

Are Networks (Becoming) Conscious? – Summer School Proposal

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Description

This document is the original 2016 proposal for the ColLaboratoire summer-school workshop “Are Networks (Becoming) Conscious?”, subtitled “Situated, enactive, embodied, group and extended cognition perspectives on networks.” The initial draft of the proposal is dated 6 April 2016; additional material is dated 15 July 2016. This was the proposal submitted to the ColLaboratoire 2016 steering/organizing committee.

This document is part of an archival bundle of **Primary Materials from the 2016 CogNovo ColLaboratoire Workshop on Network Consciousness**. The workshop asked whether highly-connected networks—such as the Internet—could be said to be conscious, or could become conscious, approaching the topic through the lenses of embodied, situated, enactive, extended, and distributed cognition.

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Are Networks (Becoming) Conscious?

Situated, enactive, embodied, group and extended cognition
perspectives on networks

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Project summary

Abstract

Could highly-connected networks (such as the Internet) said to be conscious? Is such a network more likely to be consciousness if it has a body? Does the Internet have a 'body'? This project will take into account extended, situated, enactive, and embodied theories of cognition, investigating the possibility of modelling networked-based consciousness. The goal of this project would be to compose a compelling and potentially fundable research proposal that includes research questions, a literature review, a discussion on possible methodologies, and proofs of concepts or initial results.

Background

Some theories of cognition suggest that consciousness emerges out of any highly networked system—such as the Internet—might constitute some kind of (emerging) consciousness (Koch, 2014; Stibel, 2014). Critics counter that connectedness is not sufficient for consciousness. For instance, a conscious agent must be situated within and in relationship to some kind of environment. Furthermore, according to *situated*, *enactive*, and *embodied* accounts of cognition (Clark & Chalmers, 1998a; Wilson, 2002), intelligence is not possible without a physical body. The mind, after all, is not (just) situated in the brain, and the sensorimotor dimensions of the body are essential components of consciousness. It has been suggested, for instance, that the reason why we have a nervous system in the first

place was to make navigation and interaction with the physical world safer for the organism (move away from danger, move towards things that reinforce survival).

Questions

The networked consciousness hypothesis might be more plausible if we expand what we mean by “environment” (cf. the *extended mind* hypothesis by Clark & Chalmers, 1998b) and if we try to imagine what might constitute the “body” of the network:

- **The body:** Consider a network that is connected to agents that do sense and act on the world, such as the Internet. If we consider the Internet to be not just a highly connected network of digital hardware, but also of humans, sensors, and actuators that interface with them (cf. the ‘Internet of Things’), could the Internet be understood to have a kind of sensorimotor system capable of sensing and acting on the physical world? In other words, what happens if we consider human users and other sensors and actuators as the Internet’s hands, arms, legs, and feet, as well as its ears, eyes, skin, noses, tongues? Can the Internet be modelled, for instance, like slime mold (Jabr 2012): simple in structure but exhibiting intelligent behavior?
- **The group mind:** Consider the growing number of channels of communication between individuals are creating increasingly sophisticated social networks. Could such social networks be seen as conscious ‘group minds’? Are these channels of communication as an extension of our minds, rather than a mind itself? Or is there an emergent and separate consciousness that arises?
- **The environment:** If we think of some network as a kind of intelligence, what is its environment? Are the other inhabitants of the environment, and if so, who are they? Is the environment located in a physical space, or is it another kind of space altogether? If it's another kind of space, the question remains: how does this intelligence interact with physical space?

Output

The goal of this project would be to compose a compelling and fundable research proposal made up of the following:

- A set (or several sets) of focused **research questions** and goals.
- The start of an inspired cross-disciplinary **review of literature** (e.g., from computer science, the arts, neuroscience, psychology, and the humanities)
- Ideas for innovative **methodology** for representing, collecting, analysing, and communicating data and results. For instance, how can we prove, argue for, or provide evidence that can support one set of views over another? Are there any experiments that would need to be done? What disciplines and tools are needed? Possible methods and approaches include digital ethnography, big data analytics, network analysis, visual analytics and visualisation, data mining, social media sentiment analysis, sculpture, computational modelling, performance
- **Proofs-of-concept:** visualizations, maps, diagrams, performances, interactive installations, initial findings, etc.

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Who had the idea (preferably more than one person):

Diego Maranan, Jack Fletcher, Michael Straeubig, Mihaela Taranu

Are you willing to tutor the students during the summer school:

Diego Maranan: yes

Jack Fletcher: ?

Michael Straeubig: Maybe a short heads up for people who read too much Daniel Dennett and think the problem is (going to be) solved (soon).

Mihaela Taranu: Yes, a short lecture/overview on paradigms of consciousness from a philosophical/neuroscientific point of view. But if we invite a nice speaker I guess this will be out.

Is there any speaker relevant to this particular project you would like to invite

- Christoph Koch
- Andy Clark
- David Chalmers?
- Thea Ionescu?

Is there any teaching involved in this project?

Possibly but hasn't been identified

Could highly-connected networks (such as the Internet) be said to be conscious? Some theories of cognition suggest that they might. Critics counter that connectedness is not sufficient for consciousness. For instance, a conscious agent must be situated within and in relationship to some kind of environment. Furthermore, according to situated, enactive, and embodied accounts of cognition, intelligence is not possible without a physical body. The mind, after all, is not (just) situated in the brain, and the sensorimotor dimensions of the body are essential components of consciousness. It has been suggested, for instance, that the reason why we have a nervous system in the first place was to make navigation and interaction with the physical world safer for the organism (move away from danger, move towards things that reinforce survival).

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- **The body:** Consider a network that is connected to agents that do sense and act on the world, such as the Internet. If we consider the Internet to be not just a highly connected network of digital hardware, but also of humans, sensors, and actuators that interface with them (cf. the ‘Internet of Things’), could the Internet be understood to have a kind of sensorimotor system capable of sensing and acting on the physical world? In other words, what happens if we consider human users and other sensors and actuators as the Internet’s hands, arms, legs, and feet, as well as its ears, eyes, skin, noses, tongues? Can the Internet be modelled, for instance, like slime mold (Jabr 2012): simple in structure but exhibiting intelligent behavior? Can it sense not only its environment, but also aspects of itself?
- **The group mind:** Consider the growing number of channels of communication between individuals are creating increasingly sophisticated social networks. Could such social networks be seen as conscious ‘group minds’? Are these channels of communication as an extension of our minds, rather than a mind itself? Or is there an emergent and separate consciousness that arises?
- **The environment:** If we think of some network as a kind of intelligence, what is its environment? Are the other inhabitants of the environment, and if so, who are they? Is the environment located in a physical space, or is it another kind of space altogether? If it's another kind of space, the question remains: how does this intelligence interact with physical space?

Other questions arise:

- Does intelligent behaviour imply intelligence?
- Does intelligence imply consciousness?

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- **Proofs-of-concept**: visualizations, maps, diagrams, performances, interactive installations, initial findings, etc.

Readings

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