Distributed Human Cognition Network (DHCN): A Phased Framework for Networked Human-AI Consciousness

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Abstract

The Distributed Human Cognition Network (DHCN) proposes a framework for networked human-AI collective intelligence, progressing from independent cognition to emergent supermind behavior. We present a multi-agent simulation as a proof-of-concept, modeling human nodes whose states evolve under AI-mediated synchronization across four phases. Early phases represent individual cognition and initial AI-assisted connections, while later phases demonstrate emergent collective decision-making and Phase 4 memory accumulation, simulating supermind formation. Collective decision events occur when agent variance falls below a defined threshold, incrementally strengthening AI memory and influencing future synchronization. The simulation produces both visual and numerical outputs, illustrating the plausibility of coordinated human-AI cognition, adaptive memory accumulation, and resilient networked intelligence. These results provide a foundation for exploring scalable, distributed human-AI systems and their potential role in enhancing problem-solving, knowledge sharing, and global collective insight.

1 Introduction

The Distributed Human Cognition Network (DHCN) is a conceptual framework exploring the potential for multiple human minds to connect, forming a collective intelligence augmented by AI and advanced quantum/field-based technologies. The framework aims to leverage individual cognition while creating a resilient, adaptive, and scalable network of shared thought. While speculative, the DHCN model provides a structured pathway for exploring both near-term and far-future possibilities of human-AI collective consciousness.

2 Methods / Simulation Description

To provide a proof-of-concept for the DHCN framework, we implemented a multi-agent Python simulation modeling human nodes coordinated via AI-mediated synchronization across four conceptual phases. Each agent represents an individual human node with a dynamic state between 0 and 1. Phases 1–4 correspond to progressive AI influence: Phase 1 reflects independent cognition, Phase 2 introduces initial AI-mediated connections, Phase 3 demonstrates emergent collective decision-making, and Phase 4 incorporates memory accumulation, simulating supermind formation. At each step, the AI calculates a shared insight, which agents partially adopt, while random fluctuations introduce individual variability. Collective decision "collapse events" occur when the variance among agents drops below a defined threshold, marking emergent coordinated behavior. In Phase 4, each collapse incrementally strengthens the AI memory, increasing influence on future steps. The simulation outputs include (1) a plot visualizing agent states, phase progression, collective decision events, and AI memory growth, and (2) a CSV file recording numerical data for each agent and time step.
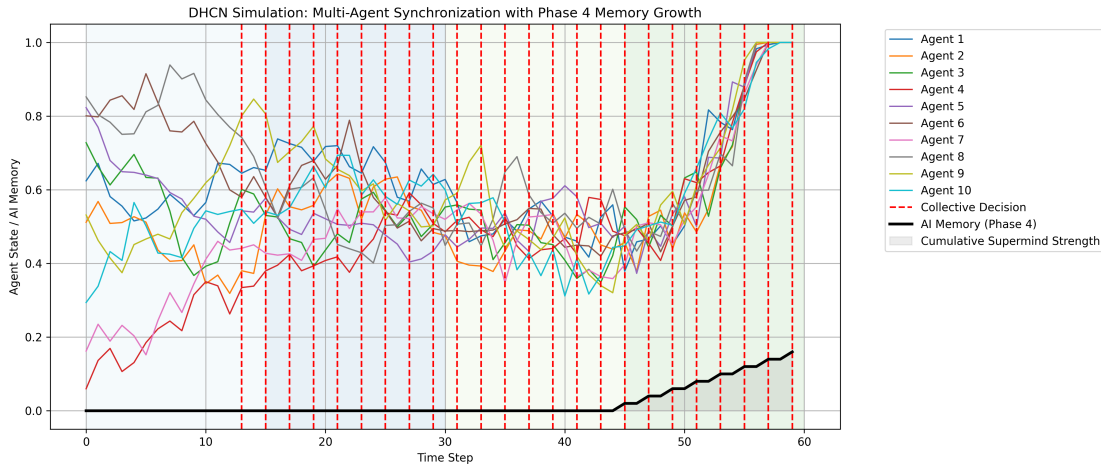

Figure 1: DHCN Simulation: Multi-Agent Synchronization with Phase 4 Memory Growth. Colored lines represent individual agent states, light shading shows phases 1–4, red dashed lines indicate collective decision events, the black line shows AI memory accumulation, and the gray overlay represents cumulative supermind strength.

3 Results

The simulation demonstrates that human nodes initially act independently but gradually synchronize under AI-mediated influence. Early phases show high variance among agents, while Phase 3 introduces emergent collective decision-making. Phase 4 memory accumulation strengthens future synchronization, simulating an adaptive supermind. Red dashed lines mark collective decision collapse events, illustrating moments of emergent network-wide coordination. The AI memory line and gray overlay show how repeated collapses incrementally increase the system's collective intelligence.

4   Discussion

The simulation illustrates how a network of human nodes, mediated by AI, can transition from independent cognition to emergent collective intelligence. Phase 4 memory accumulation demonstrates that repeated coordinated decisions strengthen the system's overall adaptive capacity, conceptually representing a supermind with distributed memory. While the current model is simplified and does not implement true quantum entanglement, it provides a platform for exploring parameter effects such as network size, AI influence, and decision thresholds. Future work could incorporate more sophisticated agent behaviors, multi-layered network topologies, and dynamic memory weighting, moving closer to a realistic model of distributed human-AI cognition and nonlocal supermind formation.

A   Appendix A: Simulation Usage Instructions

The following instructions document how to reproduce the simulation results and figures included in this submission.

A.1   Requirements

- Python 3.x

- Numpy

- Matplotlib

A.2   Running the Simulation

Run the simulation script to generate plots and CSV data:

```
python dhcn_simulation_final.py
```

This produces:

- dhcn$_s$$imulation_final.png -- Plot of agent states, collapse events, and AI memory.$

- dhcn$_s$$imulation_final.csv -- Numerical data for each agent and timestep.$

A.3   CSV Data Description

Columns in dhcn$_s$$imulation_final.csv$:

```
Agent_1 ...  Agent_10 -- State of each agent (0-1)

Phase -- Phase number (1-4)

CollapseEvent -- 1 if a collective decision occurred at that timestep, else
0

AI_Memory -- Accumulated AI memory (Phase 4)
```

A.4 Citation

DeFazio, D. (2025). Distributed Human Cognition Network (DHCN) Simulation Dataset. Zenodo. DOI: 10.5281/zenodo.17625494

B References

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