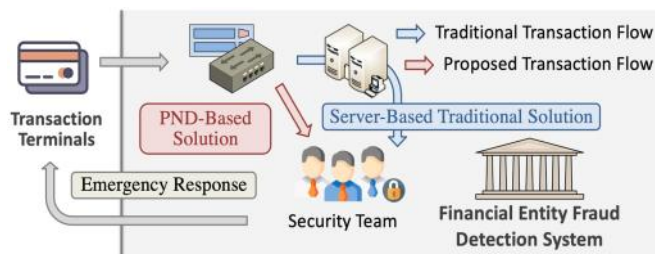


Algorithm and prototype for machine-learning-based financial fraud detection using programmable network devices

Smart algorithm detects financial fraud using machine learning in programmable network devices, ensuring quick transaction fraud detection with low latency.

Applications: Financial fraud detection for banks, hedge funds, security providers and financial supervision organisations



Features	Benefits
Algorithm conducts high-throughput and low-latency transaction fraud detection within programmable network devices (PNDs)	Computing tasks run in servers which are very resource intensive; Using PNDs (e.g., switch-ASICs, GPUs) has the advantage of lower latency, higher throughput and higher energy efficiency, compared with servers
The science behind the IP is in-network computing and in-network machine learning, where ML models are mapped into the data plane	Means transferring computing task such as machine learning inference into PNDs; Computing tasks are offloaded into the data plane, leading to reduced dependency on servers and lower costs, while also freeing up server resources

Features	Benefits
Prototype has shown the ability to process transactions 2-3 orders of magnitude faster than existing solutions (i.e. x100-x1000), along with 2-3 orders of magnitude latency reduction compared with a server-based benchmark	Creates faster and more efficient fraud detection, highly relevant for financial transaction fraud detection in entities such as financial supervision organisations, security teams in banks and providers of security solutions to banks
The algorithm has been trained and evaluated on datasets from banks, and the academics are exploring other time-sensitive financial applications	The IP could be used in real-time anomaly detection in fields other than finance

Available for

- Co-development
- Consulting
- Licensing

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.

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