Decoding the Structure of Multi-Agent System Communication: A Comparative Analysis of Protocols and Paradigms

Authors : Gulshad Azatova, Aleksandr Kapitonov, Natig Aminov

Abstract : Multiagent systems have gained significant attention in various fields, such as robotics, autonomous vehicles, and distributed computing, where multiple agents cooperate and communicate to achieve complex tasks. Efficient communication among agents is a crucial aspect of these systems, as it directly impacts their overall performance and scalability. This scholarly work provides an exploration of essential communication elements and conducts a comparative assessment of diverse protocols utilized in multiagent systems. The emphasis lies in scrutinizing the strengths, weaknesses, and applicability of these protocols across various scenarios. The research also sheds light on emerging trends within communication protocols for multiagent systems, including the incorporation of machine learning methods and the adoption of blockchain-based solutions to ensure secure communication. These trends provide valuable insights into the evolving landscape of multiagent systems and their communication protocols.