Agentic AI Workflows for Financial Large Language Models using LLaMA Framework

Abstract:

The integration of Agentic AI workflows with Large Language Models (LLMs) has revolutionized financial analysis by enabling autonomous decision-making, real-time data processing, and adaptive learning. FinGPT, an open-source financial LLM framework, leverages Agentic AI architectures to enhance financial forecasting, Question Answering, sentiment analysis, and algorithmic trading. By utilizing the LLaMA framework, FinGPT benefits from efficient parameter optimization, scalable fine-tuning, and real-time data adaptability. This paper explores the design and implementation of an Agentic AI-driven FinGPT, detailing its architecture, reinforcement learning strategies, and real-world applications in finance. Performance benchmarks against proprietary financial models highlight the advantages of open-source LLMs in cost-effectiveness, explainability, and regulatory compliance. We further discuss the challenges of integrating autonomous financial agents into trading systems and risk management frameworks. Our findings demonstrate that the synergy between Agentic AI workflows and the LLaMA framework paves the way for next-generation financial intelligence models, offering a scalable and adaptable solution for financial professionals and researchers.

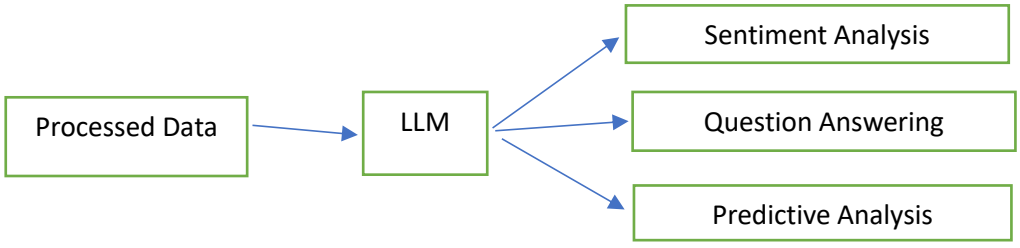
Agent AI:

Multi-Agents can collaborate, coordinate and communicate to achieve the goal assigned and do repetitive action by using reinforcing learning until it matches the desired result or receive highest reward. This kind of work will help individual LLMs during trading to do perform their tasks by adapting to the environment and getting rewards by FINRL outperforms against single standard LLM. These multi agent models can address interconnected challenges like trading indicators keep changes dynamically with the company situations in the market at each time stamp.

Why we prefer Agentic behaviour in LLMs why not with RAG implementation?

RAG, Retrieval Augmented Generation can perform the task which are pre-defined but cannot handle the task which are out of the scope of the knowledge ingested.

Agents can interact with the environment and take action dynamically by understanding through reinforcement learning and adapting the tools which are made available like APIs, Knowledge Base.. , makes decision without human intervention and outputs the response accurately and efficiently.



Reference:

[1] FinGPT: Open-Source Financial Large Language Models Hongyang (Bruce) Yang1, Xiao-Yang Liu1, Christina Dan Wang2 1Columbia University; 2New York University (Shanghai)

https://arxiv.org/abs/2306.06031v1