Module 1 Multi-Agent System Applications in Healthcare

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Introduction

Multi-agent systems, particularly those that use agents, have become vital resources in healthcare. They perform crucial tasks including data management and record-keeping, going beyond simple automation. These agents improve healthcare efficiency by working smoothly and rapidly, especially when combined with Wireless Sensor Networks (WSN) and Body Area Sensor Networks (BASN). This combination enables medical professionals to multitask as they wait for crucial information. The usability and promise of these systems are further enhanced by the ongoing development of biosensors and energy-efficient technology.

What impact are the agents having?

In healthcare, agents—including those found in multi-agent systems—are essential. Both patient care and healthcare workers benefit from their streamlining of activities like data management and record-keeping. These agents function systematically and promptly in the healthcare industry, especially when combined with Wireless Sensor Networks (WSN) and Body Area Sensor Networks (BASN). This enables providers to perform multiple tasks while they wait for crucial information. The usefulness and capability of these systems are continually improved by developments in biosensors and energy saving.

Shakshuki & Reid, 2015).

How do these compare to multi-agent systems in other fields?

The article discusses the increasing study and interest in multi-agent system (MAS) applications for the healthcare industry. The main objective of these applications is to keep older people living independently for longer while also lowering the overall cost of healthcare. The VigilNet program, which uses infrared cameras for real-time enemy movement detection in a military

scenario, is an example of how these systems are frequently built upon existing technologies like WSN and BASN and provide a cohesive, coherent system that can respond in real time. (Shakshuki & Reid, 2015).

What role do predictive models play in the solutions?

In healthcare multi-agent systems, predictive models form the framework, which significantly increases their abilities. To perform in-depth studies of patient health data, these models make use of centralized data repositories. With this ability, healthcare systems can change from a reactive to a proactive model. Predictive models allow for more efficient resource allocation and quick reaction by healthcare professionals, significantly enhancing the experiences of patients. (Shakshuki & Reid, 2015).

Summary

The research on multi-agent system (MAS) applications in the healthcare industry is discussed in the article. These programs' main objective is to increase the amount of time that older people can live independently while reducing total healthcare costs. Notably, these systems, which frequently draw from already-developed technologies like WSN and BASN, demonstrate adaptability by providing real-time answers. One example of this adaptability is the VigilNet program, which was first developed for real-time enemy movement detection in a military environment utilizing infrared cameras. Predictive models play a crucial role in multi-agent healthcare systems by enabling thorough analyses of patient health data and encouraging the transition from reactive to proactive healthcare models. This change improves the effectiveness of resource allocation and permits quick reactions from medical staff, raising the overall patient experience.

Reference

Shakshuki, E.M. and Reid, M. (2015). Multi-Agent System Applications in Healthcare: Current Technology and Future Roadmap. Procedia Computer Science, [online] 52, pp.252–261. doi:https://doi.org/10.1016/j.procs.2015.05.071.