

Distributed Human Cognition Network (DHCN)

A Phased Framework for Networked Human-AI Cognitive Augmentation

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AI Assistance Disclosure

This framework was conceived, structured, and written entirely by David DeFazio. ChatGPT and Grok (xAI) were used only for formatting, LaTeX conversion, and diagram generation. All core ideas, development phases, and speculative content are original human contributions.

Abstract

The Distributed Human Cognition Network (DHCN) is a conceptual framework exploring the potential for multiple human minds to interconnect, forming a collective intelligence augmented by AI. Drawing inspiration from quantum cognitive models, the framework emphasizes AI-mediated neural synchronization, allowing distributed problem-solving and shared insight while maintaining individual identity. DHCN proposes a phased roadmap from current brain-computer interfaces (BCIs) to large-scale, AI-coordinated networks of cognition. While true quantum mind entanglement remains speculative, AI-mediated synchronization offers a near-term path to enhanced collaborative intelligence.

1 Core Concept

Humans can enhance collective intelligence by leveraging AI as a mediator for neural signal sharing. Individual cognition remains intact, but insights, problem-solving strategies, and patterns can be distributed across networked nodes, creating a scalable, adaptive, and resilient cognitive network.

2 Development Phases

2.1 Phase 1 — Engineered Neural Synchronization (Implant Stage)

- Humans connect via neural implants or advanced BCIs.
- AI interprets, filters, and stabilizes shared neural signals.

- Shared attention, coordination, or simple problem-solving tasks are enabled.
- Focus: Safety, consent, and controlled experimental environments.

2.2 Phase 2 — Wireless Cognitive Networks

- Human-AI connectivity moves beyond implants using noninvasive neural interfaces (EEG, fNIRS, etc.) or future wearable devices.
- AI mediates synchronization between participants over wireless networks.
- Collaboration and shared insight extend across distances.

2.3 Phase 3 — Distributed Collective Intelligence

- AI enables large-scale, multi-node collaboration.
- Individuals maintain personal memory and identity, while insights are synthesized across the network.
- Rapid collective problem-solving and decision support are possible, akin to a “cognitive swarm.”

2.4 Phase 4 — Scalable, Resilient Cognitive Network

- Thousands to millions of humans engage in AI-coordinated networks of cognition.
- Network adapts dynamically to new challenges, distributing expertise and attention.
- Individual identity is preserved; the network functions as a meta-level intelligence.

3 Unified Motivation

Human-AI cognitive networks evolve through:

- **Curiosity** — initial experimentation and exploration
- **Enhancement** — improved cognition and collaboration
- **Resistance/Fear** — ethical, social, and psychological challenges
- **Survival** — networked cognition becomes essential for large-scale problem-solving and adaptation

4 AI Core Functions

- Monitors and interprets neural synchronization events.
- Integrates distributed insights into actionable shared strategies.
- Facilitates collective decision-making while preserving autonomy.
- Uses quantum-inspired models for optimizing network coherence without invoking literal quantum entanglement.

5 DHCN Integrated Visual Overview

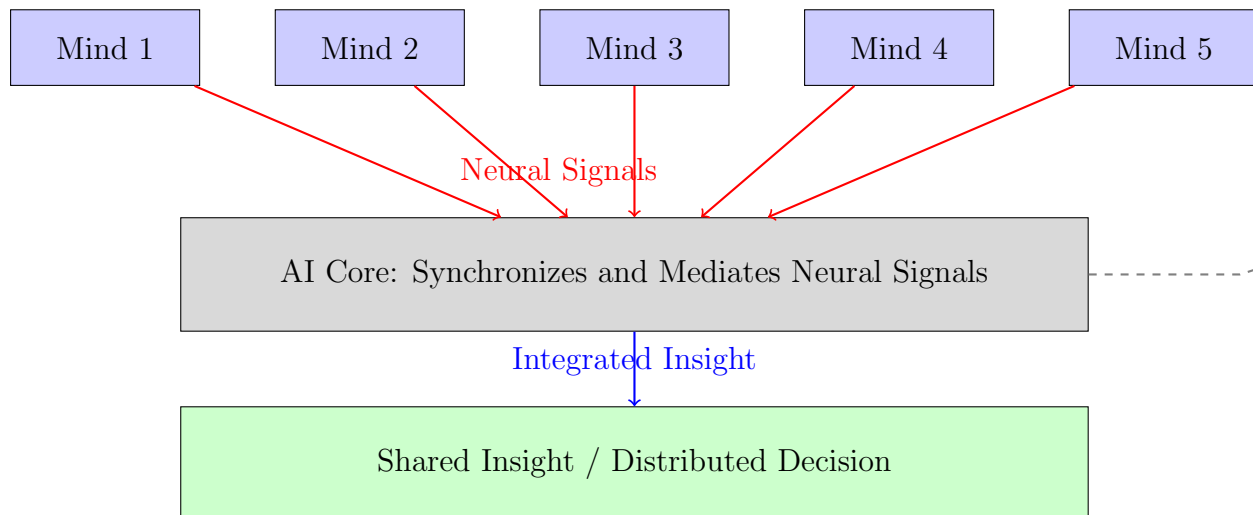


Figure 1: Polished DHCN Visual Overview: AI-mediated neural signals (left) feed into the AI Core, producing shared insight. Right panel shows the phased roadmap.

6 References

1. Penrose, R., & Hameroff, S. (2014). *Consciousness in the Universe*.
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