Mitigating Fraud and Enhancing Data Integrity in Digital Finance

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Abstract*: An investigation into innovative security approaches becomes necessary because digital fraud has become more complex and frequent, while mobile device-sensitive data needs protection. The union of zero-trust architecture with federated learning techniques represents a promising approach because it enables collaborative training processes while avoiding direct data transmission. The combination has the potential to deliver improved data protection and fraudulent attack prevention for mobile financial operations and additional digital banking security measures through the replacement of perimeter-based security models. Anti-fraud systems used in mobile applications require a thorough ethical evaluation to determine their effect on users who possess different equipment specifications. Researchers can investigate how federated learning systems detect abnormal financial transactions by employing similar methodologies. This strategy demonstrates high value for mobile payment systems that need fast-time fraud detection functionality because they process substantial transaction volumes at high speeds*

Keywords: Zero-Trust Architecture, Federated Learning, Mobile Data Security, Fraud Prevention, Data Leakage, Blockchain**.**