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Why a Future-Oriented Information Science Discipline Should Embrace an "Animal Turn" (Paper)

Abstract or Résumé:

Traditionally, the focus of information behavior research has been on information needs conceptualized exclusively from a human point of view, i.e. grounded in the way humans perceive their *Umwelt*. In this conceptual paper, we argue that the information science discipline would benefit from better understanding how select nonhuman animals, whose environments our design activities transform, perceive their environments. Broadening our understanding thereof would also help us better understand the strengths and limitations of our own ways of perceiving, which has shown to be valuable when researching our own (human) information behavior.

1. Introduction

Human centered design approaches have repeatedly shown to be the most reliable ways to account for the various ways of how people engage with their surroundings aka Umwelt (von Uexküll 2013; Caves et al 2019), regardless of whether it is design for work or leisure purposes. Respective design approaches are also best placed to account for specific bodily and cognitive characteristics related to how people perceive their Umwelt, and how they prefer to engage (e.g., Hendren 2020).

The problem with human centered design approaches, as appropriate as they appear to be for meeting the needs of the human species, is that they are humancentric. Even though human lives are and have always been entangled with numerous non-human beings (no matter how technologically advanced a human society is) these design approaches are consistently geared for and toward human needs over the needs of other creatures. Given that human activity is transforming the planet, often to the detriment of ecosystems and species-including the human species, respective approaches are increasingly considered untenable in the age of Anthropocene (Clarke et al 2019, Tomitsch et al 2021, Sheikh et al 2023).

This brings up the following question: Given that the Library and Information Science discipline (LIS) is deeply involved in many design activities in ways that range from library specific designs to information visualizations and information distribution processes, to what extent should LIS look beyond its traditionally human centered focus to include, where appropriate, non-human animal perspectives. It may seem like a big step for the discipline, but we would

argue that what might be conceptualized as an 'animal turn' would actually be a relatively small step beyond the embodied turn (Hartel 2019).

Embracing what might be conceptualized as 'animal turn' means reflecting on the fact that human beings are equipped with sensory organs that support specific ways of sensing select aspects of the world while other animals are equipped with their own specific senses that at times are vastly different to human senses (e.g., Moore 2019, Yong 2022). Those senses allow nonhuman animals to sense specific aspects of our shared world as they are relevant to them (von Uexküll 2013). The aspects of the world that those animals can sense may or may not overlap with what we are able to sense but regardless of whether we understand these differences, our designs have an impact on their Umwelten.

Recognizing these perceptual differences does not require or even suggest that LIS researchers and practitioners need to learn how to handle animals to better understand their specific animal perspectives. Librarians may claim that they are herding cats when dealing with patrons, but they are not actual cats. Rather, the argument is that recognizing these perceptual differences helps designers better understand the often-hidden impact of design activities on other species that perceive their Umwelten in ways that are different to ours.

More specifically, LIS research would benefit from understanding non-human ways of perceiving in at least three ways:
1. Research in (human) information behavior will benefit from understanding how select nonhuman animals sense their respective Umwelten as this will emphasize often unacknowledged diversity in human bodily and sensory configurations which influence human information behavior (Lueg 2014).
2. It will afford LIS an opportunity to grow beyond supporting the traditional areas of LIS expertise (Hartel 2018) by helping people embrace different perspectives, which include non-human perspectives, associated livelihoods, and how they are impacted by human centric designs. As such, LIS will be better positioned to respond to, and make stronger and impactful contributions to, the urgent calls for help with global level change that is caused and driven by human activity (Anthropocene).
3. LIS will be encouraged to deepen discussions regarding the nature of information which is at the heart of the discipline since "[w]e are unable to say confidently of anything that it could not be information." (Buckland 1991, p50) Does the emergence of information from representations thereof ("what is a document?") require human thought or is being alive sufficient? How could we tell? And what does that mean for the study of information as a phenomenon? The discourse is not entirely new for LIS; see Bates's (2018) discussion of embodied information and LIS research that includes nonhuman animals as subjects (e.g. Solhjoo et al 2022).

The question is what role the LIS discipline can play in addressing the fact that human centered design approaches put human preferences and needs over the needs of other creatures. Key LIS strengths are related to recorded knowledge (Hartel 2018), human information behavior, and making information available in various ways e.g. via digital libraries. Helping designers, including architects and urban designers, understand how their work might be seen through the eyes of other species (that are likely to be impacted by their work) is one, perhaps unusual, way of making recorded scientific knowledge related to animal perception available in such ways that it makes sense to people working on such design projects. The point becomes tangible when we consider that birds have difficulty recognizing glass window fronts as the deadly obstacles. It is estimated that in the United States alone, up to one billion birds die annually from glass collisions. Reading about glass fronts being death traps for birds is one thing but being able to "see" with one's own eyes the difficulty that birds have might lead to actual change.

While it isn't what we traditionally understand as a digital library in LIS, there is no reason why we couldn't imagine a digital library of animal perspectives or ViewSonas (Lueg 2023a) which have been proposed as an alternative to 'flat' animal personas in design projects. All of this is naturally limited to species where there is sufficient recorded scientific knowledge to do so and where we have meaningful ways of mapping animal ways of sensing to what humans can perceive (Lueg 2023b).

This certainly may sound a bit like science fiction but Vasa et al (2024) demonstrate just how far scientists and filmmakers have come in depicting the perceptual worlds of nonhuman animals since Jevbratt (2009) presented ZooMorph, an artwork that featured select color adjusted images to show how landscapes might be seen by select animals.

Conclusion
The argument in this conceptual paper is that LIS can no longer ignore that humans are equipped with sensory organs that support very specific ways of experiencing and learning about certain aspects of the world that surrounds human and non-human animals alike. Similarly, other animals are also equipped with often vastly different senses that allow them to experience select aspects of our shared world as relevant to them. The aspects of the world that these animals can sense may or may not overlap with what we are able to sense but regardless, our designs impact their livelihoods. As a discipline, if we shift our perspective on sensing and perceiving, LIS can make contributions that address how human centric design impacts other species in the Anthropocene and how that complements work in cognate disciplines which include disciplines as diverse as urban design (Sheikh et al., 2023; Tomitsch et al., 2021) and animal studies (e.g. Weil, 2012; Desmond, 2016; Lupton, 2023).

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