Abstract: The rapid digitization of financial services, combined with the expansion of the Internet of Things (IoT) and advances in computer vision, is creating new opportunities for data-driven innovation. This paper proposes an interdisciplinary framework integrating IoT sensor networks, real-time image processing, and machine learning to enhance financial analytics, risk assessment, and service delivery. IoT devices—including smart shelves, connected vehicles, agricultural drones, and industrial sensors—generate continuous streams of visual and sensor data containing valuable economic signals. By leveraging deep learning–based object detection, scene understanding, and anomaly detection, this heterogeneous data can be transformed into actionable financial intelligence. The study synthesizes existing research across IoT, financial forecasting, and computer vision, and explores applications such as dynamic collateral valuation, automated insurance claims processing, fraud detection via biometrics and document analysis, and IoT-enabled supply chain finance. Key challenges, including data privacy, edge computing, multimodal data fusion, and algorithmic bias, are critically examined. The paper concludes that the convergence of IoT, image processing, and financial analytics can enable more transparent, efficient, and resilient financial systems, paving the way for autonomous finance and hyper-personalized services.

Keywords: Internet of Things (IoT), Financial Technology (FinTech), Image Processing, Computer Vision, Sensor Fusion, Real-Time Analytics, Risk Assessment, Fraud Detection, Supply Chain Finance.