



Mini-Symposium on Strong Collective Intelligence (MSSCI 2024)

Dates

Program Date: 9:00-10:00 AM, Atlantic Standard Time, Saturday April 06, 2024

Abstract Registration Deadline: March 30, 2024

Overview

This weekly mini-symposium will explore the limits to the problem-solving ability of human groups lacking strong collective Intelligence. These limits to the problems that human groups can reliably define or solve in the absence of "strong collective intelligence" (strong CI), where strong CI is defined as general rather than narrow problem-solving ability at the group level, are critically important to research in Collective Intelligence (CI), as they are accelerating convergence in understanding of the complexity and systems sciences, cybernetics, and a vast range of other disciplines. But despite this importance they are a topic that might be in general be outside the awareness of these communities and the research community in general.

Having general problem-solving ability at the group level, a strong CI is potentially capable of switching between using any narrowly defined problem-solving strategy or algorithm depending on the specific context of each problem, wherever that strategy is most optimal. This contrasts with current CI methods that are narrow or weak in that they are confined to more narrowly defined problems, and must be redesigned to address others, or in that they don't explicitly solve the problems required to identify specific classes of solutions that mimic the strong collective intelligence that occurs in various domains in nature. Taking the domain of cooperation between cells (multicellularity) as an analogy, current CI methods are predicted to be unable to reliably take a multicellular-like approach in distributing and decentralizing all aspects of problem-solving.

As a result, working backwards from networks of interventions that in some cases predict a vast increase in impact on collective outcomes, current approaches to collective intelligence fail to reliably discover and/or select such better solutions. In other words, current approaches to CI fail to solve the problems involved in combining networks of processes, interventions, or other entities in cooperation that creates the capacity for vastly or even exponentially better collective outcomes than might be achieved through solutions that compete for impact on their own. One of these problems is defining the most general model of system functionality that is possible (so-called functional state spaces) in order to allow comparison and convergence in the understanding of any possible methods in the systems and complexity sciences as well as other disciplines. The existence of general problem-solving ability in a strong CI is also separate from its level or magnitude of such general problem-solving ability (its

collective intelligence), which is considered here to be related to the volume and complexity of choices the group is potentially capable of searching through per unit of time in the process of problem-solving. This collective intelligence is also related to the group's ability to sustain that search.

By drawing an analogy between strong CI and the collective intelligence between cells that nature has developed in multicellularity, the limit to the complexity of structures that can be achieved without multicellularity can help us understand the limit to the complexity of problems that can be solved without strong CI. Multicellularity can solve complex problems like vision and cognition, while single-cellularity can only solve simpler problems like creating the kinds of simple structures that slime molds can combine to form.

Any such limits, if they exist, would suggest that while any given idea might be useful in reliably solving a specific group problem, past those limits of complexity, the group will reliably fail to solve that problem with that very same idea. If so, then in order to reliably be successful in executing any such idea, the group needs to increase its strong collective intelligence. In other words, part of an idea is its execution, and an idea being executed by a vastly more intelligent collective intelligence is not only being executed in a way that tries to solve the very different problem of optimizing collective outcomes, but it is also being executed by a vastly more powerful intelligence, and would therefore be expected to have very different outcomes.

Workshop Focus Areas

This workshop on the limits to the general problem-solving ability of human groups (limits to their problem-solving ability that potentially apply to any problem at all) due to their lack of strong CI is open to researchers in any discipline.

Background

Workshop participants may find the following content useful:

- *Limits to the Problem-Solving Ability of Human Group Lacking Strong Collective Intelligence*
<https://youtu.be/YfBNFVA2Dws>

Submission

Those interested in giving a 5 minute lightning talk on the subject of the limits to the problem-solving ability of human groups in the absence of strong CI are welcome to submit a 300 word abstract here <https://easychair.org/cfp/MSSCI2024> Given the early stage of research in this field, perspective talks are welcome.

Registration

Register to attend here <https://www.eventbrite.com/e/mini-symposium-on-strong-collective-intelligence-tickets-861820517367?aff=oddttdtcreator> Attendance for listeners is free up to the cutoff limit of 100 users of Google Meet.