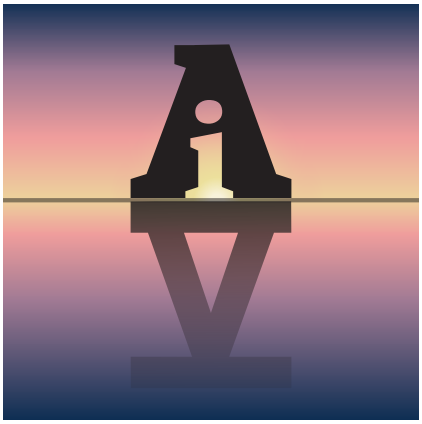

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Context-observant LLM-Enabled Autonomous Robots (CLEAR) – **Jake Macdonald**

Poster Abstract

The Context-observant LLM-Enabled Autonomous Robots (CLEAR) platform offers a general solution for large language model (LLM)-enabled robot autonomy. CLEAR-controlled robots use natural language to perceive and interact with their environment. Contextual descriptions deriving from computer vision and optional human commands prompt intelligent LLM responses that map to robotic actions. By emphasizing prompting, system behavior is programmed without manipulating code or fine tuning an LLM. CLEAR employs off-the-shelf pre-trained machine-learning models for controlling robots ranging from simulated quadcopters to terrestrial quadrupeds. Each LLM exhibits behavioral differences when embodied by CLEAR, contrasting in actuation preference, ability to apply new knowledge, and receptivity to human instruction, with GPT-4 demonstrating the best performance. The CLEAR platform contributes to HRI by increasing the usability of robotics for natural human interaction.

About the Author(s)

Jake Macdonald is an undergraduate studying computer science at Clemson University and a student technical assistant staff member of MIT Lincoln Laboratory's Artificial Intelligence Technology Group. He has research experience in LLM-enabled robotics, human-centered computing, and quantum systems. He is especially interested in continuing research in applied robotics.

For more information, please contact raains@ll.mit.edu

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