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Project: Inter Species Communication Research Institute
Authors: Stephanie Moran, Maggie Roberts, Kevin Hogan and Alex Hogan
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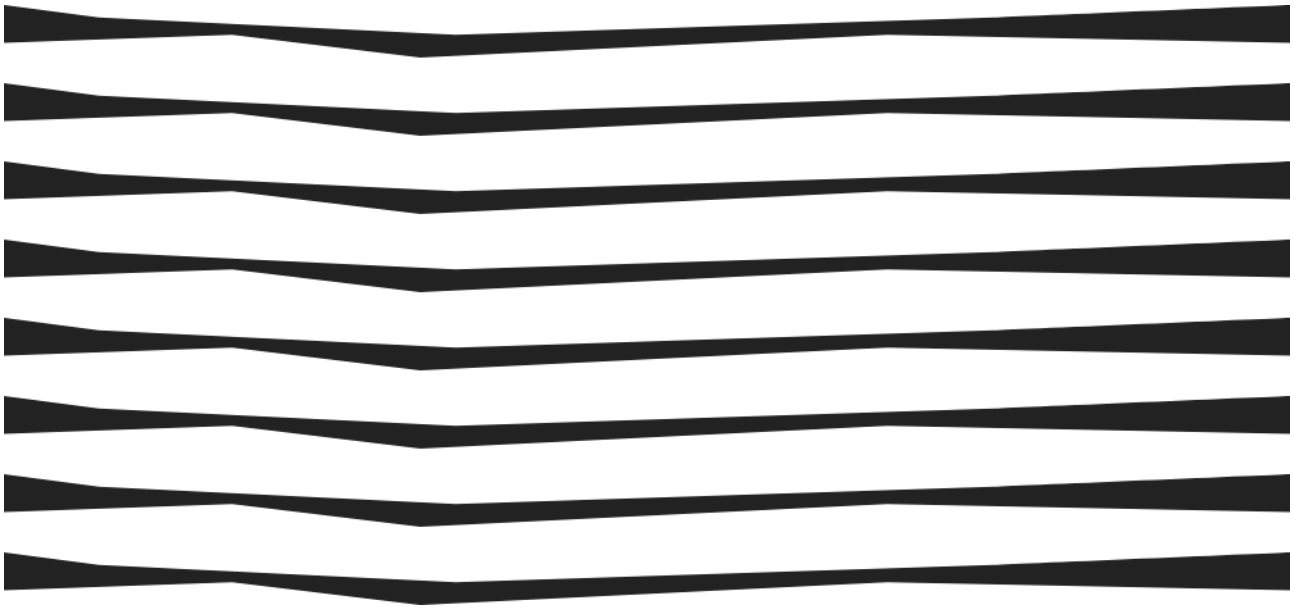
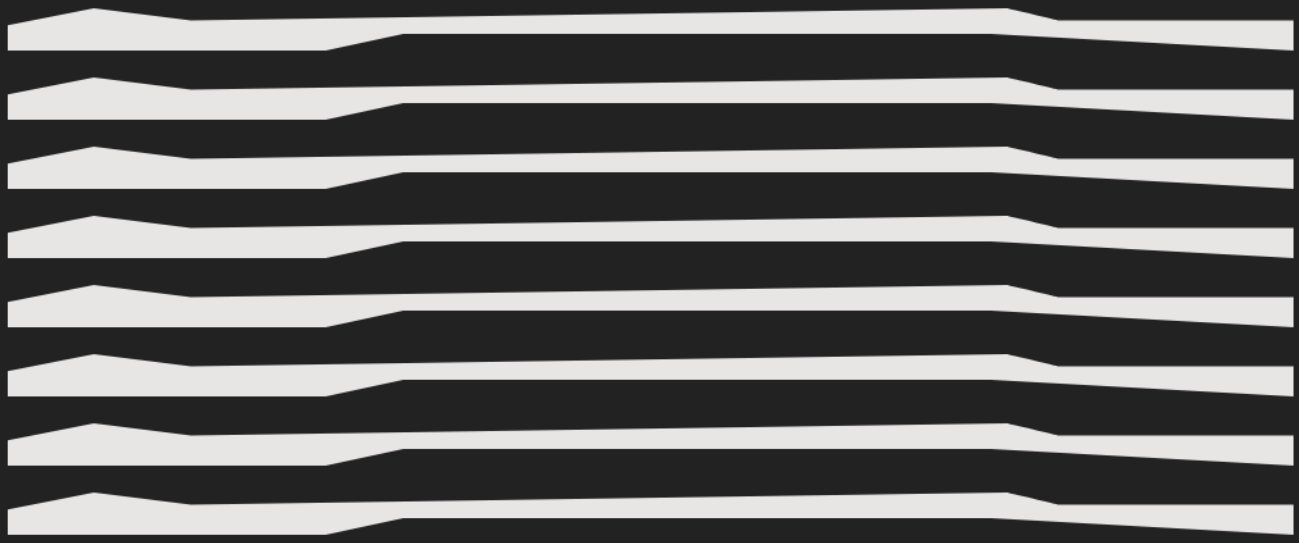
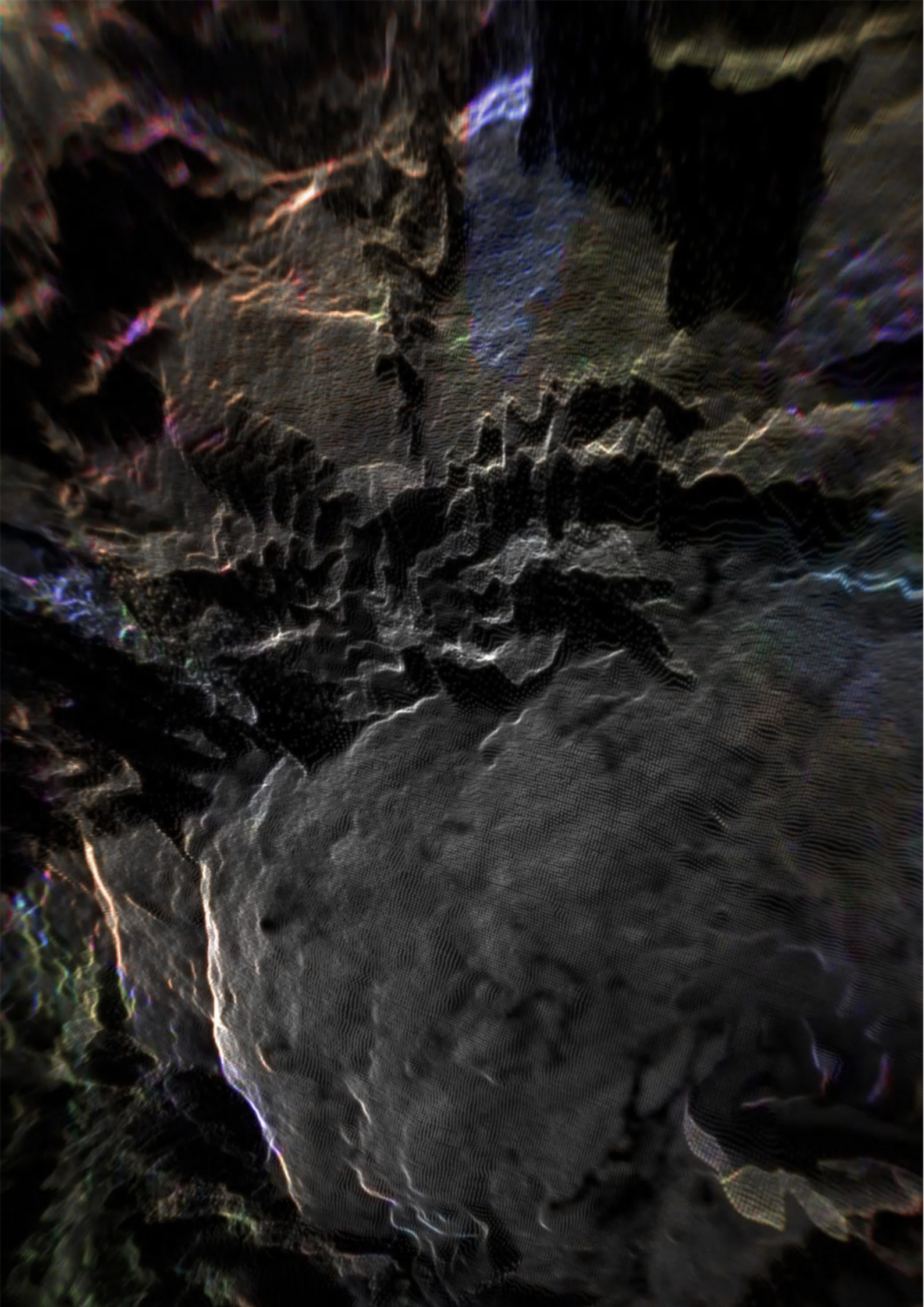


An AI coded by an Octopus





"If we could communicate with **another** distributed **consciousness,** how might that change what it means to be **human?**"

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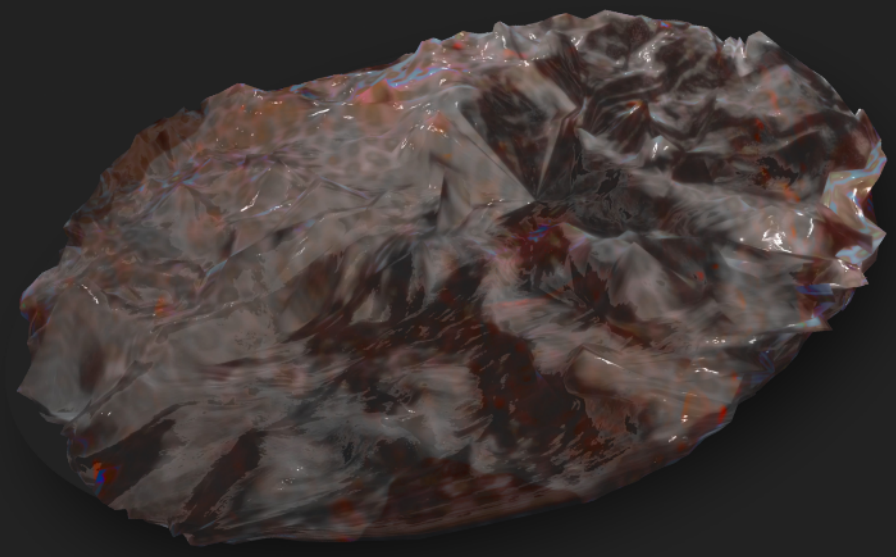


"An octopoid revolution in consciousness is needed"

— ***Vilem Flusser,***
Vampyroteuthis Infernalis (2012)

Executive Summary

An AI coded by an octopus

ISCRI is a collaboration between artists and scientists that aims to create an artificial intelligence (AI) that can communicate with an octopus; to produce art for octopuses; and to create an immersive artwork for human participants to experience kinds of consciousness alien to ours.

ISCRI hypothesises that we can produce new kinds of aesthetics and new kinds of AI through interspecies research. It brings together international artist collective 0rphan Drift and Wales-based design and technology research consultancy Etic Lab LLP, in partnership with scientists in Aberystwyth University's marine biology department, the Serpentine gallery's Creative AI Lab, UAL's (University of the Arts London) Hybrid Futures Lab, and record label Hyperdub. It is an exploratory project that combines art, technology and science in a radical new way, to create an AI unlike any other.

Overall, we see this project as an open experiment in interspecies communication. The goal is to evolve an intelligence-agnostic AI system that has not learnt from a human modelled environment, but from a fellow distributed consciousness (an octopus) that operates in a highly uncertain and fluid environment (the sea). We are motivated by our understanding that the centering of human forms of understanding and concerns has been and is profoundly damaging - and has resulted in the multiple environmental crises we now face. Within this project artwork is understood as an experiment in aesthetic communication between octopus, human and AI. While humans initiate the work, we intend that the artwork will eventually be made for and by all of these stakeholders, without relying on conventional expectations of understanding between them.

Etic Lab is a research and design consultancy operating at the forefront of the digital technologies that are transforming our culture, our politics and our daily lives. They have experience of producing large-scale technological projects working with data in creative ways, and expertise in developing cutting-edge AI. 0rphan Drift has explored the boundaries of machine and human vision since its inception in London in 1994, exhibiting at major international venues. Aberystwyth University holds ethics approval and specialist staff for, and experience of, keeping octopuses. The Serpentine's Creative AI Lab and UAL's Hybrid Futures Lab are research incubators that offer the project significant reach and support in disseminating the research. Hyperdub offers a cutting edge electronic soundtrack for the project and diverse youth audiences. Octopuses have a limited life span of 12 - 18 months, so our cephalopod communicant will hatch from an egg that is yet to be laid.

This project is the result of two years' research. The next three-year phase is ready to put into action within twelve weeks of receiving funding. This will consist of one year working with the octopus to bring the AI into being, then one year post production work, followed by a touring art exhibition and raising finance for further development. While this is currently speculative due to the emergent nature of the chosen machine learning technique, applications for the data and development are expected to range from new techniques for distributed machine learning to new modes of VR. We are seeking partners who share our values and can bring the complementary resources and expertise required to complete the ISCRI project.

Overview

Overview

ISCRI will develop a sophisticated AI that learns from an octopus in its environment. This will be an AI unlike any other, constructed at the cutting edge of machine learning (ML) techniques, from extensive octopus research (in the fields of marine biology, ethology and interspecies communication) and artistic interpretation. The project brings together and builds on 0rphan Drift's artistic work about octopuses and AI, and Etic Lab's research and development at the cutting edge of machine learning and octopus cognition.

ISCRI aims to design a deliberately unpredictable exchange through which we aim to provoke new actions and bring new technology and aesthetics into being. The project wishes to reverse the usual experimental relationship between animal subject and human observer as far as possible, by creating an AI that learns from an octopus. We are interested in the transformative and unpredictable potential of what may occur between the octopus and the AI, and what we may learn from our attempts to provoke communication. 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).

We propose to use a form of machine learning (ML) called reinforcement learning that is not goal-oriented, meaning its development is determined by its learning rather than being trained on a desired end result (such as pictures of cats). The use of reinforcement learning to develop an AI will afford the emergence of new behaviours; it will produce behaviours that have not been directly derived from human feedback patterns as their primary source.

Why an octopus?

As philosopher Peter Godfrey-Smith suggests, the octopus is *"the closest we will come to meeting an intelligent alien."* Where we have a highly centralised 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 has been a subject of human fascination and mythology for thousands of years, yet our understanding of them remains elusive.

Why is this important, and why now?

We feel that decentering the human is important for addressing current developments in AI and ecosystem crisis. By decentering the human, we mean to consider the human as part of an interconnected ecosystem rather than dominating it. This implies rethinking what it essentially means to be human. Our co-evolution in communication with such ecosystemic multiplicity feels imaginatively, ethically and environmentally urgent today. We believe that our project, built on cross-disciplinary collaboration, reflects the importance of working across fields of knowledge and fully acknowledging other, non-human, versions of being, intelligence and communication.

The project will not take human-centric data as source material for AI. Rather, it will initiate conditions in our initial experimental set-up that allow for the responses of the octopus, and the

emergence of a new AI based on those responses. Rather than positioning ourselves as the observers, we will put the AI in the place of observer-learner, enabling the octopus's responses to determine the AI's learning. We believe this kind of role reversal is necessary for rethinking communication with other life forms, whether organic, synthetic or combinations of both.

ISCRI explores the idea of communication, in this case between human and non-human life forms. Octopuses already elicit extraordinarily lyrical and emotional responses in humans. Within this project we will attempt to communicate with an octopus, based on what is known about its sensory, tactile and spatial perception. As with all artistic and scientific endeavours, we hope for feedback but understand the possibility of failure. If there is responsiveness, the AI will respond in turn.

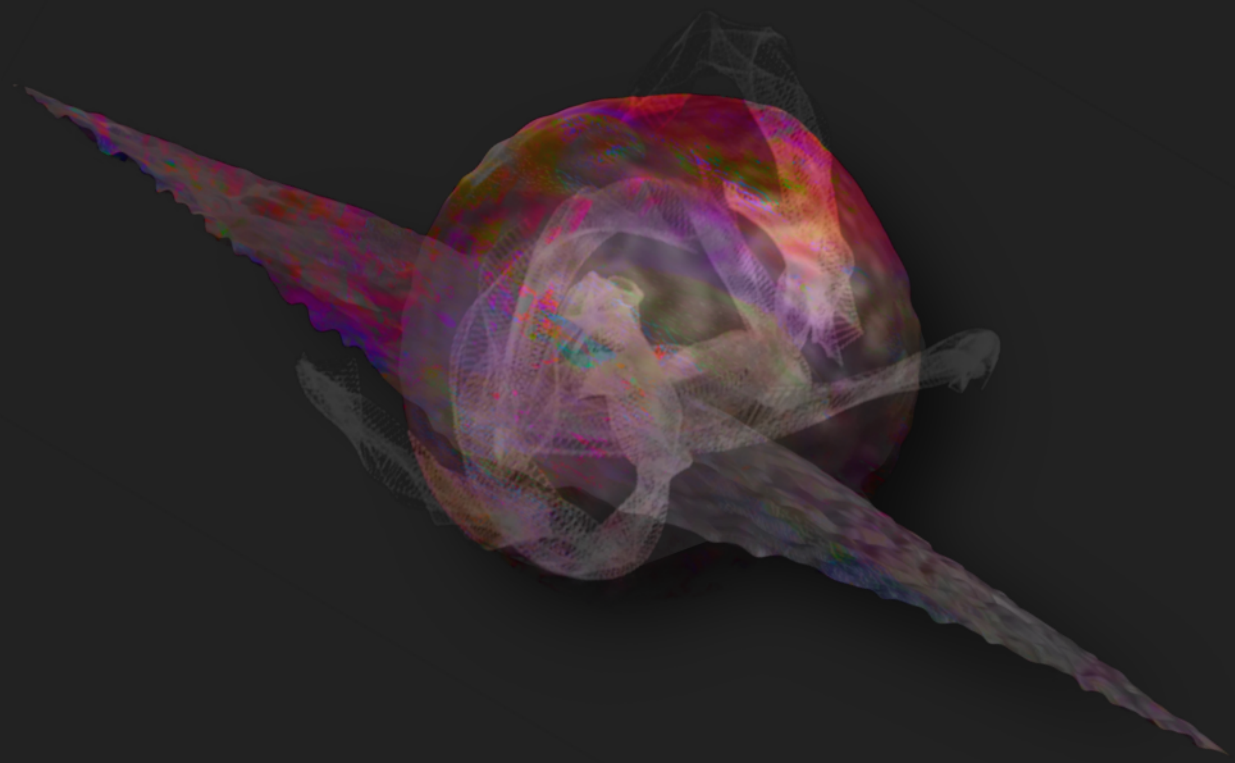
Octopuses' distributed cognition, understanding its world via nine brains, offers possibilities for modelling consciousness as both individual and collective at the same time. We believe this may hold transformative potential. The ISCRI project is designed to reframe conventions and uses of machine learning through a multi-species perspective and framework.

ISCRI is reciprocally immersive

We wish to create an exhibition set-up where what has been learned from another animal by the AI can be used to create an experience for us, one in which we are partly the object of scrutiny and intervention. We plan for the resulting octopus-like AI artefact to code an immersive experience for exhibition participants, responding to people as if they were octopuses. Thus placing humans in the subject position we have long created for other animals.

The decentering within this project takes two complementary forms: the learning and communication is made by an intermediary, an AI program; and the artistic experience is delivered using that learning to affect human beings. At one and the same time humans are NOT attempting to communicate in ways driven by our history and expectations. Nor are we, as an audience, solely the direct 'consumers' of that learning but also the objects of it.

Key to this is a deep collaboration between artists, an octopus and a machine learning team that also involves a psychologist and animal behaviourist. And the challenge of co-imagining from very different perspectives.



"The other side of the digital
is the octopus"

— ***Betti Marenko,***
FutureCrafting: A Speculative Method for an Imaginative AI (2018)

Research and Practice

Research and Practice

ISCRI fuses 0rphan Drift's and Etic Lab's collaborative digital practices.

This project expands on recent 0rphan Drift research and exhibition *If AI Were Cephalopod* (Telematic Gallery, San Francisco), a multi-channel installation that speculates on behavioural and emotional octopoid states as tools for modelling alternative AI futures. 0rphan Drift's Maggie Roberts creates experiments with planes and textures that try to imagine the viewpoint of an entity that is multiple, fluid and protean, featured in the *Becoming Octopus* meditation series she developed for iMT Gallery London's recent Arts Council funded online programme, *This Is A Not-Me*.

Etic Lab has expertise in developing new forms of AI and developing technology collaboratively, using a whole-systems holistic design approach. This project expands on their existing research interests and relationships with computer scientists and marine biologists at Aberystwyth University. It builds from their work on interspecies technology, including a project to produce an eco-sci-fi role-playing game with the Invertebrate Zoology department of Smithsonian's National Museum of Natural History.

ISCRI's methodology involves experimenting, referencing, imagining and interpreting, based on the team's research into cephalopod cognition and biology, in order to produce video content that interprets the point of view of the decentered sentience of an octopus. This work will incorporate current understandings of octopus sensory apparatus and response, such as shifts in skin-colour and pattern, as well as light and tactile sensitivity.

The Artificial Intelligence and Octopus Communication

The ocean-like mesocosm housing for the octopus will include an installation of videos embedded in circular screens on flexible armature and small moveable objects (represented in the system diagram below, fig. 1, as 'emitters'). The video will be intermittently streamed over ten months, in an attempt to initiate its curiosity and establish a conversation with the octopus. The art will be in part designed to encourage 'play'. The streamed content will transform according to the changes detected by a range of sensors and video recording in the mesocosm environment (the 'detectors' in fig. 1 below), as mediated by the AI artefact, which will include any responses from the octopus. Thus the octopus may have some control over their environment, or be able to communicate through interaction with it.

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 audio stream might be perceived, understood, or interpreted by an octopus, if at all. What our system can do is to show where these limitations exist; they can determine whether our questions are ones we can ask (see fig 2 below). We wish, therefore, to construct a system that invites the octopus to communicate with us, should it wish to, through the mediation of the environment.

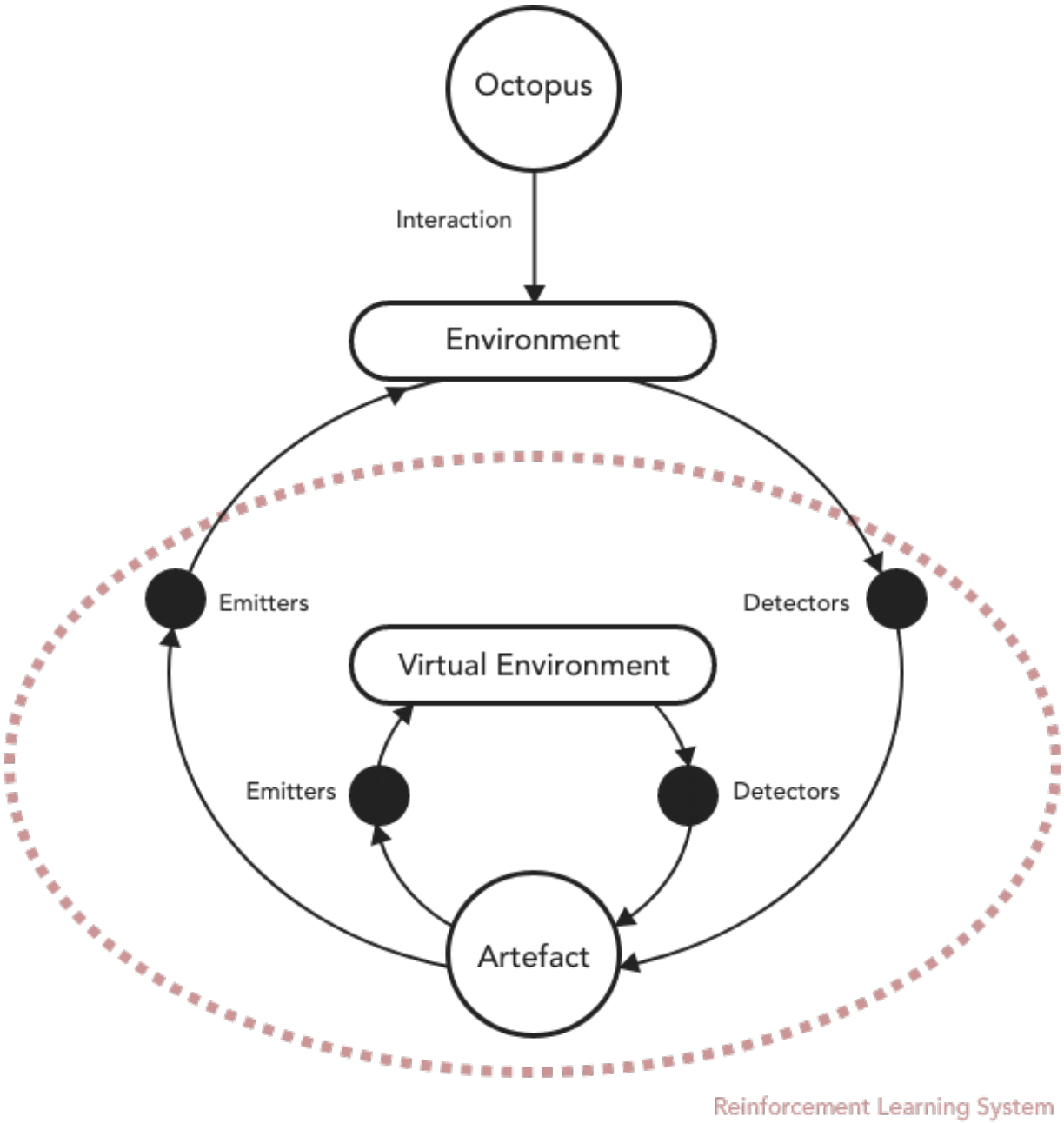
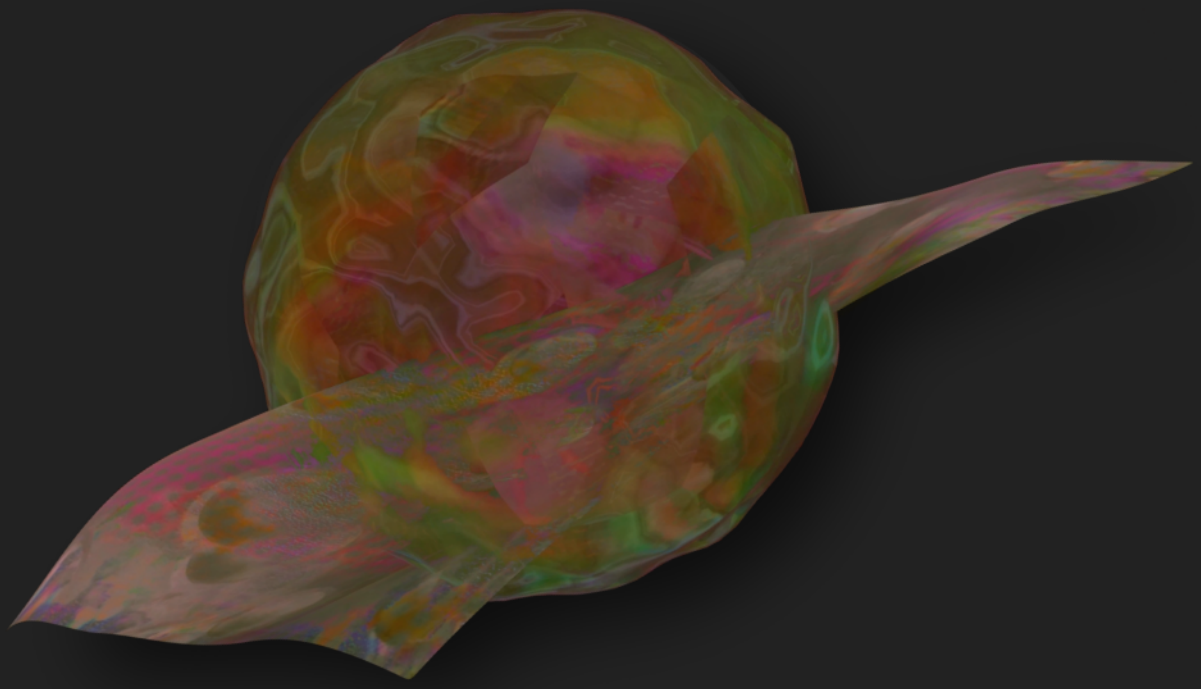


Fig 1

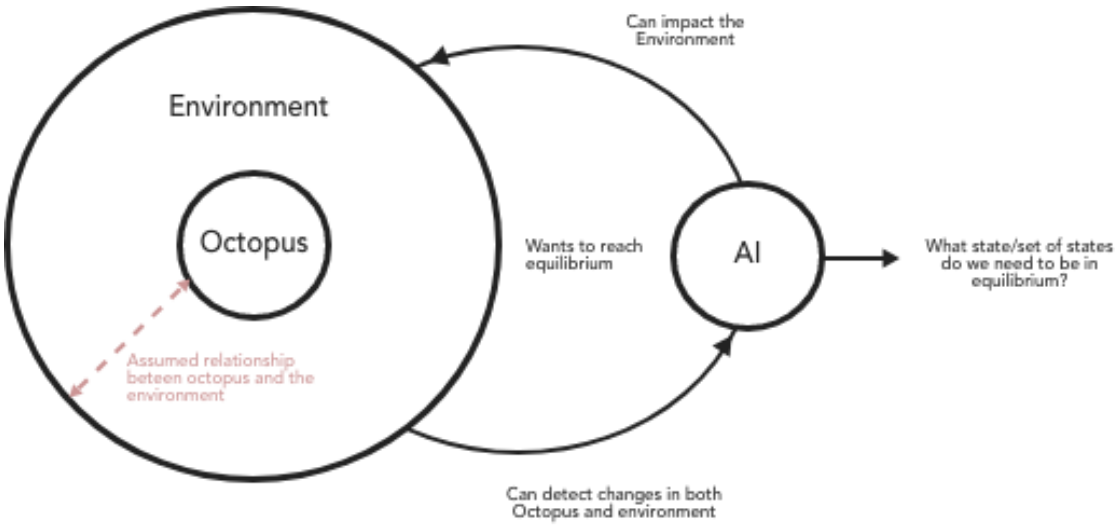
The emitters in Fig 1 consist of the video streaming installation; the detectors include audiovisual recording, and temperature, light level, spectrum, water pressure and chemical sensors.

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. 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 (Carr, Chli and Vogiatzis, 2019).



"Artificial and octopoid, the plural entity emerges seamlessly in virtual space, already algorithm-encoded. The avatar of synthesis."

— ***Maggie Roberts,***
Meditation 8 (octopus becoming AI) (2020)



Questions This Setup Explores

How does the octopus's relationship with its environment work? Is there a communication relationship between us and the octopus, mediated by the environment? If so, does the octopus set communication rules and can we learn them? How do changes in our expectations for equilibrium affect the above?

The AI will use reinforcement learning, or the most appropriate new machine learning technique at the time of beginning the project, to detect and respond to changes or changes in the rates of change in the octopus and its environment. The AI's goal is to reach equilibrium. By equilibrium, we mean an optimum state of the environment, for example the rate of change of environmental conditions. It feeds back into the environment by modulating the film stream in order to achieve this. We are relying on the octopus's reputation for insatiable curiosity. We cannot know whether our message will be received or understood. We cannot know, if the octopus refuses to respond or stops responding, whether it has lost interest, has not understood, never extracted any meaning from the invitation, has refused to engage, or if not engaging is its response. However, if the octopus cares to engage with the AI, we could interpret it. From here we may develop new speculative narratives around the age-old question of whether it is possible to comprehend the consciousness of a radically other being.

System Overview

A mesocosm, equipped with four components that generate the AI:

i) Detector Array: a sensing or detector facility consisting of various sensors (e.g. cameras, microphones, water pressure sensors, chemical analysis).

ii) Emitter Array: an effector component comprising computer tablets/screens, audio and haptic objects.

iii) The Artefact: a program designed to engage with its environment, that will connect sensing and action via reinforced learning.

iv) The octopus: an integral aspect of the environment being engaged and monitored will be a living organism, the octopus, that will be cared for and treated with all due respect and attention by professional handlers. Recent research recommends that a semi-natural environment or 'mesocosm' would be most appropriate for ensuring its health and wellbeing.

Mesocosm Visualisation (p19):

The mesocosm is an ocean-like environment that houses the octopus. It hosts our AI encounter including artworks made for the octopus. The visualisation on the next page gives a sense of the set-up: there will be underwater video screens (some on arms or embedded in rock shapes), sculptural, play and light objects. These correspond to the 'Emitters' in the system diagram (fig.1).

A range of sensors will also be placed around the mesocosm, providing the environmental data for the AI (the 'Detectors' in the system diagram). They will consist of motion, infrared, audio, full spectrum colour, pressure and photo detection sensors, AV recorders (GoPro and SLR cameras), visible light photodiodes and hydrophones (underwater mics). These will monitor audiovisual, temperature, light level, colour spectrum and chemical environmental levels

AI Development

The Detector Array will provide data on the status of the whole mesocosm environment (including the Octopus). It will monitor changes in light and sound levels and report changes in the size, colour and activity levels of the animal. The Emitter Array will provide a controllable space upon which the artist will display A/V material and through which the Artefact can produce environmental changes as a means of addressing the Octopus.

The intelligent Artefact will produce learning. Hard-coded with the purpose of detecting and causing changes in the Octopus's behaviour, through sensing and effecting change in the environment (including the video stream). Most simply, the system interacts like this:

measuring environment<>reinforcement learning<>response [environmental modulation]<>measuring environment

The tech development will focus on writing software for the detector sensors, comprising AI-based computer vision algorithms for analysing the context-specific movements of the octopus. The film streaming and environmental modulation will increasingly be a result of the octopus's behaviour.

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Aesthetics

Aesthetics

An Online Showcase, a Documentary and a Touring Exhibition

There will be three main areas of artistic production and audience engagement. The first will involve creating visual environments based on experiments with forms, textures, patterns, colours and speed of video streaming. These aim to spark the octopus's curiosity and reactions, producing environmental effects to which the AI will then respond. This part of the project will have live-streamed online elements, maintaining running documentation for wide audiences. The second, closely related aspect will be a commissioned film by a documentary maker aimed at a wide popular audience for a mainstream outlet such as Netflix or Channel 4. The third part will be the creation of an immersive experience for an international touring exhibition.

Part 1: 0rphan Drift will develop video streams, audio frequencies and objects to populate the mesocosm, experimenting with VFX-generated forms in a variety of textures, colours and patterns that reference those made by octopus skin. The video will be streamed intermittently to screens in the mesocosm housing the octopus, over the course of ten months, in an attempt to engage its curiosity and establish a conversation with it. The AI artefact will mediate the image content as it learns from the octopus responses. The streamed content will be affected in ways we cannot predict. We will also generate further content during this time, based on material the octopus is more engaged with. Livestreams of the octopus and expert commentary from a variety of fields (for example, interspecies communication, marine biology and philosophy of science) will be shared on a purpose-built online platform.

Part 2: The process of octopus engagement and AI development will be documented and turned into a feature-length film by a documentary production team.

Part 3: Visual and non-visual aspects of ISCRI will be installed as a series of large-scale immersive art exhibitions in high impact, international venues. This will include the resulting AI and video that has been co-created by 0rphan Drift, the octopus and the AI. The exhibition will include a video stream that mimics octopus-like communication, responding to the participating audience as if they were an octopus, giving them a sense of experiencing immersion with an alien consciousness. This will involve haptics, sound, smell, light and dark, sculptural elements and video. They will combine to reference aspects of the mesocosm encounter and provide a complex environment for the AI to respond to.

The exhibition will be toured internationally. We are currently working with the Serpentine Gallery's Creative AI Lab, London; UCL's Hybrid Futures Lab, London; and Telematic Gallery, San Francisco. We are also approaching Arebyte Gallery London, the De Young Museum San Francisco and the Haus der Kulturen der Welt Berlin through existing connections.

All three parts of the project will offer a general audience some understanding of how alternative visions for AI are being formed. These accessible formats aim to offer ideas about possible futures. We also hope to encourage more informed discussion around the importance of ethical or values-driven technology and to create space for imagining into nonhuman intelligence, both artificial and natural.

A Sensorium

The exhibition concept is to generate an immersive environment that sensorially reproduces the data from the AI-octopus interaction. The walls will simulate the octopus's environment, sometimes projecting a mixture of filmed underwater footage and VFX interpretations of octopus cognitive and sensory experience (honed by the team's observations of octopus responses).

Data will be audio-visually transduced through coding filters modelled on octopus skin, whose shifting colour, pattern and texture vary in response to environmental changes. The AI artefact will modulate this video feed to alter its new environment, specifically the environmental changes brought about by exhibition visitors (who we see as participants). The installation will respond in real time to their footfall and behaviour, challenging our familiar somatic and perceptual constructs. Although it is uncertain how the AI artefact may respond to its human participants, we anticipate that they may be processed as versions of octopus movement or behaviour, in a reversal of usual experimental premises.

Artistic Context

An increasing number of artists worldwide are speculating on non-human cognition and sensory apparatus, taking animist and fictional perspectives. Other artists working in the area ISCRI is involved in include Pierre Huyghe and Ian Cheng, both of whom use AI as a tool in their explorations of the random narrative possibilities AI offers. Huyghe explores the kinds of image produced by specifically trained AIs, which has contributed to recognising an AI aesthetic.

ISCRI moves beyond existing artworks in its scale and ambition to produce a new form of AI, at the cutting edge of tech research as well as artistic production. The project is radically open to the emergent properties of the experiment in leveraging reinforcement learning's capacity to evolve itself and putting this into a new context with an octopus teacher. It is committed to developing a new nonhuman, octopoid aesthetic. It also differs in that it is working at the emergent edge of its technologies and aims to produce not only new aesthetic forms but also, relatedly, ethical and democratic forms of machine learning.

Innovation & Outcomes

"What would it be to communicate with an **Alien** intelligence?"

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Innovation and outcomes

The use of reinforcement learning to develop the AI affords the emergence of new behaviours. The resulting AI will produce behaviours that have not been, and could not be, humanly designed into it. The parameters will be set by the octopus, the learning determined by the octopus, so that the outcomes will be inherently octopoid. These are by their nature impossible to predict. Technological precedents for this include the recent Boston Robotics robot that against all likelihood taught itself to do gymnastics; research into swarming that has produced algorithms used today in epidemiology, predictive crowd control, drone robotics and architectural design; or the equally unforeseen algorithm produced from octopus research that is now standard for modelling gaussian movement. The AI will become an autonomous octopoid entity with unpredictable attributes, based on its learning from the distributed cognition of an octopus.

New Models for Distributed Machine Learning

Unexpected emergent properties surfaced by the AI artefact's interactions and responses may generate new approaches to AI development and new directions or questions for AI ethics. Knowledge gained and data collated and processed during this project may generate new algorithms and data for other applications. Previous octopus data research has led, for example, to the standard algorithm for the Gaussian model of movement used for undersea robotics and ocean floor exploration among other areas. Studies of shoaling fish and swarming insects has led to key algorithms used for epidemiology and crowd prediction. Etic Lab has recently developed software for a new, distributed form of machine learning known as federated learning. Building on this, one potential application of the learning from this project is the development of new distributed deep learning and distributed data mining algorithms.

Octopus Aesthetics

ISCRI is an experiment in making kin of nonhuman life, and in this process, aims to challenge what Western humans recognise as reality and the prioritisation of vision-led representation. 0rphan Drift has always been interested in art-making for which uncertainty and the unknown play an integral part. The video content reimagines the underwater environment of the octopus from the viewpoint of an eight-armed distributed intelligence that does not prioritise vision-led perception in the way a human does. Rather it interprets the world through 360 degree touch, shifting light and dark, water pressure and movement and chemical information.

The video is increasingly modified by the AI as it develops, which in turn mediates the octopus responses and feeds these back into its own learning patterns. This process will over time produce audiovisual material that responds to an octopus in its liquid environment, and will not, we assume, reproduce a humancentric world or aesthetic. How will or can we respond to this not yet imagined phenomenon?

New Modes of VR

Another important aspect of foreseen impact for this art/technology collaboration would be in the burgeoning field of VR worlding. With headsets soon being replaced by smart glasses, this is a growth area. Our project is designed to model experiences that explore both nonhuman perception and sensory experience and incorporate unknown and uncertain navigation and response, as well as the ways a virtual body is composed and responds. Visitors to the museum exhibition become experimental subjects of the Octopus AI, opening up to embodied responses and debate about non-humanist, or positively octopoid, approaches to personhood. These are all significant for exploring truly experimental kinds of VR being and environment.

ISCRI may also contribute to modelling environments and behaviour in the evolution of VR. An octopus VR learning tool for ethical animal and AI outreach work is something that SZN Naples have expressed interest in.

Teams

Teams

Etic Lab

Dr Kevin Hogan [Research Lead] An Applied Psychologist with a BSc and PhD in psychology.

Stephanie Moran [Project Manager / Research Support] An AHRC-funded PhD candidate in transdisciplinary digital research, with an MFA in Fine Art from Goldsmiths College, and over ten years' experience of arts project management.

Alex Hogan [Data Science research] Etic Lab's managing partner, who holds a BSc in Physics from Imperial and has research interests in Artificial Intelligence, Computational Reasoning and Propaganda. He has almost a decade of experience in managing and contributing to data and software development projects.

Beth Hogan [Producer] Marketing and creative consultant with a decade's experience in Arts programming and a BA in Music, Theatre and Arts Management.

0RPHAN DRIFT

0rphan Drift is a collaborative artist that has explored the boundaries of machine and human vision since its inception in London in 1994. It has shown at major international venues including Tate Modern, Nottingham Contemporary, Cabinet Gallery, UK, Berardo Museum Lisbon, CAC, Vilnius, SF Moma USA and the Changjiang MOMA, China.

Maggie Roberts [Lead Artist] Maggie Roberts has been core to this art collaboration throughout, exploring Octopus and AI in her work for several years now, both individually and as 0rphan Drift. She is guiding the team of artists in the ISCRI project.

Ranu Mukherjee [Second Lead Artist] Long-term 0rphan Drift collaborator and multimedia artist based in San Francisco. She has a successful museum based solo career, with two decades of experience in complex and ambitious gallery installations.

Megan Bagshaw [VFX Supervisor] Highly skilled VFX artist, specialising in After Effects, Blender, Fusion and Unity who has worked on major Hollywood, Netflix and HBO productions such as the recent Pullman based series 'His Dark Materials'.

Duncan Paterson [Computational Arts and Visual Coding] A computational artist focused on coding experiments exploring octopus skin patterns and researching ways in which non-human actors (such as crows and ants) can engage with Machine Learning.

George Simms [Computational Arts and Interactive Coding] Digital artist in 3D animation, Interactivity, AR/VR and Machine Learning. Research projects include haptics and new materialities and 'In-grid', an Arebyte Gallery residency.

Jason Stapleton [Lidar Scan Animator] Co-founder of Lightfarm, an experimental cutting edge 3D Modelling and Animation, Photogrammetry and VR development studio, also specialising in LIDAR scan animation.

James Kielczynski [Additional Underwater Filming] South African-based free diver and independent filmmaker.

James Loudon [Additional Underwater Filming 2] Longterm BBC underwater cameraman also currently based in South Africa.

David van Rensburg [Sound Artist and Underwater Field Recordings] International experimental sound artist and music producer, who has worked with Maggie Roberts and 0rphan Drift on most of their major projects.

Steve Goodman/Kode 9 [Sound Art contributions] Founder of the world famous Hyperdub record label and sound artist exploring the power of vibration on bodies, who has exhibited at the Tate Modern, Tate Britain and performed worldwide for over two decades.

Aberystwyth University

Dr Otar Akanyeti [Lecturer in Computer Science]

Dr Dimitris Tsakiris [Reader in Intelligent Robotics]

Octopus Vulgaris [The Octopus] Octopuses have a limited life span of 12 - 18 months, so our cephalopod participant will hatch from an egg that is yet to be laid. We are very much looking forward to meeting them.

Stazione Zoologica Anton Dohrn, Naples

Consultant, Graziano Fioriti, Chief Researcher in Behavioral Biology, evolution and function of neural structures in cephalopods and octopus, and their ethical husbandry. SZN hosted 'Human Thinking and AI: A Dangerous Relationship?' a Symposium which included papers on AI and cephalopod cognition in 2018.

Timeline

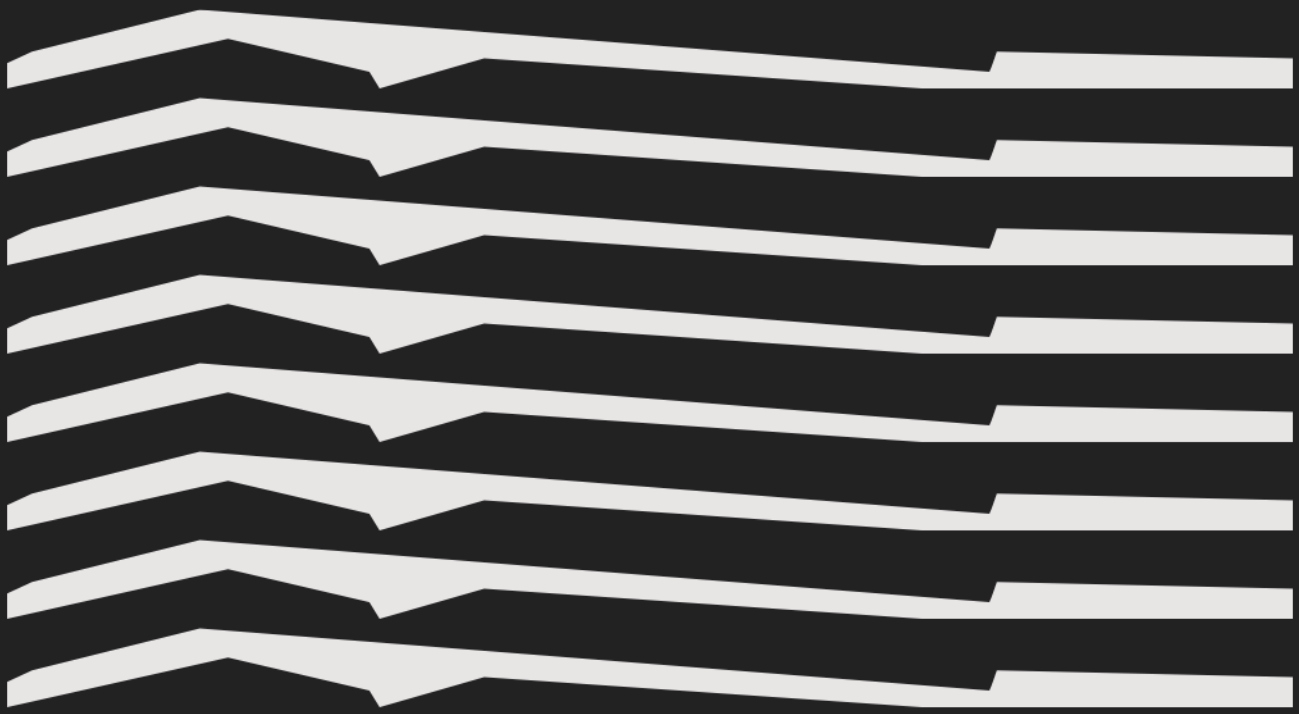
Timeline

Phase 1, first year: AI Development. The octopus and smart tank/mesocosm, with video feed, can be in place 12 weeks from receiving funding.

Phase 2, second year: AI and Artwork Production. There will be 12 months in post-production working with the resulting data and developing the art installation. The project is estimated to be ready for exhibition touring from the end of the second year.

Phase 3, third year: Exhibition. The immersive AI exhibition will tour two-three large international venues, the AI artefact responding to its new environment, specifically the environmental changes brought about by exhibition visitors.

Partners



Partners

ISCRI is a project that has been in development for nearly two years, in researching, planning, prototyping and exploring everything we need to make it happen. We have a credible and robust plan for the delivery of the project. With this at the front of our minds, we are seeking expressions of interest from partners who share our values and can bring the complementary resources or expertise required to complete this project.

We have expertise and experience in data science and machine learning software development using multiple techniques; artistic research, fabrication and installation; filmmaking; social psychology; creative coding; and large-scale technological and artistic project management. The resources and expertise we are looking for in our partners include funding for the ambitious and innovative AI and artistic exhibition development work; underwater screening and audio equipment including touch screens, accelerometer interfaces and custom controllers; mesocosm design; haptics technology; sensor arrays; kinetic sculpture and biometric sensing; and philosophy of science.

Please send expressions of interest to: stephanie@eticlab.co.uk

Our supporters so far:

Stazione Zoologica Anton Dohrn Napoli

SERPENTINE CREATIVE AI LAB

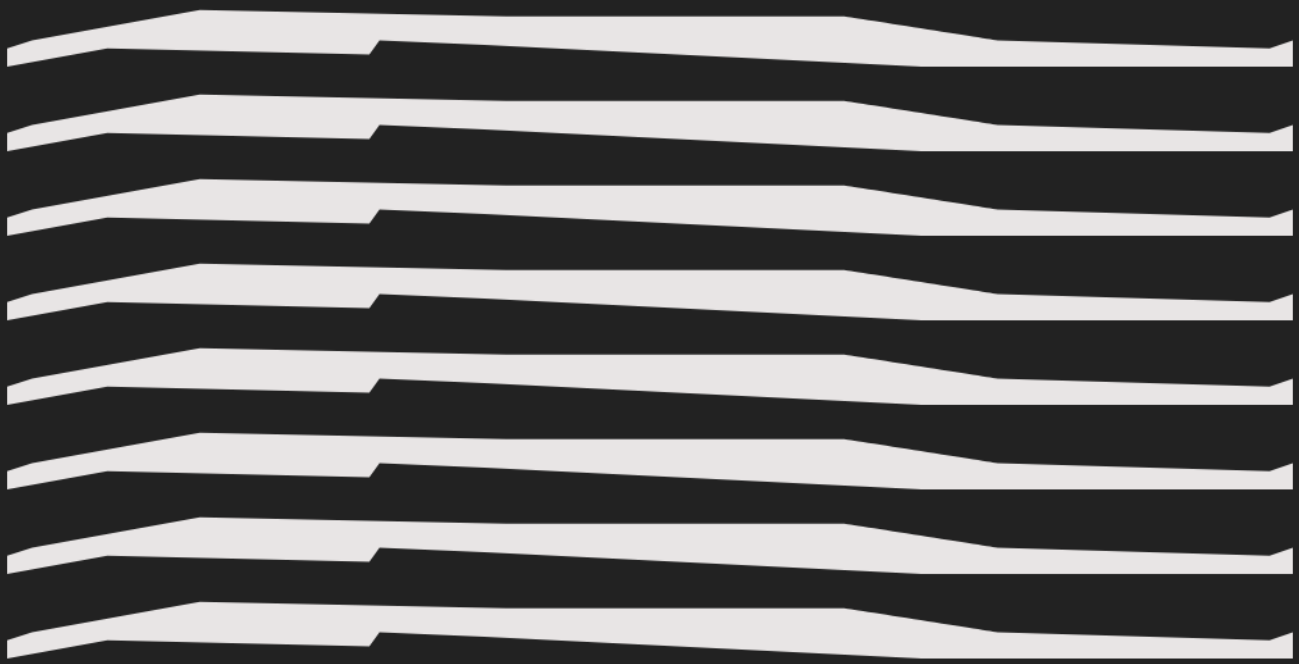
HYBRID FUTURES LAB

Telematic

KODE9

HYPERDUB

Appendices



Appendices

[1] ETIC LAB

Etic: of, relating to, or involving analysis of cultural phenomena from the perspective of one who does not participate in the culture being studied.

Etic Lab is a research and design consultancy operating at the forefront of the digital technologies that are transforming our culture, our politics and our daily lives. We work alongside partners from business, academia and civil society to conduct research, build applications and execute projects which use radical new ideas to create meaningful results. For us, it's not enough just to have an original thought - we try to use what we know to alter our given reality, and ultimately it is this sense of expanded possibility which we hope to share with our clients and collaborators.

We are a cross-disciplinary partnership of scientists, technologists, designers, artists, mathematicians and a social psychologist. We begin all our work from an outsider's perspective, which gives us distance from the sedimented assumptions, habits and prejudices which accrue over time within organisations and sectors. However, we proceed by building partnerships which allow us to learn from the lived experience and domain-specific knowledge of people in daily contact with the matter at hand, and the tools and strategies we offer are always shaped by their goals and priorities. This methodology provides us with what we hope is an ideal combination: the freedom to think differently integrated with the responsibility to act in the service of other people's needs.

We have experience of gaining large public grants and developing large-scale technological projects, often working with data in creative ways. Current projects include: a government-funded project to develop a secure video conferencing platform for sectors working with vulnerable clients and sensitive data; an Open Data Institute funded project developing a cutting edge form of machine learning (known as federated learning) to enable the affordable justice sector to collaborate on projects; and a research fellowship with the Smithsonian's National Museum of Natural History using AI and multimedia role-playing to excavate the sensory lifeworlds of its invertebrate zoology collection.

We live in a period of complexly intersecting, infinitely ramifying crises, and we see it as inevitable and necessary that our future work will revolve largely around finding ways to respond constructively to a chaotic future. From this perspective, we are guided by one simple principle: our ends will be to serve the social good through the means of facilitating cooperative and collective action. Digital technologies offer us the capacity to observe, predict, plan and act in the face of great uncertainty, and the fact that the power to wield these capacities has hitherto been concentrated in the hands of unaccountable corporate or state interests does not mean that this is how things must always remain. We hope to do what we can to see that the ability to access and use the knowledge generated by these technologies is distributed more evenly throughout our society.

Since our foundation we've designed and implemented a variety of different technical interventions, involving digital strategy, automated communications, data analytics and machine learning, in a range of different fields, from debt management to tenants organising, and interspecies communication to the provision of free and confidential legal advice. Our expertise runs the gamut from data science and programming to organisational psychology via cybersecurity, graphic design, contemporary art and critical media theory, but we set no predefined limits on the kinds of projects we engage with. If you have an idea that everyone around you keeps telling you is impossible, please feel free to get in touch with a member of our team - redrawing the bounds of the feasible is all in a day's work at Etic Lab.

[2] 0RPHAN DRIFT

0rphan Drift has explored the boundaries of machine and human vision, since its inception in London in 1994. The collective as avatar has taken diverse forms through the course of its career, sometimes changing personnel and artistic strategies in accordance with the changing exigencies of the time.

In its latest manifestation, 0rphan Drift considers Artificial Intelligence through the somatic tendencies of the octopus – as a distributed, many-minded consciousness. Inspired by embodied cognitive science and radical anthropology, their multiple channel installations suggest possibilities in expanding and inhabiting other systems of perception and proprioception. They combine video, animation and text with newer tools such as LIDAR scanning to suggest new spatio-temporal formations and ask what kind of bodies might be possible with these new coordinates. Currently they are working toward deepening their engagement into the field, involving direct encounters with cephalopods and collaborative explorations with Machine Learning engineers, VR designers and teuthologists.

0rphan Drift works have been included recently in the exhibitions Still I Rise: Gender, Feminisms and Resistance at Nottingham Contemporary, De La Warr Pavilion and Arnolfini, UK; Matter Fictions at the Berardo Museum Lisbon; Speculative Frictions at PDX Contemporary Portland Or; Eat Code and Die at Lomex Gallery NY and in the book Fictioning, The Myth-Functions of Contemporary Art and Philosophy, by David Burrows and Simon O'Sullivan, Edinburgh University Press, 2019. Solo exhibitions include If AI were Cephalopod at Telematic Gallery San Francisco and Unruly City at Dold Projects, Sankt Georgen Germany.