believes full blown, general AI is far into the future. In the meantime, he believes that artificial intelligence is here to help empower mankind. He writes in the conclusion of his essay on AI singularity the following:

Of course, in this world of viruses, cyber-crime and cyber-weapons, I welcome an open and vigorous debate about what level of autonomy to grant computers, but that debate is not about AI research. If unjustified fears lead us to constrain AI, we could lose out on advances that could greatly benefit humanity—and even save lives. Allowing fear to guide us is not intelligent.

– Oren Etzioni (Etzioni, Oren, 2014)

Artificial Intelligence can greatly enhance Justice. Not just the system or the lawyers, but by bringing real justice to people at a higher level than has previously been done before. We must be careful though. We must be smart about how we build our systems and consider the consequences of the capabilities we are delivering. By adopting ethics for the safe construction of smart systems applied to law we can minimize harmful effects. The lawyer must always be in front of the technology. The human is always the responsible agent and the machine is there to lend support.
8. ACKNOWLEDGMENTS

Many thanks to lawyer Roe Frazer who has given us many insights into the legal process and into the values of lawyers and the legal system. Thanks also to our company, cicayda, for supporting our work into the ethics of building intelligent systems for the legal field to support and increase justice.

9. REFERENCES


Is Artificial Intelligence The Key To Recruiting A Diverse Workforce?

Kim Elsesser  Senior Contributor

I cover the intersection of business, psychology and gender.

Many organizations are struggling to find strategies for recruiting a more diverse workforce, and some are turning to artificial intelligence (AI). But artificial intelligence got a bad rap last year when news got out that Amazon’s internal AI recruiting tool had "learned" gender bias. So, is AI beneficial to those seeking diversity, or will it just exacerbate the problem? One recruiting firm has found that AI is an effective strategy for increasing the diversity of candidate pools, as long as its implemented correctly.

The Problems With Using AI In Recruiting

Amazon scrapped its internal AI recruiting efforts after realizing that the test recruiting program they designed was biased against women. The computer models were trained
with résumés submitted to Amazon over the previous ten years. Not surprisingly, most of these résumés came from men. Therefore, the computer models “learned” that men were superior job candidates.

As a result, the models became biased against women, generating lower ratings to graduates of two all-women’s colleges and penalizing résumés that contained the word “women’s” as in “women’s chess club captain.” Although the programs could be altered to become neutral to these particular terms, Amazon decided to scrap the project out of fear that the models may develop other discriminatory selection criteria.

**The Benefits Of Using AI In Recruiting**

Despite Amazon’s setbacks, Genevieve Jurvetson, cofounder and CMO of the artificial intelligence-based recruiting firm, Fetcher, believes AI is an essential tool for those seeking a more diverse candidate pool. “If you get too caught up in the fears surrounding AI, you miss a huge opportunity,” Jurvetson says. She explains that there are innumerable criteria that you can use to find good candidates that are not remotely gender-related. Jurvetson claims that Fetcher’s use of AI techniques allows them to bring minorities and women into their clients' hiring pipeline in a way other recruiting methods just can’t.

Why are AI techniques so effective? We all know humans have biases. Take gender bias for example. After a lifetime of exposure to mostly men in leadership roles, in boardrooms and in tech jobs, we develop a bias to prefer men in these positions. The advantage of artificial intelligence is that it removes the humans and their biases from a large chunk of the recruiting process. The more you can remove human intervention, particularly at the stages of the recruiting process that are most prone to bias, the less that bias will be able to influence decision-making.

Although Fetcher allows clients to “thumbs up or thumbs down” potential candidates, Jurvetson thinks the most diverse candidate pools come from what they call their fully automated mode. In this mode, Fetcher hones in on client preferences by asking the client to review a handful of candidates. Then, Fetcher's systems take control, assembling a candidate pool, and contacting potential candidates directly. This way, a
client’s potential biases are removed from the process of choosing who will be contacted. Jurvetson describes, “When you pull yourself out of the process, that’s a really important step because when you’re not hand-selecting each candidate, you’re not bringing in these inherent biases that we all have.”

One reason that organizations have trouble increasing diversity is that the traditional methods of searching for candidates are often biased. The problem, Jurvetson explains is that searches often use bias-ridden proxies for candidate potential. “Did they go to a top 20 university? Did they come from a top-tier company? Those tend to be pools of talent that might not be that diverse to start with. Using AI to be able to identify patterns, career progression is a great one, that correlate with success better than those old proxies is exciting and effective,” she explains.

According to Jurvetson, searches using these less-traditional proxies for success identified by artificial intelligence programs allow Fetcher to find candidates that might otherwise go overlooked. This allows organizations to cast a wider net than they might otherwise.

Research confirms there are huge advantages of casting a wide net when assembling a candidate pool if you want to increase diversity. One study found that if you only have one female candidate or underrepresented minority candidate in your pool of candidates, they have almost no chance of making it to the offer stage. That’s because the lone woman or minority seems too different from the norm. However, if you add a second female or minority candidate, their odds of making it to the final round increase dramatically, and they have the same chance of receiving an offer as the other candidates.

What keeps the Fetcher models from having the same issue as Amazon’s failed model? Jurvetson suggests that precautions need to be taken to minimize any unintended effects. At Fetcher, she says they keep their models simple, and they keep a trained human eye on the models and the outputs to be sure the recruiting criteria are gender-neutral and that the models are returning diverse candidate pools.

The Future Of AI In Recruiting
Recently, Tomas Chamorro-Premuzic and Reece Akhtar made an argument in Harvard Business Review for taking the use of AI techniques one step further and applying them to the interview process. The researchers report, “One of the major problems with the way we currently interview job candidates is that the process is largely unstructured, leaving the questioning to the whims and fancies of the interviewer. It shouldn’t take much convincing to see how this is not only inefficient, but how it also leads to biased decision-making due to interviewers expressing and seeking to confirm their own preferences. This is where video or digital interviews are likely to help. Digital interview can remove these limitations almost entirely.”

While optimistic at about their potential, Jurvetson doesn’t think AI job interviews will take over any time soon. "I think if used thoughtfully, they can be really powerful and helpful for a lot of candidates, especially at early stages of the recruiting process, but I don’t have to tell you all the ways that can go wrong as well. You have to be smart about how and when you utilize these types of interviews, or racial or gender issues could come into play in a really sad way, and you could also negatively impact the candidate experience," she reports. One more limitation she added, “I’ve heard from candidates interviewing for more experienced roles that they sometimes find [automated interviews] insulting, because they can give the impression that the potential employer isn’t willing to give you their time.”

For those looking to create a more diverse workforce, removing human decision-making from at least a part of the recruiting process seems like a no-brainer for reducing unconscious bias in hiring. Implemented correctly, AI tools can be a great way to search in an unbiased manner. And for those job seekers of the future, keep an open mind about a robot interviewer—hopefully it will be programmed to be less biased than a human manager.
Inspired by my prior career developing quantitative trading strategies for Morgan Stanley, I'm now trying to solve women's issues at work—including the wage gap and sexu... Read More
We continue our chat with Vladimir Sidorenko, founder and CEO of international personnel management company Performia CIS, to find out how companies—and HR teams, specifically—can overcome the biases inherent in AI technologies that drive recruitment efforts. What are the underlying causes of these biases, and how can companies benefit from a more diverse workforce?

Don't forget to check out the first part of our interview for insights into how AI contributes to biases in hiring processes.

**Vault:** You’ve suggested that the diversity gap is due, in part, to racial and gender biases prevalent in recruiting algorithms and other AI technology. What can companies do to bridge the diversity gap and mitigate the impact of AI biases before things get worse?

**Sidorenko:** You need an engaged and diverse workforce to solve complex business problems within a company. This is the best way to combat the technological problems of the future. It will require the best of workers from all backgrounds to do so. Algorithms are created by computer scientists, not by personnel employees, but personnel (HR) can still identify a problem when they see the results of data that is pulled on specific candidates who have different backgrounds.

Companies need to assert their energy into creating a culture based on diversity. A diverse team with broader perspectives in areas of philosophy, problem-solving, ethics, and education are equipped to tackle complex solutions such as the design and the development of AI, leading to unique ways in shifting the technology’s perception away from gender and racial biases.

My four primary tips for HR teams looking to bridge the diversity gap include:

- Cultivating trust in AI through hiring a diverse workforce to define challenges in order to shift the perception of tech’s racial and gender biases. In turn, these developments will generate profit for the company.
Vault: You mention that a diverse workforce can help generate profit for a company. What is the financial impact of not prioritizing workplace diversity?

Sidorenko: If companies do not put emphasis on diversity and inclusion efforts, it could cost a collective $400 billion in revenue each year. That is an astronomical number. A diverse workforce that prioritizes a focus on solving creative problems while interacting with different team members to reach one common purpose will dramatically raise the profit of the company and the engagement of their employees. It will require a total investment in potential by HR teams to foster engagement on a human level, not to mention an improvement in AI technology to help select qualified candidates.

Vault: How large of a gap does the U.S. tech industry need to fill on diversity in order to generate increased revenue and output from their workforce?

Sidorenko: A lot of progress needs to be made, especially within the AI sector, where a little over one-fifth of women are being represented in that sector. It's going to be an uphill climb with 83 percent of tech executives being white. For every 10 percent increase in racial and ethnic diversity on a senior-executive team, earnings before interest and taxes (EBIT) rise 0.8 percent. The more the diversity gap decreases, the more earnings a tech company will make.

Vault: Is there anything you’d like to add about the current AI landscape, the current trajectory of its use in HR, or how that outlook can be improved?

Sidorenko: Companies with a high level of employee engagement demonstrated a 19.2 percent increase in operating income, while companies with low employee engagement showed a decline of 32.7 percent. 

I have developed the "Profit Formula" for any given employee: "Profit from an employee is equal to his potential times his engagement. If someone's engagement is low then it means the company is losing money. It's not enough just to fire him - you need to look at his potential, at what he can do. All personnel actions must be taken based on these two factors."

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Vladimir Sidorenko is the Founder and CEO of Performia CIS, an international personnel management consulting company. Created in 2001, they specialize in effective solutions to personnel problems and technology for hiring productive employees and contributing to higher profits for companies. Performia International is headquartered in Stockholm, Sweden and Performia CIS (Commonwealth of Independent States) is located in Moscow, Russia.
The Future of AI and Diversity in Recruitment

RedCat Digital  Follow
Jan 22 · 7 min read
Artificial Intelligence (AI) is too often portrayed in the media as a damaging force that is set to wipe out many jobs. Yet the fact is that it could also prove to be a force for good in terms of improving diversity, inclusivity and employee engagement.

A number of AI start-ups are developing ways of using the tech — which is basically a series of self-learning algorithms — to eliminate the thorny problem of “unconscious bias” in the hiring process.

One thing is for sure, AI is certainly going to reshape the role of the recruiter in the so-called fourth industrial revolution, with one recent survey claiming that 87 per cent of recruiters are excited about working with AI in future.

**HR, Diversity and the Globotics Upheaval**

Economist Richard Baldwin predicts that the forthcoming “globotics upheaval” is going to disrupt professional white-collar jobs in the same way that automation and global trade disrupted western manufacturing in the late 20th century.

Yet Baldwin’s vision is in no way that clichéd dystopian future where we all lose our jobs to robots, as he also persuasively argues that future jobs will be far more human, involving much more social interaction and face-to-face contact, as we transition to a world in which software robots and tele-migrants do everything else.

Which is exactly why workplace culture, diversity and employee diversity and engagement are all becoming far more important for recruiters and HR departments alike.

**Companies are people**

“Companies are nothing without the right people, but leaders are beginning to realise that a lot of their human resources and human capital practices are outdated,” says data scientist and AI specialist, Mike Bugembe.

Bugembe praises LinkedIn’s recently launched Representative Results AI feature as a great example of how AI can add value to all parts of the business.

“The processes used to find, recruit and retain talent, are fraught with human cognitive bias — where a person’s background, personal experiences, social stereotypes and
cultural context will impact their decisions and actions without them realising it.

“For example, it should be no surprise when recruiter who attended a red brick university or who went to a private boarding school, is inevitably drawn to CV of someone with a similar background.”

**Unconscious bias underpins discrimination**

This type of unconscious bias underpins traditional methods that continue to have a negative impact on diversity. Which is exactly where the fascinating HR tech start-up pymetrics sets out its stall.

Pymetrics found that the traditional hiring process is “broken” as it leads to women and minorities being at a 50 to 67 per cent disadvantage.

And following the news late last year that Amazon ditched its own AI CV-reviewing software, because of the fact that it was reinforcing discrimination in the hiring process, pymetrics’ EMEA lead Tom Viggers wrote recently on the ways in which, “the use of algorithms to select candidates, or indeed any kind of pre-defined criteria, has its limitations in the world of recruitment.”

AI may well offer efficiency, but when it’s based on historical data and traditional hiring processes it is soon shown to replicate past inequalities in HR and recruitment.

All of which led the pymetrics’ AI expert to pose the ten-billion-dollar question: “can there ever be a definitive way to review applicants efficiently and fairly?”

**AI unearths candidates with true potential**

One person who is adamant that AI is able to eliminate the thorny problem of unconscious bias in the hiring process is Mojo Mortgages, CEO Richard Hayes, who argues that, in big business with 40,000-plus employees: “AI can be used to support the recruitment process by analysing the characteristics of their employees such as gender and ethnicity. Subsequently, AI could be then be used to fill in the gaps, thereby creating a more diverse and fairer workplace.”

Hayes is also very certain that diversification and policies to support a fairer landscape “should absolutely be the responsibility of businesses leaders and, as with most use
cases, AI is simply there to support a more intelligent and efficient process.

“Utilising algorithms to determine what characteristics are required to succeed in a certain role, has allowed companies such as ourselves to massively evolve our recruitment strategy, enabling us to make far more informed decision about a candidate over and above our gut feel of whether they’re the right candidate or not.”

Hayes cites Workable people search as one specific way of utilising AI to unearth great candidates, noting that, “without the use of this AI led service, we maybe would never have found certain outstanding people.

“AI helps to unearth the true potential in a candidate and eliminates the risk of hiring based upon relationship, or prior experience.”

**GIGO: bias is in the data, not the AI**

Algorithms, of course, are only as useful as the data you feed into them. Which means there is always the challenge of “garbage in, garbage out”, or GIGO, as the old computing adage has it.

To put this in terms of recruitment and HR, if the input data on candidates for a job is biased, then the outcome will also be biased. So, if the past historical data is heavily skewed towards college-educated young white males, then the AI will continue to recommend those same candidates.

As Mike Bugembe explains further, referencing Amazon’s AI PR fail last year: “Whilst AI may not have any biases in the way it makes a prediction, prescriptions or helps a decision, it can reflect the biases that exist in society simply because of the fact that it learns from the available data.

“The constraint, therefore, is not on the way the machines or algorithms predict, it is on the data that is used for the machine learning process. This is common knowledge for any data scientist and with all of the expertise at Amazon, they really should have known this before they built the algorithm. Never the less, it should serve as a cautionary tale for any organisation planning on using AI — companies need to ensure that it doesn’t reflect today’s imperfections and prejudices.
“I still believe that we should absolutely be looking to make a case for a more AI driven HR because companies are nothing without the right people. Companies need to put intelligent systems and processes to find, recruit and retain. Therefore, I would look at the machine learning bias in another way. Whilst we can and we must begin to collect a wider set of data, we can also change the variable that we use to tell the machine that it has been successful.

“Currently most algorithms are trained to find the right skills irrespective of a person’s gender, age, disability, ethnicity, sexual orientation, gender identity or social background. This means that the algorithm will assume that the company will benefit from having employees that are the same. However, since diversity brings new perspectives, the algorithms should be trained to find people who will bring a new perspective but will still have the minimum required skills. Shifting the focus from skills exclusively to asking the machine to predict perspective, (the real benefit of diversity).

“Collect data on candidates that are likely to give a new perspective and thus produce better solutions to the workplace then train the machine to find candidates that are likely to give a different perspective.”

**Pair AI with human expertise for transparency**

Adrian Ezra is the founder and CEO of HR-tech start-up JamieAi, a UK-based HR-tech start-up which has set itself the lofty mission to be the most accurate job matching platform in the world, “pairing AI insight with human expertise to deliver transparent and unbiased hiring for data professionals, with the aim of fixing the broken recruitment sector.”

With AI expected to create $13 trillion in value for businesses by 2030, Ezra identified what he sees to be a clear need to create a universally integrated job matching tool powered by AI to save businesses millions in recruitment.

“While other industries are rapidly adopting AI and machine learning, recruitment is clinging rigidly to the old, profligate ways of working that benefit neither job seekers or businesses,” says Ezra. “Our vision for JamieAi is to dramatically increase the accuracy of job search and in doing so, save businesses huge amounts of time and expenditure. A
client can save more than £225,000 and over 600 man-hours, when compared to traditional methods of recruiting.”

With the UK recruitment sector currently worth £35billion, it’s clear why there is such an appetite for deploying these kinds of AI solutions in HR.

Social interaction is going to remain the one area where humans will trump robots for many years to come. Which why eliminating our own unconscious biases in our hiring practices is vital.

Workplace culture, diversity and inclusion is growing in importance, which is why there is a healthy number of exciting new tech start-ups (including all of those mentioned above) that are developing ways of using AI to boost workplace diversity and inclusion, in addition to streamlining the hiring process to eliminate inefficiencies.

This article was originally posted on RedCat Digital
Digital innovations and advances in AI have produced a range of novel talent identification and assessment tools. Many of these technologies promise to help organizations improve their ability to find the right person for the right job, and screen out the wrong people for the wrong jobs, faster and cheaper than ever before.

These tools put unprecedented power in the hands of organizations to pursue data-based human capital decisions. They also have the potential to democratize feedback, giving millions of job candidates data-driven insights on their strengths, development needs, and potential career and organizational fit. In particular, we have seen the rapid growth (and corresponding venture capital investment) in game-based assessments, bots for scraping social media postings, linguistic analysis of candidates’ writing samples, and video-based interviews that utilize algorithms to analyze speech content, tone of voice, emotional states, nonverbal behaviors, and temperamental clues.
While these novel tools are disrupting the recruitment and assessment space, they leave many yet-unanswered questions about their accuracy, and the ethical, legal, and privacy implications that they introduce. This is especially true when compared to more longstanding psychometric assessments such as the NEO-PI-R, The Wonderlic Test, the Ravens Progressive Matrices test, or the Hogan Personality Inventory that have been scientifically derived and carefully validated vis-à-vis relevant jobs, identifying reliable associations between applicants’ scores and their subsequent job performance (publishing the evidence in independent, trustworthy, scholarly journals). Recently, there has even been interest and concern in the U.S. Senate about whether new technologies (specifically, facial analysis technologies) might have negative implications for equal opportunity among job candidates.

In this article, we focus on the potential repercussions of new technologies on the privacy of job candidates, as well as the implications for candidates’ protections under the Americans with Disabilities Act and other federal and state employment laws. Employers recognize that they can’t or shouldn’t ask candidates about their family status or political orientation, or whether they are pregnant, straight, gay, sad, lonely, depressed, physically or mentally ill, drinking too much, abusing drugs, or sleeping too little. However, new technologies may already be able to discern many of these factors indirectly and without proper (or even any) consent.

Before delving into the current ambiguities of the brave new world of job candidate assessment and evaluation, it’s helpful to take a look at the past. Psychometric assessments have been in use for well over 100 years, and became more widely utilized as a result of the United States Military’s Army Alpha, which placed recruits into categories and determined their likelihood of being successful in various roles. Traditionally, psychometrics fell into three broad categories: cognitive ability or intelligence, personality or temperament, and mental health or clinical diagnosis.

Since the adoption of the Americans with Disabilities Act (ADA) in 1990, employers are generally forbidden from inquiring about and/or using physical disability, mental health, or clinical diagnosis as a factor in pre-employment candidate assessments, and companies that have done so have been sued and censured. In essence, disabilities – whether physical or mental – have been determined to be “private” information that employers cannot inquire about at the pre-employment stage, just as employers shouldn’t ask applicants intrusive questions about their private lives, and cannot take private demographic information into account in hiring decisions.

Cognitive ability and intelligence testing have been found to be a reliable and valid predictor of job success in a wide variety of occupations. However, these kinds of assessments can be discriminatory if they adversely impact certain protected groups, such as those defined by gender, race, age, or national origin. If an employer is utilizing an assessment that has been found to have such an adverse impact, which is defined by the relative scores of different protected groups, the employer has to prove that the assessment methodology is job-related and predictive of success in the specific jobs in question.

Personality assessments are less likely to expose employers to possible liability for discrimination, since there is little to no correlation between personality characteristics and protected demographic variables or disabilities. It should also be noted that the relationship between personality and job performance depends on the context (e.g., type of role or job).
Unfortunately, there is far less information about the new generation of talent tools that are increasingly used in pre-hire assessment. Many of these tools have emerged as technological innovations, rather than from scientifically-derived methods or research programs. As a result, it is not always clear what they assess, whether their underlying hypotheses are valid, or why they may be expected to predict job candidates’ performance. For example, physical properties of speech and the human voice — which have long been associated with elements of personality — have been linked to individual differences in job performance. If a tool shows a preference for speech patterns such as consistent vocal cadence or pitch or a “friendly” tone of voice that do not have an adverse impact upon job candidates in a legally protected group, then there is no legal issue; but these tools may not have been scientifically validated and therefore are not controlling for potential discriminatory adverse impact — meaning the employer may incur liability for any blind reliance. In addition, there are yet no convincing hypotheses or defensible conclusions about whether it would be ethical to screen out people based on their voices, which are physiologically determined, largely unchangeable personal attributes.

Likewise, social media activity — e.g., Facebook or Twitter usage — has been found to reflect people’s intelligence and personality, including their dark side traits. But is it ethical to mine this data for hiring purposes when users will have generally used such apps for different purposes and may not have provided their consent for data analysis to draw private conclusions from their public postings?

When used in the hiring context, new technologies raise a number of new ethical and legal questions around privacy, which we think ought to be publicly discussed and debated, namely:

1) What temptations will companies face in terms of candidate privacy relating to personal attributes?

As technology advances, big data and AI will continue to be able to determine “proxy” variables for private, personal attributes with increased accuracy. Today, for example, Facebook “likes” can be used to infer sexual orientation and race with considerable accuracy. Political affiliation and religious beliefs are just as easily identifiable. Might companies be tempted to use tools like these to screen candidates, believing that because decisions aren’t made directly based upon protected characteristics that they aren’t legally actionable? While an employer may not violate any laws in merely discerning an applicant’s personal information, the company may become vulnerable to legal exposure if it makes adverse employment decisions by relying on any protected categories such as one’s place of birth, race, or native language — or based on private information that it does not have the right to consider, such as possible physical illness or mental ailment. How the courts will handle situations where employers have relied upon tools using these proxy variables is unclear; but the fact remains that it is unlawful to take an adverse action based upon certain protected or private characteristics — no matter how these were learned or inferred.

This might also apply to facial recognition software, as recent research predicts that face-reading AI may soon be able to discern candidates’ sexual and political orientation as well as “internal states” like mood or emotion with a high degree of accuracy. How might the application of the Americans with Disabilities Act change? Additionally, the Employee Polygraph Protection Act generally prohibits employers from using lie detector tests as a pre-employment screening tool and the Genetic Information Nondiscrimination Act prohibits employers from using genetic information in employment decisions. But what if the exact same kind of information about truth, lies, or genetic attributes can be determined by the above-mentioned technological tools?
2) What temptations will companies face in terms of candidate privacy relating to lifestyle and activities?

Employers can now access information such as one candidate’s online “check in” to her church every Sunday morning, another candidate’s review of the dementia care facility into which he has checked his elderly parent, and a third’s divorce filing in civil court. All of these things, and many more, are easily discoverable in the digital era. Big data is following us everywhere we go online and collecting and assembling information that can be sliced and diced by tools we can’t even imagine yet – tools that could possibly inform future employers about our fitness (or lack thereof) for certain roles. And big data is only going to get bigger; according to experts, 90% of the data in the world was generated just in the past two years alone. With the expansion of data comes the potential expansion for misuse and resulting discrimination – either deliberate or unintentional.

Unlike the EU, which has harmonized its approach to privacy under the General Data Protection Regulation (GDPR), the U.S. relies on a patchwork approach to privacy driven largely by state law. With regard to social media, specifically, states began introducing legislation back in 2012 to prevent employers from requesting passwords to personal internet accounts as a condition of employment. More than twenty states have enacted these types of laws that apply to employers. However, in terms of general privacy in the use of new technologies in the workplace, there has been less specific guidance or action. In particular, legislation has passed in California that will potentially constrain employers’ use of candidate or employee data. In general, state and federal courts have yet to adopt a unified framework for analyzing employee privacy as related to new technology. The takeaway is that at least for now, employee privacy in the age of big data remains unsettled. This puts employers in a conflicted position that calls out for caution: Cutting-edge technology is available that may be extremely useful. But it’s giving you information that has previously been considered private. Is it legal to use in a hiring context? And is it ethical to consider if the candidate didn’t consent?

3) What temptations will companies face in terms of candidate privacy relating to disabilities?

The Americans with Disabilities Act puts mental disabilities squarely in its purview, alongside physical disabilities, and defines an individual as disabled if the impairment substantially limits a major life activity, if the person has a record of such an impairment, or if the person is perceived to have such an impairment. About a decade ago, The U.S. Equal Employment Opportunity Commission (EEOC) issued guidance to say that the expanding list of personality disorders described in the psychiatric literature could qualify as mental impairments, and the ADA Amendments Act made it easier for an individual to establish that he or she has a disability within the meaning of the ADA. As a result, the category of people protected under the ADA may now include people who have significant problems communicating in social situations, people who have issues concentrating, or people who have difficulty interacting with others.

In addition to raising new questions about disabilities, technology also presents new dilemmas with respect to differences, whether demographic or otherwise. There have already been high-profile real-life situations where these systems have revealed learned biases, especially relating to race and gender. Amazon, for example, developed an automated talent search program to review resumes – which was abandoned once the company realized that the program was not rating candidates in a gender-neutral way. To reduce such biases, developers are balancing the data used for training AI models, to appropriately represent all groups. The more information that the technology has and can account for/learn from, the better it can control for potential bias.
In conclusion, new technologies can already cross the lines between public and private attributes, “traits” and “states” in new ways, and there is every reason to believe that in the future they will be increasingly able to do so. Using AI, big data, social media, and machine learning, employers will have ever-greater access to candidates’ private lives, private attributes, and private challenges and states of mind. There are no easy answers to many of the new questions about privacy we have raised here, but we believe that they are all worthy of public discussion and debate.

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This article is about Hiring

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AI is disrupting every area of life, including how organizations find talent. Companies are generally aware of the ROI that comes from finding the right person for the right job. McKinsey estimated that, for highly complex roles, stars can be expected to produce 800% more than average performers. And a recent Harvard Business School study showed that there are even bigger benefits to avoiding toxic workers.

Despite this crucial role of talent, organizations are still unable to attract the right talent, relying more on intuitive rather than data-driven talent identification practices — especially at the top, where the stake are actually highest. Indeed, too many leaders are hired on the basis of their technical expertise, political influence, or interview performance. As I illustrate in my latest book, *Why Do So Many Incompetent Men Become Leaders?: (And How to Fix It)*, most companies focus on the wrong traits, hiring on confidence rather than competence, charisma rather than humility, and narcissistic tendencies rather than integrity, which explains the surplus of incompetent and male leaders. The result is a pathological disconnect between the qualities that seduce us in a leader, and those that are needed to be an effective leader.
An interesting question that arises is to what degree new technologies within the brave new world of AI-based hiring tools could help us reduce error, noise, and bias in our talent identification processes. For example, would women be better off if AI and algorithms were in charge of hiring? Previous research has highlighted a clear inconsistency around gender and leadership. On the one hand, women are often evaluated more negatively by others - even when there are few granular behavioral differences between women and men. On the other hand, large scale meta-analyses suggest that women have a slight advantage when it comes to the soft skills that predispose individuals to be more effective leaders, and that they generally adopt more effective leadership styles than men do. For instance, if leaders were selected on the basis of their emotional intelligence, self-awareness, humility, integrity, and coachability, the majority of leaders would be female rather than male.

And yet there have been salient news stories recently indicating that AI may actually contribute to even more bias and adverse impact against women - and that when algorithms are trained to emulate human recruiters, they may not just reproduce human biases, but also exacerbate them, engaging in a much more efficient form of discrimination.

To be sure, we are much more easily shocked and scandalized by hiring mistakes done by AI, than by human errors or biases. It’s a bit like with self-driving cars: it takes one autonomous car crash to convince us that the technology is flawed, but we are OK with having 1.2 million fatal accidents and 50 million driving injuries per year, courtesy of humans. So, let us start with the important realization that most hiring practices are (a) intuitive and (b) ineffective. For every company that appoints most of its leaders based on objective and meritocratic criteria, there are many more where such appointments are a true rarity – something that may be happening by accident, occasionally, and independently of their intentions. It is also clear that AI cannot be biased in the way humans are: that would require AI to have emotions, feelings, or opinions. AI does not need to engage in unconscious biases to penalize women or other underprivileged groups in order to get a self-esteem boost. Of course, if AI is trained with biased data – for instance, if we teach it to predict which candidates will be rated positively by human interviewers – it will not just emulate, but also exacerbate, human bias: augmenting it and making it far more efficient. But this can be addressed by teaching AI to predict relevant and objective outcomes, rather than mimic human intuition.

In addition, there are reasons to expect AI-talent tools to be more accurate and predictive than humans (not just because humans are generally bad at this):

- **Our favorite method for screening and vetting candidates – including leaders – is the interview, and large-scale scientific studies have shown that interviews are most predictive when they are highly structured.** Whereas in-person/analogue interviews are hard to standardize, video interviews allow us to put people through exactly the same experience, capture millions of data points on their behaviors (e.g., what they say, how they say it, language use, body language, and micro-expressions), and remove prejudiced human observers from the process. It is safe to assume that automating all unstructured and humanly-rated interviews would reduce bias and nepotism while increasing meritocracy and predictive accuracy. This should be good for women (and bad for men).

- **Of course there are some incredibly smart human interviewers who may generally outperform the algorithms (though watch out for the next Netflix documentary on how AI beats the best human interviewers, much like they beat the greatest chess or AlphaGo players).** The main problem, however, is that most people are not as intuitive as they think. And for every brilliant interviewer, there are hundreds or thousands who think they are brilliant, but in reality, are not. We all think highly
of our own intuition, especially when we are not intuitive. As one of the founders of the behavioral economics movement — and Nobel laureate — Daniel Kahneman noted: “We’re generally overconfident in our opinions and our impressions and judgments.” Regardless of AI’s ability to detect talent, we can expect it to be much more aware of its ability than humans are of their own ability. This will also allow AI to improve (more than humans can be expected to do). Consider that the average human interviewer will never even admit to making a hiring mistake, for they will indulge in confirmation bias to see the candidates they personally hired in a positive vein once they are tasked with rating their performance. Humans have skin in the game: accepting mistakes makes them look stupid — AI does not care about looking stupid.

- One of the big advantages of AI is that, aside from being better at spotting things (i.e., millions of data points), it is also superior at ignoring things. Imagine an ethical, well-meaning, and open-minded human who has every intention of being fair in their hiring practices and is therefore determined to avoid gender bias in his — let’s assume he is male — hiring process. Regardless of how hard he tries, it will be very hard for him to ignore candidates’ gender. Imagine him sitting in front of a female candidate, repeating to himself: “I must not think about the fact that this person is a woman,” or “I must not let this person’s gender interfere with my evaluation.” In fact, the more he tries to suppress this thought, the more prominent it will be in his mind. This will also lead to distraction or over-compensation. In contrast, AI can be trained to ignore people’s gender and focus only on the relevant signals of talent or potential. For example, algorithms can be trained to pick up relevant signals of EQ, competence, or communication skills, while being truly blind to gender. This would definitely favor women.

- The critical factor for this to work is that organizations identify real performance data to train the algorithms. If AI is taught to predict or anticipate human preferences — like whether a candidate will be liked by their (human) boss once they are hired — we can expect bias to remain... and be augmented. However, if AI is trained to identify the actual drivers of performance — defined broadly as an individual’s contribution to the organization — then we can expect a much fairer, more accurate, and replicable assessment of people’s potential than what humans can do. This, again, should be good for women.

In sum, for those who are interested in not just helping women to be more represented in the leadership ranks, but also improving the quality of our leaders, there are clearly reasons to be hopeful about AI. However, many of the emerging innovations in this brave new world of technologically-enhanced and data-driven talent identification are still a “work in progress,” and we need to ensure that they are not only accurate, but that they are also ethical and legal alternatives to existing methods. Above all, it is time to admit that most of the practices that are in place are far from effective, and that they have contributed to much of the unfairness and nepotism that governs the average workplace. So, here’s to finding the necessary self-awareness to begin to improve.

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