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ITAI 2372

2/8/2025

<center>A04 Class Notes</center>

Key Technologies in AI

Machine Learning (ML), Natural Language Processing (NLP), Computer Vision.
Rapid growth in AI adoption in financial services.
Advantages

Efficiency: Faster, accurate processes.
Better risk analysis is possible due to enhanced risk management features of the system.
Personalization: Enhanced customer experience.
Cost Reduction: Lower operational costs.
Applications

Algorithmic Trading:

High-frequency trading platforms perform multiple thousands of trading operations within brief second intervals.
Pattern recognition identifies market opportunities.
Predictive analytics forecasts trends.
Fraud Detection:

Real-time monitoring detects fraud instantly.
Anomaly detection finds suspicious activities.
Behavioral analysis identifies unusual patterns.
Credit Scoring:

Processing non-traditional information leads to better individual profiles.
The system delivers automated rapid loan approval services.
Customer Service:

Chatbots provide 24/7 support.
Through virtual assistant's customers can obtain unique financial counseling.
Portfolio Management:

Robo-advisors automate investment guidance.
Real-time rebalancing optimizes asset allocations.

Negative Impacts of AI in Finance

Data Misuse:
Unfair demographical data such as age and sex combined with geographical information from location.
The origin of AI model biases comes from human-run data which produces discriminatory outcomes.
Organizations deny rights to customers through the analysis of purchasing behavior data from cards.
Lack of Transparency:
AI decision-making often opaque, making accountability difficult.
Data Breaches:
When technology usage grows it results in additional risks for unauthorized systems access.
Ethical Concerns

The concept of bias along with fairness remains an issue in AI models.
Ensuring data privacy and security.
Accountability for AI-driven decisions.
Future Trends

Quantum Computing: Accelerates financial calculations and portfolio optimization.
Explainable AI: Increases transparency and compliance.
Edge Computing provides enhanced data protection together with shortens response times.
Key Takeaway:
Through AI financial operations achieve better performance and decrease fraudulent activity while delivering superior user experiences. The appropriate management of ethical concerns about bias as well as transparency and data security needs attention for responsible AI deployment.