
CAMEL: Communicative Agents for “Mind” Exploration of Large Language Model Society

<https://www.camel-ai.org>

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Abstract

The rapid advancement of chat-based language models has led to remarkable progress in complex task-solving. However, their success heavily relies on human input to guide the conversation, which can be challenging and time-consuming. This paper explores the potential of building scalable techniques to facilitate autonomous cooperation among communicative agents, and provides insight into their “cognitive” processes. To address the challenges of achieving autonomous cooperation, we propose a novel communicative agent framework named *role-playing*. Our approach involves using *inception prompting* to guide chat agents toward task completion while maintaining consistency with human intentions. We showcase how *role-playing* can be used to generate conversational data for studying the behaviors and capabilities of a society of agents, providing a valuable resource for investigating conversational language models. In particular, we conduct comprehensive studies on *instruction-following cooperation* in multi-agent settings. Our contributions include introducing a novel communicative agent framework, offering a scalable approach for studying the cooperative behaviors and capabilities of multi-agent systems, and open-sourcing our library to support research on communicative agents and beyond: <https://github.com/camel-ai/camel>.

1 Introduction

“What magical trick makes us intelligent? The trick is that there is no trick. The power of intelligence stems from our vast diversity, not from any single, perfect principle.”

- Marvin Minsky, The Society of Mind, p. 308

Confronted with the complexities of real-world tasks, solving them often requires multiple steps. The rapid progress of chat-based large-scale language models (LLMs) has yielded remarkable achievements in complex task-solving [82, 84, 116, 89, 5, 10, 122, 13]. Nevertheless, it is worth noting that their success is heavily reliant on human input to guide the conversation in the right direction. This reliance necessitates users to provide relevant and precise prompts based on their intentions and the chat agent’s feedback. This can be challenging, time-consuming, and sometimes impossible. Crafting effective prompts often demands a deep understanding and expertise of a particular domain of knowledge. Consider an individual who lacks trading expertise; they would find it difficult to create suitable prompts for directing a chat agent to develop a trading application. This predicament is raising a crucial question: can we replace human intervention with an autonomous communicative agent capable of steering the conversation toward task completion with minimal human supervision? To tackle this issue, it is crucial to conduct more research exploring the potential,

*Equal contribution