The Agent Paradox: Can Multi-Agent Systems Replicate the Complexity of Human Cognition and Social Behavior?

Rada Mihalcea
University of Michigan
Ann Arbor, Michigan, United states
mihalcea@umich.edu

ABSTRACT

Recent advancements in multi-agent systems have sparked a rapidly growing research area focused on simulating increasingly complex human behaviors — group consensus, implicit bias, and, in some cases, even cooperation or conflict. Yet, these systems exist in a paradox: they are computational and artificial, entirely lacking the intrinsic consciousness, emotions, and social intuition that define human individuals and societies. In this keynote, I will explore the evolving relationship between AI agents and human behavior, drawing on large-scale generative agent experiments, studies on bias in multi-agent interactions, and insights into misinformation and group behavior. I will also discuss the broader implications of these systems - not only for the future of AI but also for human-centered disciplines such as psychology, sociology, and ethics, where they can challenge or facilitate our understanding of intelligence, agency, and collective decision-making.

KEYWORDS

Agent paradox, Multi-agent systems, Human cognition, Social behavior

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BIOGRAPHY

Rada Mihalcea is the Janice M. Jenkins Professor of Computer Science and Engineering at the University of Michigan and the Director of the Michigan Artificial Intelligence Lab. Her research interests are in computational linguistics, with a focus on lexical semantics, multilingual natural language processing, and computational social sciences. She was a program co-chair for EMNLP 2009 and ACL 2011, and a general chair for NAACL 2015 and *SEM 2019. She is an ACM Fellow, a AAAI Fellow, and a former President of the ACL. She is the recipient of a Sarah Goddard Power award for her contributions to diversity in science, an honorary citizen of her hometown of Cluj-Napoca, Romania, and the recipient of a Presidential Early Career Award for Scientists and Engineers awarded by President Obama.