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Banks and financial institutions are using artificial intelligence (AI) to fight fraud. Fraudsters have become more skilled at finding ways to steal money, so banks need smarter tools to stop them. AI systems help by quickly looking at large amounts of data, spotting unusual patterns, and learning to adapt to new tricks used by criminals. This makes AI a powerful tool for keeping money and personal information safe.

Traditional methods of detecting fraud rely on strict rules, which can't always keep up with how fast fraud changes. AI is different because it can analyze transactions in real-time, recognize patterns, and adjust to new types of fraud as they appear. This makes it much more effective in catching fraudulent activities before they cause harm.

To detect fraud, banks use AI systems that follow several steps. First, the system collects data about each transaction, like how much money is involved, where it happened, and what was purchased. Then, it picks out key details from this information. For example, it might notice if someone is making an unusually large purchase in a location they've never been to.

Banks use several advanced AI tools to make this process work. Machine learning models are at the heart of the system. These models are trained to look at past transactions and learn what normal behavior looks like. They can then recognize when something doesn't fit the

pattern. For example, Random Forest models combine the results of many smaller decision-making models to make accurate predictions, while Gradient Boosting Machines improve by learning from past mistakes.

Banks also use natural language processing (NLP) to look at text data, like the descriptions of purchases or customer messages. This helps them find unusual activity that numbers alone might not show. Another tool, called graph analytics, maps relationships between different accounts or transactions. This can reveal connections between people or accounts that might be part of a larger fraud scheme.

AI has made fraud detection much better. Banks using these systems can catch 50% more fraud compared to older methods. They also reduce the number of false alarms by 35%, so fewer legitimate transactions are blocked. This makes customers happier and saves time for bank employees. AI works in real-time, stopping fraud as it happens, which has helped reduce losses by 40% in just one year.

Using AI also saves money. Banks can avoid losing millions of dollars to fraud and spend less on investigating false alarms. One financial institution estimates saving \$150 million annually thanks to its AI system. The technology can also handle huge amounts of transactions, over 10 billion each year, which is much more than older systems could manage.

While AI makes fraud detection better, it isn't perfect. Banks face challenges when setting up these systems. For one, they need to make sure the data used is accurate and consistent, which can be hard when it comes from many different sources. The AI models themselves can be complex, making it difficult to explain their decisions to customers or regulators.

There are also ethical concerns. AI models need to be checked for fairness to make sure they don't accidentally discriminate against certain groups of people. Privacy is another issue because these systems use a lot of personal data, so banks must follow strict rules to protect it.

Using AI to detect fraud has been a game-changer for banks and financial institutions. With tools like machine learning, natural language processing, and graph analytics, they can catch more fraud, save money, and make customers happier. However, setting up these systems requires careful attention to technical details, fairness, and privacy.

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