ZooMorph – enabling Interspecies Collaboration

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[Please see illustrations at: http://jevbratt.com/writing/ISEA_2009/]

In this paper, I use my software-art project ZooMorph[1] (in progress) as a starting point for briefly discussing innovative collaborative models, anthropocentrism and anthropomorphism and conflicting epistemological paradigms in art, science and non-western traditions.

ZooMorph

ZooMorph consists of image and video filters that create simulations of how a large selection of non-human animals see; generating pictures that help us experience the world through the eyes of another species. The filters are used in PhotoShop and video software such as Final Cut Pro, in an online Flickr based interface, and as an augmented reality application in smart phones such as the iPhone. When a ZooMorph filter is applied to an image it changes its hue, sharpness, brightness, contrast and other aspects, to provide an estimation of what the selected species see. Several aspects of vision are simulated including colour vision, light sensitivity and acuity. The project wants to make its users/audience acutely aware and respectful of the ever-presence of a multitude of parallel experiences of the world.

New collaborative methods – Species Collaboration

The project is utilising a fairly new type of collaborative structure and more importantly, it was conceived of as a result of what these types of collaborations have thought us. It is a software tool, joining people in a large-scale collaboration, functioning as art in a similar ways as projects such as *Carnivore*[2] by RSG or *Processing*[3] (if the whole enterprise is considered an art project in itself) and my own project the *Infome Imager*[4]. These are all examples of what I like to call "species collaborations" – non-explicit collaborations that are typically non-hierarchical, to some degree self-organising, in which we participate more or less unintentionally. Other examples of such collaborations are collaborative information filtering a la amazon.com, open-source software development, and of course the Internet itself.

In *species collaborations* it is not our individual contributions that matters but what we can all accomplish together. The focus is shifting away from the individual to us as a collective, as a species. In fact, a serendipitous effect of the technologies we are developing might be that we start to re-

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[1] http://zoomorph.org
[2] http://r-s-g.org/carnivore/
[3] http://processing.org
[4] http://infome.net

evaluate our self assigned centre-position in the universe realising that we are just one species amongst many, with no more right to run the world than any other. We might be witnessing the beginning of the end of the anthropocentric era.

Interspecies Collaboration

A couple of years ago my work with *species collaborations* led me to seriously question the human on top paradigm and one day the words "Interspecies Collaboration" popped into my head. Every time I turned on the news there seemed to be a story about animals of different species helping each other out. There where news about pets helping their humans out of accidents, the beautiful story about the hundred years old tortoise who "adopted" a baby hippo orphaned in the 2004 tsunami[5], and endless accounts of interspecies nursing. There is an overwhelming amount of anecdotal evidence for interspecies altruism and new scientific research is starting to corroborate those anecdotes – a current study with chimpanzee toddlers indicates that they <u>do</u> harbour something akin to interspecies altruism (Warneken and Tomasello 1301-1303). Could this willingness to support each other across species barriers be formalised into collaborations? Could we be working on scientific or artistic projects <u>together</u> with other species? The gain could be tremendous. Imagine what we could learn about the world by experiencing it with or through a completely different species.

I started to explore *interspecies collaboration* with my students in the Art Department at University of California Santa Barbara. One of the first questions that came up was: how can we collaborate with someone whose intention and agenda is not known? How do we conduct artistic research together with someone whose experiences, sensations and knowledge cannot be understood? However, as the many successful examples of <u>*species* collaborations</u> have shown us, sharing a common agenda is not important for a successful collaboration. Nor does one have to know or understand the intention of ones collaborators. The more important question is: what are the mechanisms that make such non-explicit collaborations possible? And how can we utilise them for <u>*interspecies* collaborations</u>? One option is to set up a structure, a rule system, like an Internet protocol such as IP or HTTP, that allows people create parts that generates a seamless, yet heterogeneous, whole (such as the Internet or the Web). Another is to set up an environment where two or more different "Umwelten" are overlapped. "Umwelt" is a German word used by the biologist Jakob von Uexküll (1864-1944) to signify the specific physical, emotional and semiotic environment an individual (of any species) live in and through. One can think of the *Umwelten* as grids, which when overlapped create an interference pattern – that is, a new set of shapes not part of any of the separate *Umwelten* but something that is created through the co-existence of the two. In these collaborations the participants are not following a common protocol, but rather developing a protocol together as they go along.

Examples of such collaborations are more difficult to recognise than the protocol kind. One student, Laura Hyatt, re-contextualised walking her dog as art. Her *Umwelt* included knowledge of the artists Richard Long's walking as art and the *derives* of the Situationists, and she experienced her walks

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[5] In the news: http://news.bbc.co.uk/1/hi/world/africa/4152447.stm (last checked June 2009)

through a filter created by that knowledge. The dog, Dru, sees and experiences the walk from her dog perspective, enjoying the smells of other animals, pondering picking up a stick and the enjoyment of being close with her favourite person. Through the overlap of these two different *Umwelten* slowly something started to emerge. There are outward signs of this change, the walks became longer and maybe Dru is taking on the lead more often. But the most important change is difficult to quantify, it is in the interpersonal protocol that emerges between the two of them. Something experienced only by them, but potentially transmitted through the photographs Laura took during the walks.

What do you see?

While non-explicit collaborations offers a way of working together with others without understanding them or knowing their intention, it became obvious in my classes that some degree of insight into the *Umwelten* of our collaborators is helpful. Being visual artists, a question that often arose in class was: how do they see? And I started to look at the animals around me wondering the same thing. After "googling" things such as "animal vision simulator" for a couple of hours I realised that there were no such thing (at least accessible for laypeople), and that I would have to make it myself. So I started to research what is known and what can be known about animal vision from a scientific perspective.

Let us deal with the elephant in the middle of the room right away; how would it in any way be possible to experience how another animal see? Actually the elephant might be more of a lion, Ludwig Wittgenstein's lion to be more precise, lurking in the room. Wittgenstein's famous statement "If a lion could talk, we could not understand him" (Wittgenstein 1953: 223) is often quoted to summarize a commonly held sentiment; non-human animals are so profoundly different from us that every attempt to understand their experience is futile, a physical and philosophical impossibility (even if they told us about it in plain English!). But the question is: are we that different? And what do we have to gain and/or lose from maintaining that there is such a difference?

Anthropodenial

Anthropomorphism – assigning/acknowledging shared characteristics in humans and animals, is a term uttered with disdain in scientific contexts. It is seen as error of sentimentality that makes (objective) research impossible. But this resistance to acknowledge non-human animals as persons, with feelings and needs, is quite puzzling.

There is a great paradox in the scientific relationship to anthropomorphism. It goes like this: research on animals is possible/ethical because we are <u>not</u> similar; they do not experience the pain, anxiety, stress that we do. Meanwhile, research with/on animals is useful since we can infer things about <u>us</u>, humans, from the research we make on animals. It works because we <u>are</u> similar.

To open up a discussion about the anthropomorphic taboo of science, the ethologist Frans de Waal (Professor of Primate Behaviour at the Emory University in Atlanta, GA), introduces the term

anthropodenial, he writes: "I propose 'anthropodenial' for the a priori rejection of shared characteristics between humans and animals when in fact they may exist. Those who are in anthropodenial try to build a brick wall between themselves and other animals. They carry on the tradition of French philosopher René Descartes, who declared that while humans possessed souls, animals were mere machines. Inspired by the pervasive human-animal dualism of the Judeo-Christian tradition, this view has no parallel in other religions or cultures". (2001: 69)

The term *Anthropomorphism* was originally used in Judeo Christian theology as a condemnation of assigning human features to gods, an act of pagan blasphemy (Daston & Mitman 2005: 2). It is ironic that the Judeo-Christian belief system is allowed to dictate how science sees non-human animals. As Elliot Sober argues, from an evolutionary perspective it is actually more reasonable to assume that similar behaviour in species with a common heritage stems from similar reasons. In the terminology of evolutionary biology it is a more "parsimonious" assumption (Sober 2005: 85).

ZooMorph makes the assumption that similarities in morphology and/or behaviour is a sign of a similarity in sensation. And by acknowledging these similarities we have a ground to stand on for exploring potentially profound differences in our experience of the world. The lion <u>can</u> speak and it is interesting and important to listen, exactly because we don't understand what he is saying.

Overlapping Magisteria

There is a vast amount of research being done on animal vision. Scientists study their colour perception, acuity light sensitivity and other aspects using devices such as electroretinograms[6], behavioural studies, dissection and genetics. Still, there seems to be a reluctance to use this knowledge to create simulations. It is not that they don't think they know how animals see. Rather, simulating how someone sees implicates a someone, a subject who does the seeing, and in the anthropodenying framework of science, that is difficult to grapple with. I believe that vision researchers are aware of this problem, one scientist told me that making these simulations was worthwhile as an art project, but not as a scientific endeavour. And that makes sense; artists are trained to investigate subjective experiences systematically and with the same rigour as the scientists explore what they believe to be an objective reality.

In response to scientists struggle with subjectivity, I decided to expand the scope of the project to include non-scientific experts on animals' subjective experiences. De Waal mentions how the western Judeo-Christian conception of animals has no parallel in other cultures. In shamanic cultures, historical and contemporary, the concept of personhood does not end with humans. All animals are persons, with a soul and a full range of complex emotions and sensations. Within this paradigm the idea of a simulation claiming that an animal sees this or that, is not far fetched. Many shamanistic traditions involve practices in which the shaman becomes an animal in order to see the world through

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[6] A contact lens electrode placed on the eye is measuring the electrical activity of the retina in response to light of various wavelengths, revealing the color sensitivity of the cone pigments on the retina.

their eyes and teach the tribe what he/she learns about the world. The transition from human to animal takes place in trance states induced by dancing, drumming or hallucinogenic plants (Eliade 1972). ZooMorph will also consult with (telepathic) animal communicators who can ask animals how they see and people who say they can intuit what animals experience (such as the autistic author Temple Grandin).

Through the addition of these non-scientific methods, the project very consciously enters into a discussion about the fundamental differences between two worldviews and epistemologies, the scientific and the (for lack of a better term) spiritual. It wants to find a way to seamlessly incorporate these two streams of knowledge, and make them speak together. Stephen Jay Gould tries to solve the conflict between scientific and religious/spiritual conceptions of the world with the idea of *Nonoverlapping Magisteria* (NOMA) (Gould 1997: 16-22), stating that religion and science are not teachings of the same kind, that they do not speak about the same things and are thus not in conflict. This position seems to make sense, primarily because it helps people and cultures with contradictory commitments and views to coexist. However, religion and science might not in reality deal with different "magisteria", and if we pretend they do, we miss out on an opportunity for each of them to expand and metamorphose.

ZooMorph is utilising methods from two very different paradigms for a specific research goal – understanding how animals see – while examining and discussing the inherent discrepancy between these methods. It is doing so not by analysing and comparing them but by forcing them to overlap. This is not an easy task. From a scientist's point of view, ZooMorph is applying scientific research too literary, it is claiming too much, and it is bypassing the anthropodenying impulse of the scientists. And in the same time ZooMorph is attempting to capture and quantify the experience of connection and personhood of shamanistic practitioners and animal communicators, and one could argue that by doing so it is diluting and dishonouring their methods, maybe to the point where they become useless. The project creates a head-on clash of two profoundly different world-views. However artists don't shy away from messy and irreverent explorations. More importantly, art is inherently investigating the very methods it is using (that might be the core purpose of art as research). Having a built-in methodological conflict as a starting point creates a very fruitful foundation to work from.

Conclusion

ZooMorph is taking advantage of a specific moment in time when our technologies have serendipitously removed us from our self-proclaimed centre-position in the world. The Internet and the web have led the way for new non-explicit ways to collaborate, allowing us to invite our non-human fellows to work and learn together. Using the knowledge and methodologies from science, traditional/spiritual practices and art, ZooMorph is a tool conceived to further these interspecies collaborations. It wants to make us aware of, and facilitate, an intellectual, emotional and spiritual partnership with the species around us in the quest for a sustainable environment for all of us to thrive within.

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[7]Video clips from the study: http://email.eva.mpg.de/%7Ewarneken/video.htm#helping_study (last checked June. 2009)