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Artificial Intelligence in Daily Trading: Innovations, Strategies, and Future Potential

Mr. Darshan Katale¹, Mr. Sandesh Gupta²

¹ B.Tech in Computer Science and Engineering Computer Science Teacher, Junior College ² Bachelor's in Commerce Bookkeeping Teacher (Commerce), Junior College

ABSTRACT :

Artificial Intelligence (AI) is revolutionizing trading practices by offering faster insights, intelligent strategies, and minimal manual involvement. This paper explores how AI is integrated into daily trading, focusing on its core technologies, practical implementations, benefits, challenges, and future directions. AI tools such as machine learning, natural language processing, and big data analytics enable smarter decision-making by detecting trends, predicting market movements, and automating trade executions. The study presents a comprehensive overview of AI's growing influence in financial markets and discusses the road ahead for its development and regulation.

Keywords: Artificial Intelligence, Financial Technology, Machine Learning, Stock Market, Trading Algorithms, Sentiment Analysis, AI in Finance

Introduction

Modern financial markets demand quick, data-driven decision-making. Artificial Intelligence provides traders with the ability to analyze vast data sets, recognize trends, and automate strategies in real-time. This section introduces the integration of AI in trading and highlights how it's reshaping the traditional financial decision-making framework.

Real-World Applications of AI in Daily Trading

Automated and Algorithmic Trading

AI-powered trading systems can execute thousands of transactions in milliseconds, optimizing trade timings and removing human delay. High-frequency trading (HFT) platforms especially benefit from these capabilities.

Market Forecasting

AI models trained on financial data help forecast future price movements, enabling traders to make anticipatory decisions.

News and Sentiment Analysis

Natural Language Processing (NLP) tools evaluate textual information from financial news, reports, and social media to gauge public sentiment and its potential effect on the market.

Risk Detection and Strategy Optimization

AI enables the simulation of market scenarios for risk assessment and strategy refinement, ensuring resilience during volatility.

Key Technologies Used in AI Trading

- Supervised Learning: Predicts future asset prices using historical labeled data.
- Unsupervised Learning: Discovers market patterns and groups of similar assets.
- Reinforcement Learning: Trains systems to optimize decisions through trial and feedback.
- Deep Learning: Processes large unstructured data sets for enhanced pattern recognition.

Technologies commonly used include Python libraries like TensorFlow, PyTorch, and Scikit-learn, along with platforms like Bloomberg Terminal and automated trading APIs.

Benefits of Incorporating AI in Trading

- Lightning-fast execution and analysis
- Removal of emotional bias from trading decisions
- Real-time market monitoring

- Enhanced predictive accuracy
- Efficient portfolio and risk management

Challenges and Ethical Concerns

- Overfitting: Risk of models performing well in tests but failing in real-world scenarios.
- Opacity: Difficulty in interpreting complex AI models.
- Manipulation Risks: AI might unintentionally influence or disrupt markets.
- Regulatory Ambiguity: Existing frameworks are still catching up with AI's rapid evolution.

Looking Ahead: The Future of AI in Trading

AI will continue to evolve with more explainable models, regulatory compliance tools, and integration of quantum computing for enhanced speed and accuracy. Ethical AI frameworks and stronger governance will shape the next generation of financial AI tools.

Conclusion

AI has firmly positioned itself as a pivotal technology in financial trading. By improving efficiency, strategy, and data utilization, it is transforming the landscape. However, careful implementation, regulation, and ethical considerations are crucial to maintaining a balanced and fair market.

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