

Yihan Dong

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Institution: Graduate School of Engineering, The University of Tokyo

Research Keywords

Multi-Agent System, Game Theory, Consensus-Reaching Process, Group Decision-Making, Large Language Model

Career

The University of Tokyo Tokyo

Academic specialist in the Graduate School of Engineering 2026/10 – Present

NEC Research & Development Yokohama, Kanagawa
Internship 2026/08 – 2026/09

Education

Kyoto University Kyoto-shi, Kyoto

PhD in Graduate School of Informatics 2022/10 – 2026/09
Supervisor: Prof. Takayuki Ito

The University of Melbourne Melbourne, Victoria
MA in Graduate School of Engineering 2020/01 – 2021/12

Northeastern University (China) Shenyang, Liaoning Province
BA in Software Engineering 2015/09 – 2019/06

Research Summary

Research Thesis: Consensus-Reaching Process Support with LLM-Based Multi-Agent Systems

Research Summary: My research focuses on establishing a principled framework for LLM-based Multi-Agent Systems (MAS) to support credible and interpretable consensus-reaching. Specifically, it includes the following parts:

Structured Facilitation: Demonstrating practical online deliberation by embedding LLM-based agents into explicit multi-phase workflows.

Explainable Credibility Judgment: Making the results of LLM-based MAS decision-making explainable by designing an aggregation mechanism rather than solely depending on "LLM-as-a-judge".

Fuzzy Preference Elicitation & Consensus Analysis: Bridging linguistic preferences and formal analysis through fuzzy preference elicitation and tolerance-aware judgment.

Cross-Paradigm Evaluation: Formalising the multi-issue negotiation framework for LLM-based MAS to evaluate stability, cost, and fairness across mechanism-governed and prompt-based agents.

Publications

From Consensus Theory to LLM Agents: Practical Consensus-Building for Multi-Issue Negotiation

Yihan Dong, Takayuki Ito

Expert Systems with Applications, 2026.

DOI: <https://doi.org/10.1016/j.eswa.2026.132250>

Multi-agent systems and credibility-based advanced scoring mechanism in fact-checking

Yihan Dong, Takayuki Ito

Scientific Reports, 2026.

DOI: <https://doi.org/10.1038/s41598-026-41862-z>

A Linguistic Negotiation for Consensus-Making among LLM Agents with Fuzzy Utility Functions

Yihan Dong, Takayuki Ito

IEICE Transactions on Information and Systems, 2025.

DOI: <https://doi.org/10.1587/transinf.2025EDP7179>

An Automated Multi-Phase Facilitation Agent Based on LLM

Yihan Dong, Shiyao Ding, Takayuki Ito

IEICE Transactions on Information and Systems, 2023.

DOI: <https://doi.org/10.1587/transinf.2023IHP0011>

The Multi-agent System based on LLM for Online Discussions

Yihan Dong

AAMAS Doctoral Consortium, 2024.

DOI: <https://doi.org/10.65109/joqg4094>

Skills

Programming

Proficient in: Python.

Languages

English (business-level), Japanese (living-level) , Mandarin (mother language)

Awards

Outstanding Research Award

2024/02/21

"LLM-based Multi-agent Fact-checking System for Online Discussions", 18th ICT Innovation of Kyoto University

Funding

Kyoto University Science and Technology Innovation Creation Fellowship

2023/04/01 -

2025/09/30