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LLM and CV for lab assistance agents

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Recent advancements in large language models (LLMs) have enabled them to solve complex tasks using natural language prompts. Similarly, computer vision (CV) continues to enhance machine capabilities in identifying and interpreting objects and scenes. This work explores the integration of LLMs and CV to improve laboratory operations, focusing on automating tasks like data collection and process monitoring.

We present a system designed to streamline laboratory workflows by combining a locally deployed LLM with a YOLO-based object detection model. The system assists in locating and identifying equipment, tracking positions, accessing parameter settings, and recording experimental data in real time. This integration enhances task automation, accessibility, and precision in laboratory environments.

In conclusion, merging LLMs and CV techniques represents a significant step toward creating intelligent and efficient laboratory assistants.

Footnotes

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