CS 846 Software Engineering for Big Data and AI

Detecting Financial Fraud Using AI Techniques: A Tertiary Literature Review

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The project presents a tertiary literature review on AI applications in the domain of financial fraud detection. It systematically gathers, categorizes, and analyzes existing research on identifying financial fraud detection using AI mechanisms while investigating the research gaps and future directions in the field. The project aims to address the issue of traditional manual methods of fraud detection with low accuracy and time consumption while providing a foundational resource for academics and practitioners looking to understand and develop AI-driven fraud detection systems.

Strengths

- Comprehensive Scope: The research aims to cover a study on a wide variety of AI techniques for financial fraud detection, making the study comprehensive and showing an extensive breadth of research.
- Clarity of Objectives: The objectives of the research questions highlighted are clear and well-defined, setting a strong focus in the direction of the literature review research.
- High Relevance and Value: Given the rapid development of AI (generative AI, LLMs), a comprehensive study like this provides a good reference point not just for academicians but also for professionals in the industry (or specifically the financial technology domain).

Weaknesses

- Methodology Criteria: The project mentioned using search strings to extract relevant papers from various databases with little filtering (i.e., inclusion/exclusion); as such, it may affect the quality of the literature obtained and the validity of its reviews.
- Literature Limitations: There is insufficient information on the (possible) limitations of its findings, which is an important aspect for this study to be expanded for future research.
- Ethical Considerations: The presentation of the project focuses strongly on AI-techniques in fraud detection, with little to minimal discussion on ethical aspects such as data privacy concerns when dealing with sensitive financial data, which is an important aspect when deploying these AI into real-world applications.

Suggestions for Potential Improvements

- Include threats to validity, discussing the limitations of the case study, and acknowledging the scope of the research findings.
- Add future research on how future research could be expanded or benefit from this study.
- Expand the research methodology approach (such as with inclusion/exclusion criteria) to make the process more rigorous and credible.
- RQ2 talks about popular methods employed; it would be interesting if it were enhanced by doing a comparative study of the methods to allow us to better understand why certain methods or techniques are preferred over others.
- Expand RQ4 to include studies on ethical considerations as part of its key challenges in deploying into real systems.