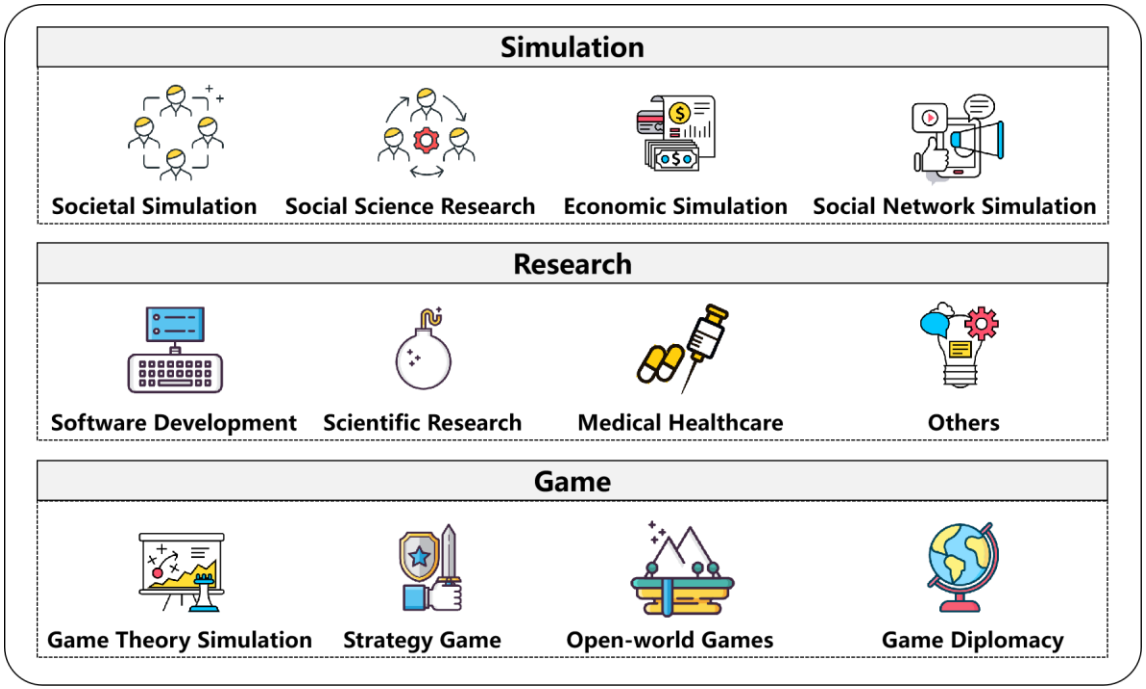
LLM-enabled Multi-Agent Social Interaction, Collaboration and Competition: A Survey

Jingqi Liu, Bin Guo, Yingshan Zhang, Hao Wang, Yahan Pei, Sinuo Zhao, Ying Liu, Yunji Liang, Zhiwen Yu

Frontiers of Computer Science, DOI: 10.1007/s11704-026-51881-8

Problems & Ideas

- Problems of conventional stereo matching approaches:
  - LLM agents still struggle with complex social interaction.
  - Existing surveys overlook collaboration, competition, and social intelligence mechanisms.
  - Social science theories are rarely translated into concrete agent design.
- Ideas: A systematic survey of LLM-enabled multi-agent social interaction is presented, with a unified framework covering agent construction, collaboration, competition, evaluation, and applications.



Main Contributions

- Contributions:
  - We summarize core elements of socially intelligent agents, including cognition, memory, identity, and language-based interaction.
  - We review collaboration and competition mechanisms, covering planning, communication, role allocation, strategic reasoning, and game simulation.
  - We highlight future directions toward cognitive world models and evolving multi-agent societies.

