

Will we all soon be using 'biometric CVs'?

All that data you record might soon be used to decide whether to recruit you – or not.

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It was a typical working day at a major bank in Boston. That was, until two researchers turned up – armed with an alarming abundance of medical equipment.

Andrew Lo and Dmitry Repin, from the nearby MIT Sloan School of Management, had convinced the bank to allow them to **experiment on 10 of their finest traders**. After all, at an institution where the average transaction involved a cool \$3-5m (about £2.4-4m), what could possibly go wrong?

The traders, at their desks, were hooked up to bulky sensors which tracked what was going on in their bodies, like their heart rate and how much they were sweating. The bankers were split into two groups: the highly experienced ones and the newer recruits. Each was monitored as they went about their usual tasks: making trades and reacting to market events.

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One clear pattern stood out. When the markets spiked or dipped significantly, the veteran traders had much less potent reactions, suggesting that they weren't letting their emotions get to them. They also didn't take as long to recover afterwards.

The experiment, which was conducted in 1999 and **followed up several years later**, raised an intriguing possibility: what if you could predict how well someone is likely to perform at work with a few simple physical tests?

The power of biometric data

This isn't as farfetched as it sounds. From how a person's eyes move around a computer screen to how well they tolerate glucose, our bodily responses can provide a surprising level of insight into everything from **decision-making abilities** to **memory**. These links sometimes hold up **even decades after a person is tested**.

In recent years it's become increasingly apparent that all kinds of seemingly irrelevant data can be powerfully predictive. By combining biometrics with information about the productivity of the same people, scientists have started to unearth some unexpected factors that matter in the workplace – including how strong a trader's emotional reactions are and how much time colleagues have to chat.

Enter the "biometric CV" – a profile of physical metrics that could allow future applicants to show they're right for the job. Though biometric data is usually associated with things like fingerprints and futuristic iris scanners, it's actually a surprisingly broad category, encompassing any human characteristics. Some less well known kinds of biometric data include the rhythm of a person's typing or even their social habits, such as how often they speak to other people.

The growth of wearable tech

Before biometric CVs become a reality, there are some challenges to overcome. First up, there's the issue of technology. Most workers probably wouldn't be keen to spend the day plastered with sensors on their faces and bodies. But in the past two decades, technology has been shrinking to the point where this is no longer necessary. Incredibly, today all the sensors Lo used back in 1999 would fit inside a smartwatch.

The era of wearable technology and wellness apps is upon us – and using biometric data in the workplace is already being normalised. Many companies now take a keen interest in the biology of their employees, tracking **their conception efforts and pregnancies, what they eat, how they sleep** and, bizarrely, what their **gut microbiomes look like**.

The trend is largely **being driven by the US**, where health insurance costs are on the rise and employers want to encourage their staff to stay healthy and productive, while also keeping down their future bills. The country already has an **estimated 55 million people** in corporate wellness programmes. And many companies, including software firm Autodesk, have started **offering free fitness trackers** for staff members. Some bosses can even check up on their workers' health stats from charts on their **computer screens**.

Using wearable technology to improve performance seems like the next logical step. And one of the best ways to ensure that your workforce is productive is to hire the right people in the first place.

Customising the data

Just as many employers currently require candidates to undergo psychometric testing to see if they've got the right personality and skills for the job, in the future they may be required to undergo physical tests as well – or simply hand over data from wearable devices such as fitness trackers – to see if they have the right biology. This might sound overly invasive, but some professions have been using biometrics in the hiring process for years.

In the US, applicants for numerous public sector roles – including paramedics and firefighters – are required to take a lie detector, or polygraph, test. The **controversial exams** involve asking questions, such as whether the applicant has smoked marijuana, while measuring their breathing rate, pulse, blood pressure and perspiration. Newer technologies use a person's pattern of eye movements to work out if they're telling the truth.

Despite their popularity with government employers, polygraph tests have been thoroughly **debunked by decades of scientific research**. Most are significantly better at distinguishing between truth and lie than just guessing randomly, but they still get it wrong dangerously often. For example, to find 10 spies in a population of 10,000

workers, a test that's accurate roughly 80% of the time would end up **incriminating 1,606 employees.**

But though these tests aren't perfect, "I think that's an example of a biometric that's already acknowledged to be useful," says Lo, now the director of the MIT Laboratory for Financial Engineering.

Lo is currently working with another bank on a follow-up study into how the physiology of traders is linked to their job performance. This time, he'll just be using smartwatches. He's roped in 70 people already, and he'll be monitoring some of them for up to a week. He's hoping that the patterns in the traders' biometrics will help him to hone his predictions about which of the traders are likely to be exceptional and which are likely to underperform. In theory, the same technique could be used in the hiring process, to weed out less suitable candidates.

So for example, individuals that are not particularly well suited to trading will have very, very clear physiological signatures; very strong fight or flight reactions to relatively mild stimuli," says Lo. He points out that the brain doesn't distinguish between physical and financial threats – and just like we wouldn't expect to be on top form while running away from a sabre-toothed tiger, it's unlikely that we'll make the most rational decisions when we're stressed about money.

Of course, in some industries this information would have marginal benefits – Lo's research is only really relevant to stressful jobs where workers are expected to make high-stakes decisions, such as finance and the military. "I think these biometrics need to be tuned to a particular profession and the particular metrics need to be customised to meet those specific needs," he says.

The legal framework

But even when the technology does become available and companies are convinced of its usefulness, there might be other obstacles ahead: would it even be legal?

According to Orla Lynskey, an expert in data protection and technology law at the London School of Economics, whether it's legal to use biometric data depends on the

context. At the moment, biometric data is categorised as “non-sensitive” when it’s not being used to identify people (“sensitive” data might include things like such as fingerprints or iris images, for example). This means that it could potentially be used to assess a job candidate for their suitability for a role, as long as the employer could argue that that the information was necessary.

So for example, a bank might say that they need access to a trader’s stress data, so that they can see if they would be able to successfully perform the duties described in their contract – though it remains to be seen whether this would actually stand up in court. “It’s complicated to consider in the abstract,” says Lynskey.

However, whether biometric CVs would be ethical is an entirely different question. For a start, there are the privacy concerns, which primarily include the risk that your data will be stolen or carelessly stored. According to industry experts, electronic health records have 50 times the value of credit card details **on the black market**. And as scientists get better at using even the most obscure biological data to make predictions about everything from a person’s future health to their IQ, biometric CVs are likely to have the potential to reveal something deeply personal.

If health insurers get their hands on this information, job applicants could end up **paying higher insurance premiums**. If criminals find it, they could end up **being tracked**. And even if they don’t, biometric CVs may be inherently discriminatory. What if you are easily stressed because of a health problem or disability? Or if there are differences between men and women, or people of different ethnicities?

These are powerful questions that need answers – yet the lag between the emergence of a new technology and proper regulation is a **well-documented problem**.

Hotbeds of information

Lo has no plans to help companies decide who to hire. For a start, the team have given the traders full rights to their own data – the banks they work for will never see it – and it’s all analysed anonymously.

Instead, Lo sees his research as a way of empowering people to improve their own performance. In the ultra-competitive world of trading, workers who understand their own weaknesses – such as a susceptibility to getting stressed – might have an edge. There are already several technologies out there that help bankers use their biometrics to make more money. Take the Rationalizer – a bracelet developed by Philips Electronics and the Dutch bank ABN AMRO, which lets online traders know when they’re getting stressed. It constantly monitors their electrodermal activity, which basically translates as how sweaty they are, and communicates the results to the wearer via a screen. When the lights are red and moving at high speed, traders know to think more carefully about trades or calm down for a minute because their decisions are likely to be less rational.

Another company at the forefront of this trend is the Boston-based software provider Humanyze, which worked with Bank of America in 2009. The bank had noticed a downward trend in the productivity of some of its call centres – and a disturbing upwards trend in the number of workers who were leaving them – and thought it might be linked to workplace culture. So they called in some help, in the form of fancy new ID badges.

The badges are loaded with technology: they can tell when a worker is moving about and where they are in the building. They know when someone is having a chat with a colleague and how long their conversation lasts. The badges can even tell if two people are facing each other while speaking.

By analysing anonymised data from the badges, Bank of America noticed that their call centre staff typically interacted the most during their lunch breaks. At the time, these only overlapped for around 15 minutes each day – but the company hoped that

extending this time would result in happier, more productive employees. So they changed their break schedules, and improved employee productivity by 23%.

“Today the ID card is basically obsolete,” says Gregg Carman, head of global commercial operations at Humanyze. Internet of things sensors are much smarter, and increasingly common in offices. “But companies are only just now getting to the point where they are ready to use the metadata from those sensors for things other than turning on or off the lights or heating or ventilation systems.” Humanyze are now focused on analysing the vast quantities of data that employers are already collecting to try to understand why some teams are more productive than others.

Though it’s too early to tell if biometric CVs will be the future of hiring, modern offices are already hotbeds of biometric information. And with the rapid improvement of AI, it won’t be long before employers can accurately predict, or at least track, the performance of their workforces like never before.

The potential advantages to employers are obvious – but this new era of scrutiny will also come with risks. It’s time to decide if we’re comfortable with these – or not.

Source: <https://www.bbc.com/worklife/article/20190809-will-we-all-soon-be-using-biometric-cvs>