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Exploring the Pluriverse: Fictioning, Science and Interspecies Communication

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Exploring the Pluriverse: Fictioning, Science and Interspecies Communication

by Stephanie Moran and Maggie Roberts



About the Artists

Stephanie Moran is an Associate Partner at Etic Lab, with an MFA in fine art from Goldsmiths, University of London, and a previous career producing national and international projects in art and libraries. Currently an AHRC-funded PhD candidate at Plymouth University's Transtechnology Research. Etic Lab LLP is a design and technology research consultancy based in mid-Wales, with expertise in developing new forms of AI. They work across industry sectors on commercial, artistic and government-funded projects.

Maggie Roberts, co-founder of Orphan Drift, with an MFA in Fine Art from the Royal College of Art, London, currently teaches Critical Studies at University of the Arts, London and is an internationally established artist. Orphan Drift explores the boundaries of human and machine vision in an art practice that imagines into worldviews that are non-human in perspective. Recent exhibitions include *Becoming Octopus* (2020), *If AI were Cephalopod* (Artforum Critic's Choice, 2019), *Matter Fictions* (2016).

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Stephanie Moran and Maggie Roberts

The tentacular ones tangle me in SF. Their many appendages make string figures; they entwine me in the poiesis—the making—of speculative fabulation, science fiction, science fact, speculative feminism, so in de ficelle, so far. The tentacular ones make attachments and detachments; they make cuts and knots; they make a difference; they weave paths and consequences but not determinisms; they are both open and knotted in some ways and not others The tentacular are not disembodied figures; they are cnidarians, spiders, fingery beings like humans and raccoons, squid, jellyfish, neural extravaganzas, fibrous entities, flagellated beings, myofibril braids, matted and felted microbial and fungal tangles, probing creepers, swelling roots, reaching and climbing tendrilled ones. The tentacular are also nets and networks, IT critters, in and out of clouds.

—Donna Haraway

We have been researching ISCRI for about two years now, as a kind of super-collaboration across two very different existing collaborative organizations, *Orphan Drift* and *Etic Lab*. *Orphan Drift* (OD) is a long-running collaborative artist (in that there is a methodology, aesthetics, and strategy that assimilates individual skills and perspectives to produce its diverse forms, attracting artists, thinkers, musicians, performers, activists—and more recently, coders and computational artists to join core members, depending on the exigencies of the time). *Etic Lab* is a digital research consultancy that develops new technologies with an emphasis on understanding their social and systemic impact, designing for the democratic use of data.

This project began as a series of conversations between Maggie Roberts and *Etic Lab*, exploring the idea of communicating with an octopus. For Stephanie Moran, the project developed out of a shared interest in the implications of multispecies kinship for inhabiting the world differently. She thinks they were all (OD and *Etic Lab*) inspired by Donna Haraway—first, the *Cyborg Manifesto*, and then *Staying with the Trouble*, as well as a

love of sci-fi and a particular cyberpunk aesthetic. But *Staying with the Trouble* was where the seed of ISCRI originated. Donna Haraway's work was key to the beginning of Moran's Ph.D. project, which began as a kind of fan fiction of Haraway's *Children of Compost* narrative, though she was much more interested in the ways a symbiotic being would phenomenally experience the world differently than in the myth-function of Haraway's stories.

For Roberts who has been exploring perceptual fields outside of the human spectrum throughout her career, imagining into how sentience alien to our own might "see," ISCRI is an opportunity to manifest rather than just imagine alternative futures and perhaps evolve what it means to be human in the process. For her, too, reading Haraway's *Staying with the Trouble* was a pivotal moment in that Haraway was demanding that imagination be harnessed, together with focused research, into producing and making actual scenarios that could make a difference, heal, have agency, and contribute to resisting the Capitalocene's ecocidal agendas (Haraway 2016). Haraway talks about collectivity and about speculative investigations that become propositions which become paradigm shifts. Roberts explains that *Orphan Drift* has always considered subjectivity as a site of experiment and tried to blur the relationship between self and other. Recent work such as *If AI were Cephalopod* (2019) or the *Becoming Octopus Meditations* (2020) both explore a communication of some sort between the synthetic distributed consciousness of an AI and the organic 9 brained version embodied by an octopus. Roberts found herself wondering what conceptual and perceptual tools we'd need to develop in order to engage with such expanded kinds of being.

For ISCRI, the focus is on interspecies communication, thinking beyond human ideas about what constitutes language. In the course of our research, we have had to address human exceptionalist assumptions about language. In the minds of many, language is a) unique to humans, b) a sound or text, and c) unambiguous concerning semantics. We would disagree with all of these conventions. In this we approach the concerns of the issue, "Making Peace with the Earth: The Diplomatic Turn," that a new form of diplomacy "will require procedures, statements, protocols, agreements, ceremonies, and rituals that may not yet exist" ("Call for Papers" 2021). We are designing protocols for a new kind of encounter. Our aim has been to design an encounter that does not rely on human assumptions about language, communication, intelligence.

This project diverges from a more traditional scientific model that would present our own assumptions in what and how it is testing. Other attempts to communicate with alien intelligences, such as METI (Messaging Extraterrestrial Intelligence) which is an

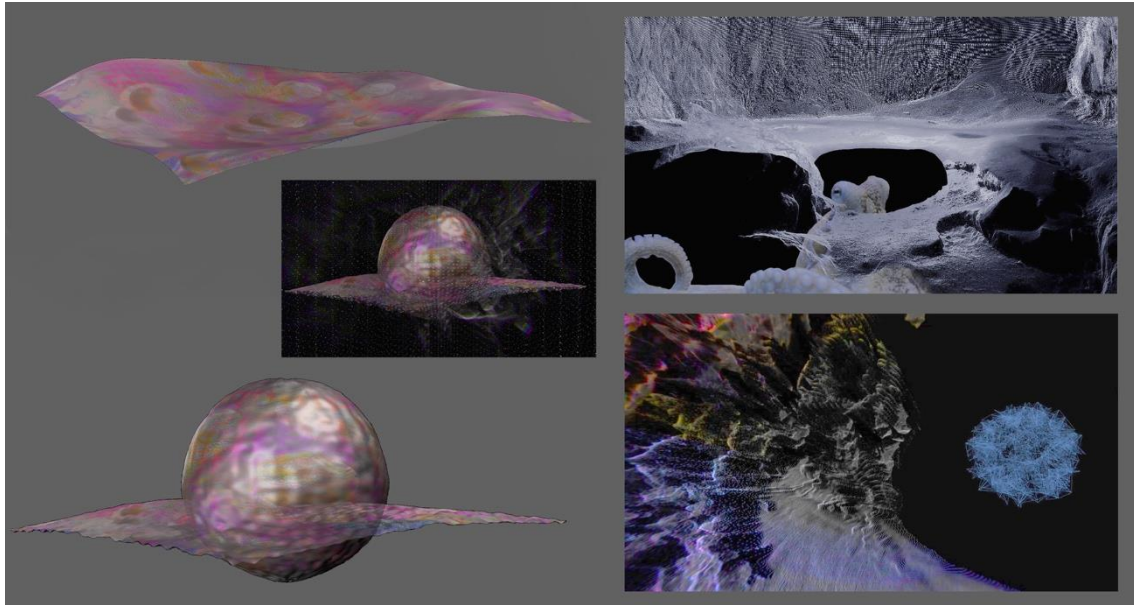


Figure 1. Roberts, Maggie, *Orphan Drift* (LIDAR Scans by Jason Stapleton and VFX Supervision by Bagshaw, Megan). Studies in Octopus Distributed Consciousness and Tactile Perception, *The Becoming Octopus Meditations*, 2020.

offshoot of the SETI project (Search for Extraterrestrial Intelligence), make reductionist assumptions about other intelligent life-forms. METI's attempts to communicate with extraterrestrials include beaming messages in a series of complex xenolanguages constructed by mathematicians that very few humans would be able to decipher, even if they understood it as an attempt to communicate and felt moved to try.

ISCRI will make art for a distributed intelligence (an octopus) that does not prioritize vision-led perception (in the way a human does) but interprets the world through 360-degree touch, shifting light and dark, water pressure, and chemotactile information. We wish to construct a system that invites the octopus to communicate with us, should it wish to, through the mediation of the environment.

By communication, we mean a response to our aesthetic provocations that could be interpreted as such. We do not wish to make any assumptions about the octopus's desire to communicate, how it may communicate, or whether we can produce a communication through its environment that the octopus can extract meaning from. We do not know how a video and stream and designed interactive objects might be perceived, understood, or interpreted by an octopus, if at all (although a reputation in the Common Octopus for play and great curiosity, together with films, such as *Octopus in My House* (2019), suggest that it is very likely). There will be limitations, in part delineated by our limited capacity to understand. What our system can do is to show where these limitations exist; they can determine whether our questions are ones we can ask.



Figure 2. Roberts, Maggie (VFX Supervision by Bagshaw, Megan). Studies in Octopus polarized color perception, *The Becoming Octopus Meditations*, 2020, and ISCRI, 2021.

We may learn to think differently, to communicate by offering streams of pattern, color, and shape that we can attach no meaning to, and respond to any octopi's interest by producing variations on the content it engages with. We will have to become sensitive to abstract inconclusive forms of interaction. Rhythm, intensity, multiplicity, incoherence, no central focus, color as emotion, pattern recognition, reflection, camouflage, mimicry, and fluid motion—all these are already forms of communication outside of Western human systems of language and representation. Through focused research into octopi's behavior, gleaned through both marine biology research and working closely with an interspecies communicator, we are trying to produce content for the videos that dismantles the human centric assumptions described by perspective,

figuring ground relations and image recognizability. Rather, we will try to engage the octopus with flows and moments of emphasis in pattern, color, and abstract shape, constructing 8 (armed) simultaneous viewpoints.

We are developing image content with computational artists because animation has become key to manifesting experimental, part-synthetic nonhuman worlds. Digital animation is a tool for developing perceptual and aesthetic languages that no longer



Figure 3. Roberts, Maggie (VFX Supervision by Bagshaw, Megan). Octopus 8 (armed) simultaneous viewpoint prototype, imagined as a headset through which Octopus and AI communicate, *The Becoming Octopus Meditations*, 2020.

privilege the human and move away from the recognizable towards the unknown. It is expansive and questions subjectivity, gender, reality, and materiality. Animation can model new ways to negotiate the in between of worlds, opening up possible bodies, spaces, and temporalities. What we do not know that it is a generative space. Thinking about the lifeworlds produced by different species' perceptual systems interacting with their environment, media historian Deborah Levitt states:

the focus here is on the interactions among the material structures of image production, the set of cultural assumptions and epistemologies that frame and structure the modes of experience and forms of life generated at the intersection of materialities of communication and perception . . . it is precisely here that we find new forms of life and modes of vitality emerging. (2018, 5)



Figure 4. Roberts, Maggie (VFX Supervision by Bagshaw, Megan, visual coding by Paterson, Duncan). Octopus 360-degree vision and coded Octopus skin pattern animation, *The Becoming Octopus Meditations*, 2020.

Philosopher Eva Meijer proposes Wittgenstein's theory of private language, and specifically his concept of language games, as a means of thinking nonhuman animal language to get beyond the privileging of human language as the only form of communication that anchors meaning. She refers to his argument that language is always social and contextual:

the way in which language works and its interconnection to social practice means that we can never give a universal definition of language, we should instead investigate the meaning of different language games by examining how and where they are used. (2019, 6)

ISCRI assumes that directly communicating with an octopus is best undertaken by a third (vastly limited) intelligence, the AI artefact. The role of the humans in this approach is limited to devising the situation and engaging with the process and results. An AI will learn by considering data gathered by various motion, pressure, color spectrum change, audio, and temperature sensors that monitor the octopus in its artwork environment. The artwork's video content will be modified by the AI as it develops, which should in turn mediate the octopus's responses and feed these back into its own learning patterns. This process will, over time, produce visual material that both articulates and responds to an octopus in its liquid environment, and will not, we assume, reproduce a human centric aesthetic. We hope that the AI might communicate with the octopus in ways we cannot recognize.



Figure 5. Roberts, Maggie. *ISCRI Mesocosm Artwork* visualization, 2021.

We propose to use a new form of machine learning (ML) called reinforcement learning, which is not goal oriented. This means its development is determined by its learning rather than being trained on a desired end result (such as pictures of cats), or datasets that contain human assumptions and biases. The use of reinforcement learning to develop an AI will afford the emergence of new behaviors; it will produce behaviors that have not been directly derived from human feedback patterns as their primary source. New research suggests that if the AI can successfully learn to communicate with an octopus, it will be able to learn to communicate with other animals too. It will be able to learn more quickly having done it once, as demonstrated in recent research using reinforcement learning for AI's learning how to play computer games (Carr, Chli, and Vogiatzis 2019).

ISCRI aims to design a deliberately unpredictable exchange through which we want to provoke new actions and bring new technology and aesthetics into being. The project wishes to displace humanness as the source of experimental observation as far as possible by creating an AI that learns from an octopus. We are looking for transformative potential in what emerges between the octopus and the AI while learning from our own attempts to circumvent anthropocentric approaches to experimentation and artistic production. We aim to develop an AI and art experience that explores how we might begin to communicate with other kinds of intelligence and consciousness (organic and synthetic). Key to this is a deep collaboration between artists, an octopus, and a machine learning team that also involves a psychologist and animal behaviorist—and the challenge of co-imagining from very different perspectives.

As philosopher Peter Godfrey-Smith (2016) suggests, the octopus is “the closest we will come to meeting an intelligent alien” (9). Where we have a highly centralized nervous system, that of an octopus is distributed throughout its protean body, with semi-autonomous brains in each of its eight arms in addition to the brain in its foot-head. Their intelligence and other-worldliness have been a subject of human fascination and mythology for thousands of years, yet our understanding of them remains elusive.

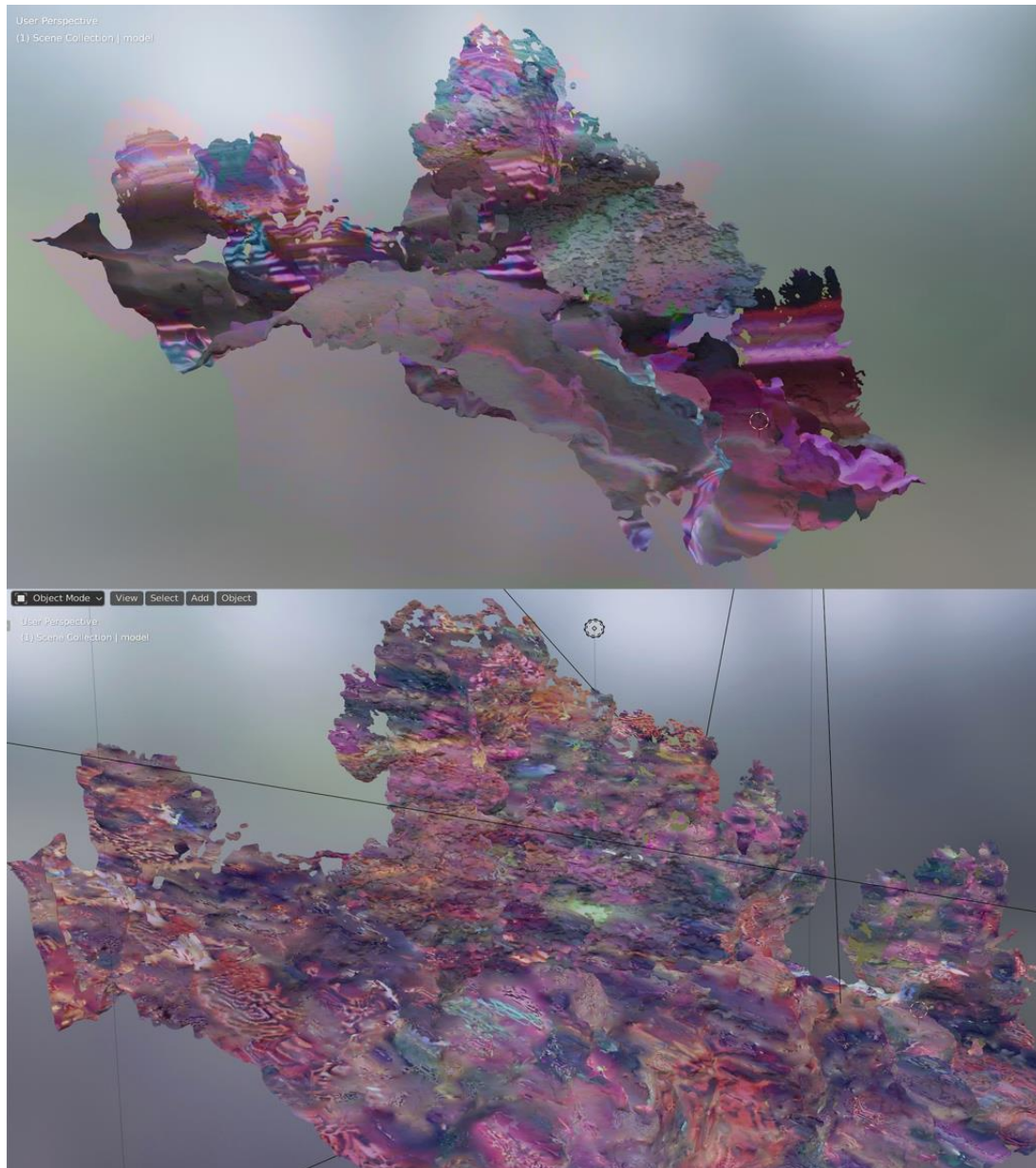


Figure 6. Roberts, Maggie (Bagshaw, Megan, VFX Supervision). Work in Progress: Experiments with Morphing Coral into a Camouflaged Octopus. ISCRI, 2021.

Notes

<https://www.orphandriftdriftarchive.com/if-ai/becoming-octopus-meditations/>
<https://www.orphandriftdriftarchive.com/if-ai/if-ai-were-cephalopod/>
<https://www.orphandriftdriftarchive.com/if-ai/kraken-goldsmiths-visual-cultures-presentation/>
<https://eticlub.co.uk/an-artificial-intelligence-programmed-by-an-octopus-iscri/>
<https://eticlub.co.uk/interspecies-bot/>
https://twitter.com/iscri_octopus

References

- “Call for Papers Volume 2 Issue 1.” 2021. *Ecocene: Cappadocia Journal of Environmental Humanities*, January 13, 2021.
<https://ecocene.kapadokya.edu.tr/index.php/ecocene/announcement/view/3>.
- Carr, Thomas, Maria Chli, and George Vogiatzis. 2018. “Domain Adaptation for Reinforcement Learning on the Atari.” *arXiv:1812.07452v1 [cs.LG]*, December 18, 2018.
<https://arxiv.org/abs/1812.07452v1>.
- Godfrey-Smith, Peter. 2016. *Other Minds: The Octopus and the Evolution of Intelligent Life*. London: William Collins.
- Haraway, Donna J. 2016. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham: Duke University Press.
- Levitt, Deborah. 2018. *The Animatic Apparatus: Animation, Vitality and the Futures of the Image*. Hampshire: Zero Books.
- Meijer, Eva. 2019. *When Animals Speak: Toward an Interspecies Democracy*. New York: New York University Press.