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# PERSPECTIVES

## **AL FRAUD DETECTION AND FORENSIC ACCOUNTING:** Embracing Innovation to Combat Financial Threats

Third Edition

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Our perspectives feature the viewpoints of our subject matter experts on current topics and emerging trends.

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Legal teams should read this article to:

- Understand how litigation strategy can be strengthened with advanced evidence insights provided by AI-enhanced forensic accounting processes to produce evidence that is well-documented and courtroom-ready.
- Discover how AI and machine learning tools can reduce analysis timelines from weeks to days in real case studies, helping legal teams respond quickly to claims, disputes, and regulatory inquiries.
- Realize how AI supports compliance and regulatory defense by improving detection while aligning with compliance frameworks, which is critical for legal risk mitigation and advising clients.
- See the evolving role of expert witnesses and forensic professionals and how AI augments—not replaces—expert judgment, reinforcing the importance of credible expert analysis in litigation and investigations.

Risk management leaders should read this article to:

- See how AI and machine learning can identify anomalies and suspicious patterns in large datasets, helping risk managers proactively detect and mitigate financial threats.
- Understand that by automating time-consuming tasks such as data processing and validation, AI enables risk teams to streamline workflows and focus on higher-value risk analysis.
- Realize how aligning teams and data improves oversight and reduces gaps in risk controls, thereby supporting stronger enterprise-wide risk management.
- Recognize forward-looking insights on how to adapt strategies using emerging technologies in ways that prepare organizations for evolving and increasing fraud threats.

## EXPERT VOICES

### Ken Feinstein



Ken explores how forensic data analytics and AI can be operationalized to detect fraud at scale, translating advanced technology into practical, defensible insights for complex financial investigations.

### Matthew Cordell



Matthew contributes his hands-on perspective on applying AI, machine learning, and forensic data analytics to identify anomalies, reconstruct financial activity, and strengthen fraud detection and remediation efforts.

### Dean Driskell, III



Dean brings a forensic accounting lens to the integration of AI, emphasizing how emerging technologies can enhance fraud investigations while maintaining rigor, transparency, and credibility in high stakes disputes.

## Executive Summary

Fraud and financial threats are growing in scale and sophistication, costing organizations billions of dollars annually. This article examines how artificial intelligence (AI) and machine learning are augmenting, rather than replacing, the work of forensic accounting professionals, enabling faster detection of anomalies, more efficient data processing, and more effective investigative outcomes. Drawing on two real-world case studies involving embezzlement and payment lapping schemes, the authors demonstrate how AI-assisted tools reduced analysis timelines from weeks to days while uncovering more than \$37 million in combined

potential fraud. The article concludes that forensic accounting professionals who embrace these technologies will be better positioned to combat increasingly complex financial threats.

## Introduction

Forensic accounting — the application of accounting, auditing, and investigative skills to examine financial information for use in legal proceedings or regulatory inquiries — has become a critical discipline in the fight against financial threats.

In today’s rapidly evolving digital environment, fraud and financial crime have become increasingly complex and create pervasive issues for organizations of all sizes and specialties. As a result, artificial intelligence (AI) and machine learning have emerged as invaluable tools in the fight against such issues. By leveraging sophisticated algorithms, data analytics, and machine learning capabilities, combined with traditional forensic accounting principles, these tools empower forensic accounting professionals to enhance their investigative processes, identify patterns and anomalies in vast amounts of data, and proactively detect unusual activities. The integration of AI and machine learning not only accelerates investigations but also supports compliance with regulatory standards, ultimately leading to more robust and effective fraud prevention and detection strategies.

While the technology itself demonstrates impressive capabilities, its value is fully realized through its use by forensic accounting professionals. For example, forensic accountants and investigation specialists interpret transaction analyses and perform due diligence – the process of systematically verifying facts and assessing risk – on suspicious individuals and entities. Investigations benefit from combining deep subject matter expertise with an analytical approach, deriving actionable intelligence from

AI and machine learning, forensic accounting, and other fact-finding disciplines.

This article focuses on how advances in AI and machine learning can aid forensic investigation procedures and further bring the detection of fraud and other financial threats into the digital age.



The most effective investigations combine technological capability with professional skepticism. AI and machine learning can surface patterns that no human could find manually across massive volumes of data, but it takes an experienced forensic accounting professional to determine which of those patterns represent genuine fraud.”

**Ken Feinstein, Senior Managing Director**  
in J.S. Held’s Digital Investigations and  
Discovery practice

## The Evolution of Fraud and Financial Crime

Fraud and financial crime, including money laundering, digital currency schemes, and regulatory violations, have challenged organizations for years. A [Juniper Research Report forecasted](#) that merchant losses from online payment fraud will exceed \$362 billion globally by 2028, with losses of \$91 billion alone in 2028. Simultaneously, corporations and professional services firms work to improve their processes as well. That said, fraudsters continue developing tactics to

bypass new preventative measures. However, AI and machine learning have the potential to revolutionize financial crime detection and anti-fraud processes, making them more efficient and effective than before.

## Leveraging AI and Machine Learning to Detect Fraud Faster

AI and machine learning can analyze vast volumes of data in real-time, swiftly identifying suspicious patterns, trends, and anomalies that may indicate fraudulent activities. Machine learning algorithms can continuously learn and adapt to evolving fraud techniques and a litany of changing rules and regulations, enhancing detection capabilities, and reducing false positives – instances where legitimate transactions are incorrectly flagged as suspicious. The ability to constantly improve procedures is incredibly powerful, as these algorithms can make changes to processes that previously took significant amounts of time to identify and implement under an organization’s framework. Additionally, AI and machine learning enable the automation of time-consuming and repetitive tasks, such as data entry and document verification. This allows forensic accounting professionals to focus on higher-value activities such as complex analysis and strategic planning.

While these capabilities are powerful, their potential can be inhibited by the traditional organizational structure of an investigation. Financial crime and anti-fraud efforts are typically separated into two distinct areas: compliance and security. Segregating activities in this manner can lead to inefficiencies in resource allocation. Although each field has its own unique skill sets, investigative efforts often track the same suspicious individuals and even use the same technology. Companies can take advantage of potential overlap by combining

efforts from both sides. This collaboration is especially useful in the application of machine learning. Machine learning models operate most efficiently when given as much data and training across myriad scenarios. This dual approach enables the identification of fraudulent behavior while simultaneously ensuring adherence to legal and compliance frameworks.

### Case Study: Calculating Damages from an Embezzlement Scheme

J.S. Held was retained to investigate an embezzlement scheme at a high school for at-risk youth, ultimately identifying more than \$7 million in funds that may have been embezzled. J.S. Held used AI-assisted tools to reduce an analysis that could have taken weeks to a matter of days. The high school discovered that the head of finance was embezzling funds. When the high school filed an insurance claim, the insurance company retained us to investigate and calculate the extent of the damages. We utilized AI-assisted software to analyze:

- » **All transactions, including transfers and checks.** This included 20,000 transactions across 10 accounts over a five-year period. The transactions were automatically matched in just hours, instantly revealing transfers the suspect made into his personal bank and brokerage accounts.
- » **Full payor details for over 1,000 checks** – including those that were handwritten – that were then ready to be analyzed in just a few days.
- » **The damages were quickly calculated to be more than \$7 million** in funds potentially embezzled.

Every transaction was then linked back to the original banking evidence, making it simple to prepare a report for the insurance company that would withstand the scrutiny of the courtroom.

## Data Analytics: High Tech Tool or Industry Disruption?

Robotics and automation are expected to see continued growth due to the world's increasing reliance on technology. In the past few years, especially, AI has been making headlines as its use and development have provided opportunities for automation across numerous industries. Media coverage has raised concerns about the dangers of available AI technologies, focusing on the potential disruption of the job market. While these concerns are not unfounded ([the World Economic Forum predicts that by 2030, approximately 92 million existing jobs will be at risk of AI automation](#)), a “robot takeover” is far from the anticipated outcome.

AI can be used to complete time-intensive or repetitive tasks, but it is not equipped to replace humans in tasks that require critical or expert thinking. Like other tools, humans have learned how to use AI to make workflows more efficient, and companies have been recognizing this potential. This shift is noticeable in the information technology field, for example, where [53%](#) of information technology professionals say they have accelerated AI adoption between 2020 and 2022.

Similarly, AI has been making waves in investigative data analytics, where forensic accounting professionals are often ingesting a plethora of data that can include financial transactions, as well as vendor, customer, and employee information. The processes to standardize these data points into a unified framework are time-consuming and repetitive. Project timelines can be lengthy, driving up costs for clients. It is the responsibility of forensic accounting professionals to stay apprised of new and evolving AI and machine learning capabilities and apply these technologies to increase our efficiency for our clients. In recent years, there have been several deployments in

AI and machine learning that allow professionals to speed up and automate analyses.

### Case Study: Untangling a Lapping Scheme

Following a corporate acquisition, J.S. Held uncovered a material lapping scheme - in which payments from one customer are applied to a different customer's account - involving more than \$30 million in potential misapplied payments. We used AI-assisted tools to process more than 25,000 checks in days rather than weeks, uncovering the scheme. Following the acquisition of a smaller company, the acquiring firm - a healthcare staffing agency - began to suspect irregularities in the accounts receivables.

We were retained by the chief financial officer to complete a recalculation of the accounts receivables balance. We discovered the general ledger had not been properly maintained, and there were more than 25,000 checks to evaluate. Because lapping was suspected, check analysis was critical. Using AI-assisted software, we uncovered:

- » Full payor details for over 25,000 checks - including those with poor image quality - were ready to be analyzed in just a few days.
- » Checks were automatically matched to bank transactions, with missing or incomplete data flagged, helping to increase the speed of the analysis.
- » The lapping scheme was revealed to be material, with more than \$30 million in potential misapplied payments identified.

We met the deadline, helping our healthcare staffing agency client make an informed decision about its insurance claim.

# Machine Learning for Forensic Accounting and Financial Investigations

Forensic accounting professionals use cloud-based technology to automate the processes used to collect, validate, and analyze structured data (e.g., databases, transactions) and unstructured data (e.g., emails, chats) and investigative algorithms. Prior to the adoption of AI and machine learning, data collection and validation consumed a substantial share of project budgets - sometimes as high as 50%. Using machine learning and AI allows for increased automation of these once time-intensive processes and allows the forensic accounting professionals to focus more on analyzing the data, deriving insights from results.



When we can automate the ingestion and validation of financial data, we are not cutting corners — we are eliminating the bottleneck that historically prevented us from getting to the analysis that actually matters. The real value of machine learning in forensic accounting is that it lets the professional spend more time thinking and less time processing.”

**Matthew Cordell, Senior Director** in J.S. Held’s Digital Investigations and Discovery practice

Machine learning and AI additionally enable analytics and behavior algorithms - automated rules that flag transactions deviating from established patterns of normal activity - that support customized testing and flexible reporting. For example, a company suspects that an employee is creating false vendor invoices and misappropriating funds. Equipped with the right AI and machine learning tools, forensic accounting professionals can bring the company’s vendor lists, invoices, accounts payable, and other relevant data into a cloud-based analytics platform to perform fraud detection analyses. They can swiftly identify vendors that might share a phone number, address, or bank account number with an employee and perform other tests for conflicts of interest. Forensic accounting professionals can also set up a system to perform active monitoring alongside existing internal controls - the policies, procedures, and checks an organization uses to safeguard assets and ensure accurate financial reporting. This information is available with a built-in visualization tool, decreasing the time required to build analytical dashboards.

## Another Advancement: Optical Character Recognition (OCR)

Another advancement in AI provides a quick and efficient way to transform PDF data sources (e.g., bank statements, check images) into usable structured data using **Optical Character Recognition (OCR)**. This technology detects and converts text from digital files into a searchable and copyable format. Unfortunately, OCR tools within many PDF editors prove to be unreliable, especially in cases where text is difficult to read or pages contain formatting inconsistencies. Using enhanced OCR tools that harness AI, forensic accounting professionals can process bank statements, checks, brokerage statements,

and other financial documents into exportable and analyzable data to support investigative efforts. As part of a test for accuracy, these tools compare beginning and ending balances of statements with the extracted transaction details. Any mismatches are flagged and returned to the user to ensure accuracy.

## Forensic Accountants Need to Innovate

Technology has played a pivotal role in shaping the field of forensic accounting throughout history, revolutionizing the way financial investigations are conducted and uncovering fraudulent activities. Not too long ago, the field of forensic accounting was a foreign concept to many. Most historical research and publications focused on demonstrating the extent of existing fraud and on convincing organizations of the importance of implementing anti-fraud and detection efforts, as well as the significant cost savings forensic accountants deliver.

However, AI, machine learning, and organizational investment in these tools have enabled forensic accounting professionals to analyze complex financial data, detect irregularities, and deliver more accurate results. Looking ahead, forensic accounting professionals must continually seek innovation to further transform their investigative role.

The ongoing development of advanced data analytics, machine learning algorithms, and blockchain technology – distributed ledger systems that create tamper-resistant records of transactions – will enable forensic accounting professionals to tackle emerging challenges in an increasingly complex digital landscape. These innovations will bolster the ability to detect and prevent fraud but will require forensic accounting professionals to adapt to a fast-changing environment.



The forensic accounting profession has always evolved alongside the methods used to commit fraud. What is different now is the speed of that evolution. Professionals who invest in understanding AI and machine learning today will be the ones equipped to protect organizations from tomorrow’s threats”

**F. Dean Driskell III, Executive Vice President**  
in J.S. Held’s Economic Damages & Valuations practice

## Conclusion

Fraud detection and investigative data analytics are two of many areas in the legal and regulatory space being transformed by AI and machine learning. By embracing these tools rather than rejecting them, forensic accounting professionals can reclaim time previously spent on repetitive, less complex work and instead focus on tasks that require deeper analysis or critical thinking.

AI and machine learning are transforming the fraud environment. Fraud and money laundering continue to threaten organizations across the globe, and their prevalence will persist as fraudsters constantly develop new methods and weaponize the same technology that organizations can use to improve their fraud prevention. However, with proper application of AI and machine learning for both fraud prevention and internal investigations, organizations can significantly improve the efficiency and effectiveness of their anti-fraud response to match an ever-changing landscape.

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