

Peer Review

Review of: "Explaining the Unexplainable: A Systematic Review of Explainable AI in Finance"

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This article offers a well-executed survey of XAI applications within the financial domain. The authors provide a wide-ranging overview of 323 peers. The study also acknowledges the trade-offs between interpretability and predictive power in financial AI systems and carefully documents limitations such as high computational cost, data quality constraints, and a lack of standardized benchmarks in real-world deployment scenarios.

While this paper is a valuable contribution, it would be further strengthened by incorporating system-level and practical perspectives on XAI implementation. In particular, two recent works are worth referencing. First, "An Open API Architecture to Discover the Trustworthy Explanation of Cloud AI Services" (IEEE Transactions on Cloud Computing, vol. 12, no. 2, pp. 762–776, doi: [10.1109/TCC.2024.3398609](https://doi.org/10.1109/TCC.2024.3398609)). This work introduces a cloud-native API design for trustworthy and auditable XAI explanation delivery, offering a system-level solution to explainability in cloud-based AI deployments. Their framework is particularly relevant to regulated domains, where traceability, accountability, and real-time service integrity are critical. Second, the paper "XAIport: A Service Framework for the Early Adoption of XAI in AI Model Development" (In Proceedings of the 2024 ACM/IEEE 44th International Conference on Software Engineering: New Ideas and Emerging Results (ICSE-NIER'24), pp. 67–71, doi: [10.1145/3639476.3639759](https://doi.org/10.1145/3639476.3639759)). This work makes a critical contribution by addressing practical barriers to XAI adoption, including the integration of explainability tooling into development pipelines and the **computational cost analysis** of various explanation strategies. It complements the reviewed article's discussion of deployment bottlenecks and bridges the gap between theoretical XAI research and

engineering practice—an essential consideration for financial institutions dealing with resource constraints and production-grade systems.

Declarations

Potential competing interests: No potential competing interests to declare.