

Peer Review

Review of: "AgentNet: Decentralized Evolutionary Coordination for LLM-based Multi-Agent Systems"

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- This paper introduces a novel decentralized LLM-based Multi-agent framework to address issues in single-agent systems. AgentNet adopts a decentralized coordination scheme to achieve self-evolving and collaboration among independent agent nodes. The agent network is represented as a graph topology. An adaptive learning mechanism based on RAG memory and task databases allows for continuous improvement of each agent's specialized capability and optimizes the performance of the network. A comprehensive evaluation verifies the effectiveness of AgentNet in solving complex problems and demonstrates the merits of AgentNet by comparing it with centralized single-agent solutions.
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- However, there are still some minor issues to be addressed
 - While this work focuses on agent network architecture and coordination efficiency, it would be beneficial to include a section to discuss security threats in the current AgentNet. Especially for a distributed network environment where agent nodes are scattered among different physical network domains. The author needs to consider potential attacks on the AgentNet system atop a decentralized network.
 - In addition, AgentNet requires decision-making among multiple agent nodes, and it relies on routing tasks among selected nodes. It will incur extra time latency compared with a single-agent framework. The author could also consider communication overhead during the task-solving process and evaluate the total delays for both AgentNet and a single agent.
 - On page 22, change "The left image" to "Figure 6" and "the right image" to "Figure 7". Please ensure all figures and tables are correctly referred to.

Declarations

Potential competing interests: No potential competing interests to declare.