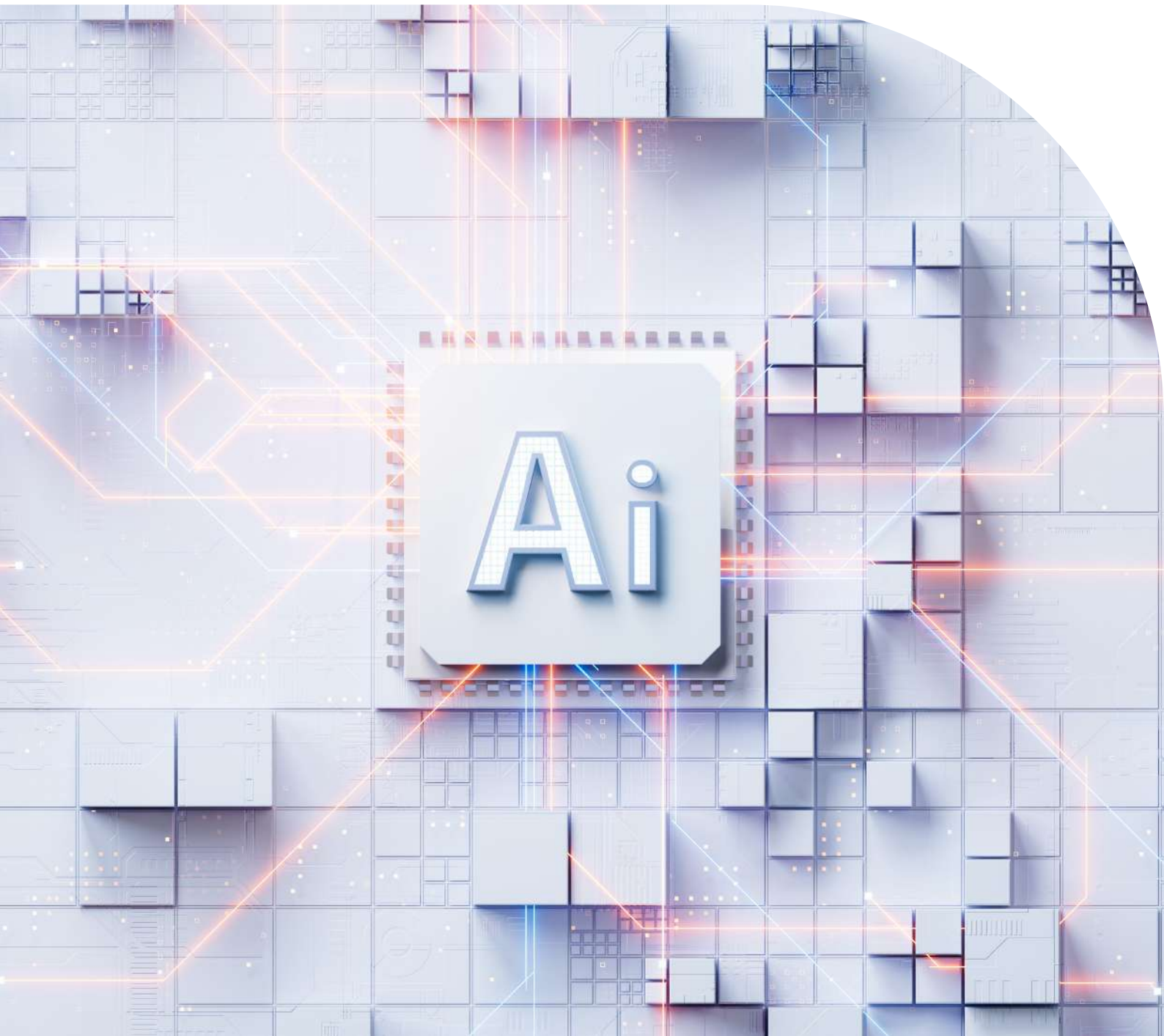


How Does AI Impact Forensic Accounting?

April 2024





www.grantthornton.global

Introduction

Like many industries, forensic accounting is an area where AI can have a significant effect. The field is a niche area within accounting that investigates firms or individuals thought to have committed fraud. To do so, various detection methods are applied to evaluate every aspect of a project. This often requires analyzing vast amounts of data to identify patterns or anomalies and extract relevant information further, which is where AI has the potential to make a tremendous impact.

As a technology that relies on large quantities of data, AI serves as the perfect tool for forensic accountants to increase not only efficiency but also accuracy in identifying fraud. Within AI, various subsets such as generative AI, machine learning, or natural language processing further scrutinize data and even predict fraud. According to Grant Thornton China Forensic Advisory Senior Manager, Ms. Saphira Fang, “AI can conduct machine learning on big data across multiple dimensions, including financial reports, transaction records, approval matrices, behavioral patterns, user activities, and more, to identify abnormal patterns and behaviors. AI can learn the differences between normal and abnormal behaviors through machine learning algorithms, thereby identifying potential fraudulent activities or suspicious transactions. This intelligent capability to recognize fraud not only assists forensic accountants in accurately and quickly sampling suspicious transactions within cases of fraud that have already occurred and alleged but also enables real-time monitoring of transaction data to intercept and prevent abnormal transactions from further escalation, thereby reducing the economic losses caused by fraud.” Although AI is a new and continuously developing

field, several companies have already taken the initiative by incorporating it into daily practices and investigation methods. Due to their tireless efforts, these first movers are starting to reap the rewards. AI allows for more efficient detection, reduced manual review time, cost-effectiveness, and the ability to work around the clock. It can also be applied to an entire host of new anti-fraud technologies to enhance their abilities. Professional service firms will need to stay on top of new AI developments and invest in their related models to remain competitive and fulfill their client’s needs.

However, AI is rapidly changing. Due to the uncertainty of this chance, it is unclear exactly what effects AI will have on the Forensic Accounting industry. Over the past year alone, there have been enormous steps in innovation. For instance, there have been important advancements in natural language processing (NLP), where models can now understand and generate human-like text. A common example is ChatGPT, which is supported by generative AI technology. Users can have a learning dialogue with and receive assistance from a Chatbot. While Chatbot technology has been in the market for some time, advancements in the past year have been unprecedented.

Another key innovation for clients is in autonomous navigation and self-driving vehicles. This encompasses technology in areas like sensor technology, computer vision algorithms, and communication systems. These advancements are crucial for the safety and reliability of self-driving cars. Further progress has also been made in areas like fraud risk management, cybersecurity advisory, forecasting, and enhancing customer experiences.

Advancing Forensic Accounting with AI



Emotional AI

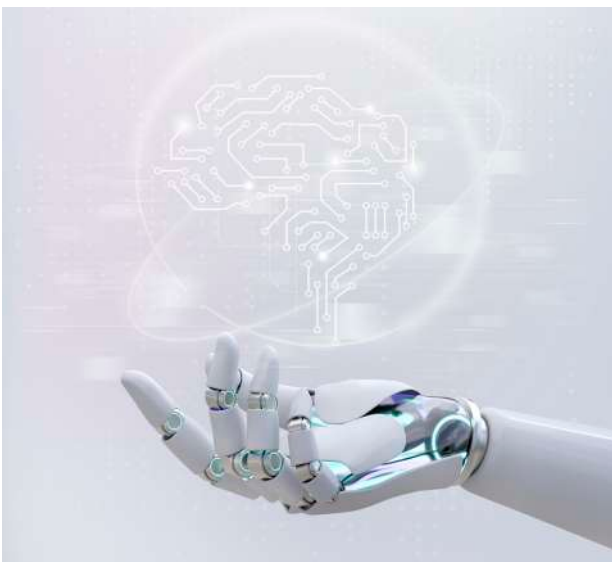
Although there are many areas where AI is useful in forensic advisory services, a prominent example would be emotional AI. This type of AI detects and interprets human emotions through software that analyzes facial expressions, voice inflection, body language, or other nonverbal cues to assess the sentiment of an individual or group. Part of a current forensic accountant's job is to gauge the mannerisms of an individual during interviews to identify deception and indicators of guilt. Emotional AI could aid this process by precisely analyzing nonverbal cues, voice patterns, or tones.

However, this software can be controversial, not only for its use of facial data but also for AI's ability to ascertain human emotions and behavior. Emotions are often expressed differently based on variables, such as the person, culture, and the surrounding environment. There has been extensive discourse on whether people trust AI to make accurate conclusions using facial data. Additionally, if applying an emotional AI model, the user must consider reprogramming and retraining the model based on different languages or cultures to ensure accurate results.

Network Visualization

Another key technology is network visualization. For forensic accountants, visualizing a cluster of actors and their connections is instrumental in detecting fraud. Beyond solely looking at transactions, network visualization gathers data from payment methods, addresses, account numbers, and related customer data. This allows the technology to draw connections between different players and present the links in a visual way that makes it easy for investigators to analyze and detect patterns.

Network visualization can help narrow down who committed the crime or flag if a user is connected to a known fraudster. Investigators must focus on the quality rather than the quantity of connections and make sure there is a meaningful connection before making their conclusions. Moreover, in order to prevent overloading the network with links, network visualization works best with smaller amounts of data. While fraud is not automatically detected with this tool, network visualization can be useful for forensic accountants when investigating parties for crimes, as it can point out anomalies or risky connections.



Text Mining

Text mining can analyze both structured and unstructured data and then present its findings in an easily understandable way. It combines other technologies like information retrieval, web mining, data extraction, computational linguistics, and linguistic processing. The software can be applied to PDFs, websites, emails, social media, online chats, and SMS, which are forms of unstructured data that forensic accountants can use in investigations. Currently, analytical models rely on structured data fields. By including unstructured data, forensic accountants can increase the efficiency of identifying risks and make more informed decisions, particularly in areas like Integrity Due Diligence (IDD), where identifying conflicts of interest is crucial to the research. IDD includes accessing publicly available information, such as social media, to get a sense of an individual's potential motivations. Through the application of text mining to analyze this information, an investigation can be less time-intensive.

Variable extraction, the use of certain variables as indicators, is a frequent application of text mining. For example, seeing how often the word 'football' appears to gauge the sport's popularity. The software can also be used to search for patterns that suggest potential fraud. However, it is important to remember the model's language detection components if it is going to be applied to data in another language. The technology must be adapted to different languages and cultural connotations in order to retrieve data and present its findings accurately.



Predictive Modeling

With the advances in new technology, analysts are now able to predict, with increased accuracy, future fraud using software called predictive modeling. This model uses historical data to create statistical models that predict where and when fraud will occur and identify fraud patterns. The software is trained on a large, unbiased dataset that includes instances of fraud so the model can learn fraudulent behavior. Predictive modeling requires a longer upfront training time as the data must be refined, and the model must be repeatedly tested to ensure accurate results. After the initial training, the model learns and adjusts its predictions as new data is added. Predictive modeling is especially useful since new ways of committing fraud are constantly emerging. The model learns to recognize a new technique and proceeds to flag it. Beyond proactive fraud detection, the model can also identify risk areas and help businesses protect their reputations.

While this technology is a useful tool, it must have routine updates to preserve accuracy. Further, compared to other types of fraud detection, there are higher rates of false positives and will require manual oversight for the foreseeable future.



Conclusion

Despite uncertainty about what specific role AI will play in forensic accounting, there is no doubt it will be integrated into the industry. Companies must embrace AI technology in order to stay competitive. The future of AI is rapidly transforming as new technologies emerge and existing ones are enhanced.

As introduced above, one significant area of advancement is emotional AI, which focuses on developing machines that can understand and respond to human emotions. Emotional AI can ultimately improve human-machine interactions to enhance forensic interviews, although current challenges remain.

Another area of AI that holds great promise in the forensic accounting industry is network visualization. As data continues to grow exponentially, visualizing complex networks becomes crucial for understanding patterns and making informed decisions. Network visualization allows professionals to identify trends, clusters, and anomalies, leading to improved decision-making, network optimization, and effective detection of network vulnerabilities.

Text mining is set to play a key role in the future. With the increasing availability of digital content, the ability to analyze and derive insights from vast amounts of text is becoming increasingly valuable. Text mining techniques can automatically extract meaningful information, sentiment analysis, and topic modeling to enhance fraud detection.

Finally, predictive modeling is a powerful technique employed in AI to apply historical data to forecast future outcomes and patterns. By analyzing historical data and identifying patterns and correlations, predictive models can make accurate forecasts and predictions. This assists decision-makers in making forward-thinking decisions, mitigating risks, and identifying opportunities.

In summary, the future of AI is incredibly promising, with various applications set to revolutionize forensic accounting. These advancements will undoubtedly have a profound impact on how we work, interact, and innovate in the years to come. The technologies outlined above, as well as others, can enhance the investigative process and relieve forensic accountants of time-consuming tasks.



Contact Us



Marvin Camangege

Partner , Advisory

T +62 812 1308 8607

E marvin.camangege@id.gt.com



Dr. Tim Klatte

Partner , Forensic Advisory Services

T +86 (21) 2322 0580

E tim.klatte@cn.gt.com





Grant Thornton
致同

www.grantthornton.cn

© 2024 Grant Thornton. All rights reserved.

"Grant Thornton" refers to the brand under which the Grant Thornton member firms provide assurance, tax and advisory services to their clients and/or refers to one or more member firms, as the context requires.

Grant Thornton China is a member firm of Grant Thornton International Ltd (GTIL). GTIL and the member firms are not a worldwide partnership. GTIL and each member firm is a separate legal entity. Services are delivered by the member firms. GTIL does not provide services to clients. GTIL and its member firms are not agents of, and do not obligate, one another and are not liable for one another's acts or omissions.

This publication has been prepared only as a guide. No responsibility can be accepted by us for loss occasioned to any person acting or refraining from acting as a result of any material in this publication.