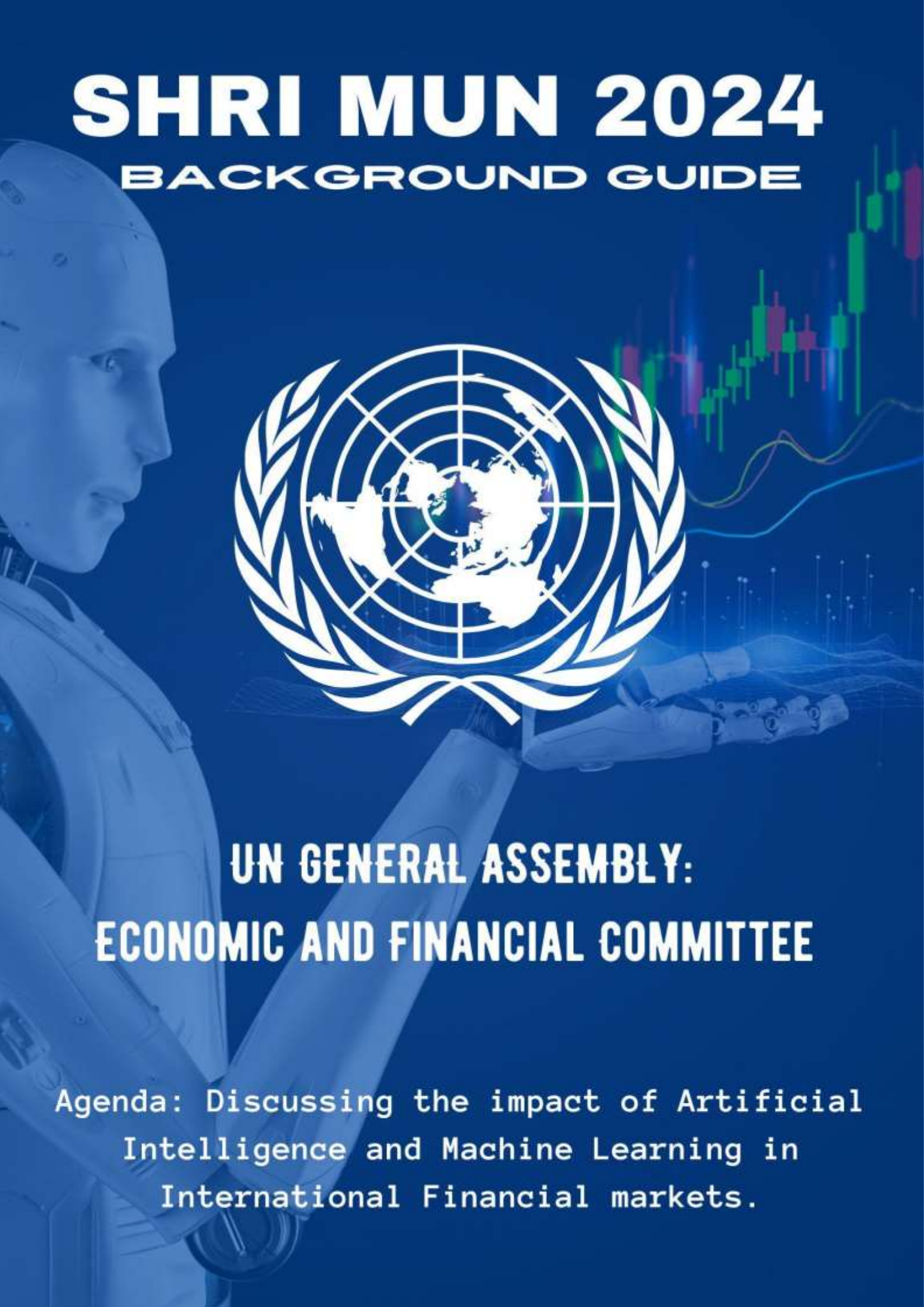
SHRI MUN 2024

BACKGROUND GUIDE



UN GENERAL ASSEMBLY:

ECONOMIC AND FINANCIAL COMMITTEE

Agenda: Discussing the impact of Artificial Intelligence and Machine Learning in International Financial markets.

Letter from the Executive Board

Dear Delegates

It gives us immense pleasure to welcome you to the second edition of interschool Shri MUN in 2024. We hope that you all have a wonderful MUN experience and that these three days in committee result in some fruitful debate on a very pertinent issue.

To give you a helping hand on how to prepare yourselves for this committee, we suggest familiarising yourself with the history and workings of Artificial Intelligence and Machine Learning. More importantly, make sure that you have your facts in place and be confident while speaking. A folder with important documents and research may come in handy for this purpose. We would like to reiterate that this background guide is and that it points towards the direction of actual research. However, read up thoroughly on the issue at hand and do not restrict yourselves to this background guide.

Remember that each delegate is the representative of their respective nation and the views and strategies expressed by you should be in line with the fundamental beliefs of the nation that you represent. Any formal queries regarding ShriMUN or our committee can be directed to our official email address; mun-moulsari@tsrs.org. Please note that any form of documentation sent prior to the beginning of committee sessions will not be entertained. Best of luck!

The United Nations General Assembly:

The United Nations General Assembly (UNGA) is the main deliberative, policymaking, and representative organ of the United Nations, comprising all 193 member states.

Established in 1945 under the UN Charter, the UNGA provides a unique forum for multilateral discussion of the full spectrum of international issues.

One of the key functions of the UNGA is to serve as a platform for world leaders to discuss, debate, and make recommendations on subjects pertaining to international peace and security, development, disarmament, human rights, and international law. During the annual General Debate, heads of state and government leaders deliver speeches addressing the most pressing global challenges of the moment and collaborate on solutions.

The UNGA also plays a central role in the process of standard-setting and the codification of international law. It has taken actions across all pillars of the United Nations, including with regard to political, economic, humanitarian, social, and legal matters. In 2015, the Assembly agreed on a set of 17 Sustainable Development Goals, contained in the 2030 Agenda for Sustainable Development.

While the UNGA provides a unique forum for multilateral discussion, its resolutions are not binding, unlike those of the UN Security Council. The UNGA is often criticized as a venue where discussion rarely bears fruit. However, the Assembly's resolutions carry significant political weight and serve as a reflection of the collective will of the international community.

Despite its limitations, the UNGA remains a vital forum for global cooperation and dialogue. It provides a platform for smaller and less powerful nations to have their voices heard and to influence the international agenda. The UNGA also plays a crucial role in the election of the UN Secretary-General and the non-permanent members of the Security Council.

In conclusion, the United Nations General Assembly is a critical institution in the global governance system. While it may not always produce tangible results, the UNGA serves as a crucial platform for international cooperation, dialogue, and the promotion of shared values and principles. As the world faces increasingly complex and interconnected challenges, the role of the UNGA in fostering multilateral solutions will only become more important in the years to come.

Introduction to the Agenda:-

What is Artifical Intelligence?

Artificial intelligence (AI) is a vast field of computer science that revolves around creating intelligent machines. Here's a breakdown of the key ideas:-

Core Goal:

- Equip machines with the ability to perform tasks that typically require human intelligence. This includes:
    - Thinking and problem-solving
    - Learning and adapting
    - Understanding and responding to language
    - Recognizing objects and patterns

Approaches:

- AI utilizes various techniques to achieve its goals. Machine learning is a prominent one, but AI isn't limited to it.

Examples of AI:

- **Machine learning algorithms** that power recommendation systems, spam filters, and facial recognition software.
- **Chatbots** that can hold conversations and answer questions in a simulated manner.
- **Self-driving cars** that navigate and react to their surroundings without human input.

Types of AI (a spectrum):

- **Narrow AI (ANI):** The most common type, excelling at specific tasks like playing chess or image recognition.
- **Artificial General Intelligence (AGI):** Hypothetical AI with human-level intelligence across all domains, still in the realm of science fiction.
- **Artificial Super Intelligence (ASI):** Even more theoretical, surpassing human intelligence altogether.

Impact:

AI is rapidly transforming various aspects of our lives, influencing fields like healthcare, finance, and transportation. It holds immense potential for progress, but also raises questions about ethics, job displacement, and safety.

Further Exploration:

If you're interested in learning more, you can search for "artificial intelligence applications" or "types of artificial intelligence."

What is Machine Learning?

Machine learning (ML) is a subfield of artificial intelligence (AI) that focuses on giving computers the ability to learn without being explicitly programmed. Here's a breakdown:

Core Idea:

- Develop algorithms that can **learn from data** and improve their performance on a specific task over time.
- This data can be anything from text and images to numbers and sensor readings.

Learning Process:

- Machine learning algorithms are **trained** on large datasets. The data is fed into the algorithm, and it adjusts its internal parameters based on the patterns it finds.
- Imagine showing a child thousands of pictures of dogs and cats. Through this data, the child learns to distinguish between the two animals. Machine learning works in a similar way.

Types of Machine Learning:

- There are different approaches to machine learning, but two main categories are:
    - **Supervised learning:** Involves training the algorithm with labeled data. For example, emails labeled as spam or not spam. The algorithm learns to identify spam based on these examples.
    - **Unsupervised learning:** Deals with unlabeled data. The algorithm finds hidden patterns and structures within the data itself. For instance, grouping similar customers together based on their purchase history.

Applications:

- Machine learning is used in a wide range of applications, including:
    - **Recommendation systems:** Suggesting products or content you might be interested in.
    - **Fraud detection:** Identifying suspicious financial activity.
    - **Image and speech recognition:** Powering features like facial recognition in photos or voice assistants.
    - **Medical diagnosis:** Assisting doctors in analyzing medical images and data.

Benefits and Challenges:

- Machine learning offers significant advantages like automation, efficiency, and data-driven decision making.
- However, challenges include potential bias in algorithms, security concerns, and the need for expertise to implement effectively.

What are the Key Difference between Artificial Intelligencre and Machine Learning?

AI (Artificial Intelligence):

- **Broader concept:** Encompasses the entire field of creating intelligent machines.
- **Goal:** Make machines capable of performing tasks that typically require human intelligence. This includes thinking, learning, problem-solving, and responding to their environment.
- **Techniques:** Utilizes various approaches to achieve intelligence, including machine learning, logic, reasoning, and problem-solving algorithms.
- **Examples:** Self-driving cars, chatbots, chess-playing computers, spam filters, and recommendation systems (can be powered by ML or other AI techniques).

Machine Learning (ML):

- **Subset of AI:** A specific technique used to achieve AI.
- **Focus:** Develops algorithms that can learn from data without explicit programming. This data can be text, images, numbers, or sensor readings.
- **Process:** Learns by identifying patterns and improving its performance on a specific task over time through training on large datasets.
- **Examples:** Spam filtering (identifies patterns in spam emails), image recognition (learns to recognize objects in pictures), and recommendation systems (learns your preferences to suggest products).

Analogy:

Imagine you want to teach someone to be a mechanic.

- **AI approach:** You could create a complex robot programmed with all the knowledge needed to diagnose and repair cars (similar to some narrow AI examples).
- **Machine learning approach:** You could show the person many examples of car problems and their solutions (data). Over time, they would learn to identify patterns and fix cars themselves (similar to how ML algorithms learn).

In essence:

- AI is the overall objective of creating intelligent machines.
- Machine learning is a powerful tool used to achieve that goal by enabling machines to learn from data.

What is the history of AI?

The history of Artificial Intelligence (AI) is a fascinating journey that stretches back further than you might think. Here's a simplified timeline highlighting some key milestones:

Early Days (Pre-1950s):

- Philosophers and mathematicians pondered the nature of intelligence and the possibility of creating thinking machines.

Birth of AI (1950s):

- 1950: Alan Turing publishes his groundbreaking paper "Computing Machinery and Intelligence," introducing the Turing Test, a measure of machine intelligence.
- 1955: John McCarthy organizes the Dartmouth workshop, considered the founding event of AI research. The term "Artificial Intelligence" is coined here.
- 1956: The first AI programs are developed, including checkers-playing programs.

Early Optimism and Setbacks (1960s-1980s):

- 1960s: Early successes with AI in game playing and problem-solving lead to a period of optimism.
- 1970s: Limitations of AI become apparent. Lack of computing power and complex real-world tasks hinder progress. This period is sometimes called the "AI Winter."

Resurgence and Machine Learning (1990s-2000s):

- 1990s: Advancements in computing power and algorithms revitalize AI research. Machine learning starts to gain traction.
- Late 1990s: Deep Blue, an IBM chess computer, defeats Garry Kasparov, the world chess champion.

The Age of Deep Learning (2010s-Present):

- 2010s: Deep learning techniques like artificial neural networks revolutionize AI, leading to breakthroughs in image recognition, natural language processing, and other areas.
- 2016: AlphaGo, a deep learning program from Google DeepMind, defeats Lee Sedol, a world champion Go player.

The Present and Future:

- AI continues to evolve rapidly, impacting various aspects of our lives. Ethical considerations, safety concerns, and potential job displacement become crucial aspects of AI development.
- The future of AI is uncertain, but it holds immense potential for progress in science, technology, and society as a whole.

This is a simplified timeline. If you're interested in specific areas of AI development or want to delve deeper into any period, you can search for terms like "Turing Test history" or "deep learning revolution."

What are some of the Artificial intelligence is a fast-moving field, and recent developments are aplenty. Here are some exciting advancements that have happened just in 2024 (as of July 3rd):

- **Camera Enhancements for Robots:** Inspired by the human eye's tiny involuntary movements, researchers have created a new camera system that improves how robots see and react to their environment. This can enhance precision and grasping abilities in robotic tasks. [ScienceDaily Article on AI Camera]
- **Microscopic Flying Robots:** Scientists have developed tiny robots mimicking the aerial dance of falling maple seeds. These robots have potential applications in real-time environmental monitoring and targeted delivery of small packages.
- **Explainable AI:** Efforts are underway to make AI systems less like black boxes. New training techniques aim to make AI more transparent, allowing humans to understand the reasoning behind their decisions.

Here are some broader trends that continue to be at the forefront of AI research:

- **AI for Good:** There's a growing focus on using AI to tackle social and environmental challenges. This includes areas like climate change mitigation, disaster response, and personalized healthcare.
- **AI in Drug Discovery:** AI is accelerating the process of drug discovery by analyzing vast datasets and predicting potential drug candidates. This can significantly reduce the time and cost of bringing new drugs to market.
- **AI-powered Security Systems:** As cyber threats become more sophisticated, AI is playing a crucial role in developing advanced cybersecurity solutions. AI can detect and respond to security breaches in real-time.

These are just a few examples. The field of AI is constantly evolving, and new developments are emerging all the time.

More about AI’s influence on Finance

Artificial intelligence (AI) and machine learning (ML) have had a significant impact on international financial markets, transforming various aspects of the industry. Here are some key areas where AI and ML are making a difference:

1. Trading and Investment Strategies

• Algorithmic Trading: AI and ML are used to develop sophisticated trading algorithms that can execute trades at high speeds and volumes, often faster than human traders. These algorithms analyse large datasets to identify trading

opportunities and make decisions based on historical data, market trends, and real-time information.

• Quantitative Analysis: ML models help in developing quantitative strategies by analysing vast amounts of data to identify patterns and predict future market movements. These strategies are often used by hedge funds and investment firms to optimize portfolios and manage risks.

2. Risk Management

• Credit Scoring: AI and ML algorithms are used to assess the creditworthiness of individuals and businesses by analysing various financial and non-financial data points. This improves the accuracy of credit scoring and reduces the risk of defaults.

• Fraud Detection: AI systems can detect fraudulent activities by analysing transaction patterns and identifying anomalies that deviate from typical behaviour. This helps financial institutions prevent and mitigate fraud more effectively.

3. Market Analysis and Sentiment Analysis

• Predictive Analytics: ML models analyse historical market data to forecast future price movements and trends. This enables investors to make more informed decisions.

• Sentiment Analysis: AI-driven sentiment analysis tools assess market sentiment by analysing news articles, social media, and other textual data. This helps investors gauge market mood and predict potential market movements.

4. Customer Service and Personalization

• Chatbots and Virtual Assistants: Financial institutions use AI-powered chatbots to provide customer service, answer queries, and assist with transactions. This improves customer experience and operational efficiency.

• Personalized Financial Advice: AI systems analyse customer data to offer personalized financial advice and investment recommendations based on individual risk profiles and financial goals.

5. Regulatory Compliance

• Retch: AI and ML technologies help financial institutions comply with regulatory requirements by automating compliance processes, monitoring transactions for

suspicious activities, and ensuring adherence to laws and regulations. This reduces the risk of regulatory penalties and improves operational efficiency.

6. Market Efficiency and Liquidity

- Price Discovery: AI-driven trading algorithms contribute to more efficient price discovery by quickly assimilating new information and reflecting it in asset prices. This leads to more accurate and fair market pricing.
- Market Liquidity: High-frequency trading (HFT) enabled by AI and ML increases market liquidity by facilitating a higher volume of trades. This can reduce bid-ask spreads and make it easier for market participants to buy and sell assets.

7. Data Management and Processing

- Big Data Analytics: AI and ML tools are used to process and analyze large volumes of financial data from various sources, including market data, economic indicators, and alternative data. This helps in gaining deeper insights and making more informed decisions.
- Automated Reporting: AI systems automate the generation of financial reports, reducing the time and effort required for manual reporting and minimizing errors.

Challenges and Considerations

- Ethical and Regulatory Concerns: The use of AI and ML in finance raises ethical and regulatory concerns, such as data privacy, algorithmic transparency, and potential market manipulation.

- Model Risk: ML models are only as good as the data they are trained on. Poor data quality, overfitting, and model drift can lead to inaccurate predictions and financial losses.
- Market Volatility: The widespread use of AI-driven trading can sometimes exacerbate market volatility, particularly during periods of market stress.

Overall, the impact of AI and ML in international financial markets is profound, offering numerous benefits in terms of efficiency, accuracy, and innovation, while also presenting new challenges that need to be addressed.

Citations:

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