From rooting out fraud and monitoring tax compliance to detecting how employees are feeling, artificial intelligence is increasing its reach. **Gill Booles** explains

RIGHT HERE, RIGHT NOW

ARTIFICIAL **INTELLIGENCE** (AI) is moving beyond the popular image of self-driving cars and smart homes to become a large part of everyday life. If you own a voice-activated personal assistant such as Amazon Echo's Alexa or Apple's Siri, you've already invited AI into your home. But its impact goes far deeper, as machine learning gets better at, for example, detecting fraud.

If you have ever been contacted by your bank concerning unusual activity on your account, have you considered that it could be down to the way you walk, hold or interact with your phone?

Behavioural biometrics – measuring a user's behaviour to verify their identity – is the latest tool in the fight against cybercrime.

"We can identify minor changes such as a slight change in pressure when you swipe and compare it against a significant change which would identify someone – or something (a malware or a bot) – else pretending to be you," says Paul Anderson, Head of Strategic Alliances at Callsign, a behavioural biometrics firm.

So, even if the password is entered correctly, Callsign's technology can detect that it has been typed slightly differently. There may be a legitimate reason – you've cut your finger – or something more sinister.

By linking the device, its location and the user's typical behaviour, behavioural biometrics can build a profile of our idiosyncrasies. All made possible by machine learning algorithms that can

>> comb through huge data sets to spot unusual behaviour.

"Callsign will learn that you tend to be on your laptop in London on the first Monday each month and on your mobile in the pub every Friday night. If you authenticate from your regular device, in a known location, and type in a free-flowing manner, it'll take you through a seamless identification. But it will spot the difference – it could be that you are in a new location on business – and it will ask for additional verification."

Callsign provides biometric behaviour authentication software as an extra level of security to customers including Lloyds Banking Group and Deutsche Bank.

HMRC has revealed it is looking at how AI could be used to monitor compliance with tax laws. Following this news, Ed Molyneux, CEO and co-founder of the cloud-accounting software firm FreeAgent, says: "Automation is already becoming an increasingly integrated part of financial reporting and management, and it's a trend that shows no sign of slowing down. Our research has found that 96% of accountants believe that either all or some accountancy work will be automated by 2022."

What might be surprising, however, is the scale of the automation that HMRC is suggesting. He continues: "Roughly 10 million tasks could be handled by computers by the end of this year, and this could include tax returns. In much the same way that the online self-assessment service changed tax compliance forever in the UK, AI has the potential to make a similar impact by making the process more efficient. These changes aren't just being driven by the technology, but also because of legislative changes, including Making Tax Digital and PSD2, which are accelerating the use of AI significantly."

ROUTINE TASKS

AI can identify complex, non-linear patterns in large data sets in real time and at scale. Audit is a data-driven service and shifting repetitive tasks to machines can free up time and eliminate accounting errors. By adopting this technology, auditors benefit from

SMART DEFINITIONS

▶ **Artificial intelligence (AI):** the ability of a computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalise or learn from past experience. *Source: Encyclopedia Britannica*

▶ **Machine learning:** the capacity of a computer to learn from experience, i.e. to modify its processing on the basis of newly acquired information. *Source: Oxford Dictionary*

▶ **Chatbot:** a computer program designed to simulate conversation with human users, especially over the internet. *Source: Oxford Dictionary*

increased speed and efficiency, while adding more value to the audit process.

MindBridge Analytics, a supplier of automated audit and fraud detection tools, is helping Kingston Smith transform data analytics. Kingston Smith is Europe's first adopter of MindBridge Ai Auditor, rivalling global firms and debunking the misconception that AI benefits come with a multi-million pound price tag.

Kingston Smith Partner Becky Shields says: "Rather than trainees using random number sampling or trying to pick risky transactions out of a large data set, MindBridge ranks all transactions on perceived risk. This stands up to scrutiny by the regulators and offers objective reasoning for each sample selected. The solution will become more accurate at assessing the riskiness of transactions over time, with the ability to build a more in-depth profile of a 'normal transaction' from the data, and to learn from the weighting applied to each risk factor by us."

She adds: "At Kingston Smith, we can now look at our clients' data as a whole, as opposed to as a sample, which has enabled us to take a more consultative approach with our clients and add greater value to the conversations we are having with them."

The Big Four are investing heavily in AI-powered proprietary tools. KPMG has partnered with IBM's cognitive computer Watson to develop accountancy tools and has a smart auditing platform known as KPMG Clara. PwC has developed GL.ai, a bot that can spot anomalies in a business' general ledger.

Applying AI and machine learning to bookkeeping is already a reality. Small business owners can save time by using Pegg, a chatbot that works with Sage to manage their tax and finances, including invoices and expenses. Users simply need to speak into their smartphones and document expenses, and the bot will respond and log all relevant information.

The next step is to configure a chatbot to handle high-demand tedious tasks. The Royal Bank of Scotland is about to launch a "digital teller" capable of helping customers in real time. Named Cora, the AI-powered chatbot will help answer basic questions round the clock. So far, Cora has handled more than 400,000 conversations, responding to more than 200 questions during advanced testing. When the conversations get too difficult Cora will be trained to hand over to a human operator.

KNOWS WHAT'S ON YOUR MIND

New AI tools can provide a real-time insight into how people are feeling. London-based Sensing Feeling has developed an Internet of Things sensor for use in physical spaces that can detect human emotion. The sensor observes humans and transmits anonymous data to the cloud, where innovative methods are used to measure the emotional state of the environment.

High standards of customer privacy – no personal data is stored, and it focuses on groups rather than individuals – have attracted a bank in Japan which wants to use the sensor to measure employee engagement to improve wellbeing in its workforce. Using AI cuts through the time it would usually take for feedback via surveys and helps HR to understand and respond to changes in sentiment.

In the future, there will no longer be a need to ask how anxious or excited you feel about AI. The machines will know already... **CA**

"[With MindBridge] we can add greater value to the conversations we are having with [clients]"

Becky Shields

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