Fictioning the Third Space

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This paper addresses the challenges of sci/art collaboration, looking at a range of approaches, and then focusing on the potential for utilising fictional strategies as a means for drawing out alternative and future perspectives on scientific research.

I will analyse two recent projects: firstly, the production of a collaborative science fiction film as part of the Wellcome Trust-funded *Silent Signal* project (2013-16). Secondly, I will discuss my recent video work *Notes from the Subsurface* (2020), made during my research fellowship in the Earth and Life Sciences Departments at Bristol University. I will argue that the use of these fictional methods can help to enhance the criticality and potency of sci/art collaboration, allowing for a shared co-enquiry to emerge and for the artwork to maintain its criticality. Finally, I will consider ways for building on these projects to enhance future sci/art interdisciplinary practice and to help foster new models for collaboration.

Introduction

This paper discusses the complexities of sci/art collaboration in the context of the rapid growth in sci/art interdisciplinary projects and opportunities. It locates the challenges that can emerge within such collaborative processes, where there is often an expectation that artists will perform a role of communicating scientific research rather than bringing new critical perspectives and original practice-based research to the project. I will consider a number of approaches to these forms of collaboration, focusing on notions such as the "third space" and "shared co-enquiry" and building on these ideas to consider the potential for developing shared fictioning spaces beyond the confines of disciplines.

Within this field, I will analyse two recent sci/art projects that I have been involved with: firstly, the production of a collaborative video artwork as part of the Wellcome Trust-funded *Silent Signal* project (2013-2016). Secondly, I will discuss my recent video work *Notes from the Subsurface* (Tweed, 2020a and 2020b) made during a research fellowship in the Earth and Life Sciences

Departments at Bristol University. Finally, I will consider ways of building on these projects to enhance future sci/art interdisciplinary practice using evolved fictional methods.

Sci/Art Collaborative Approaches

The cultural capital of artists and their practice has often occupied a difficult position within the conditions and underlying needs of scientific research projects and their funders. With an expansion in the requirements for demonstrating "impact" and the need to reach new audiences, artists in some cases have found themselves working for minimal fees, performing the role of science communicators on large-scale science research projects. If we connect this with the research turn within art practice, the academisation of art within universities and the proliferation of practice-based PhDs, it seems problematic that art can often be utilised as a service to science impact.

In this context, a recent poll on art-science collaboration in *Nature* (2021) received many positive responses, particularly from scientists, around the potential of sci/art collaborations noting that 'Public engagement has become essential to many research projects. Scientists are increasingly seeking out visual artists and designers to help them to communicate their work to new audiences' (Gewin, 2021). The tone here seems to support the notion of art operating in the service of science communication and audience engagement, with little consideration for the development of critical art works or new forms of interdisciplinary research.

Along these lines, an evaluation of sci/art projects that have been funded by the Wellcome Trust highlighted the "usefulness" of artists with their 'communicative abilities helping to demystify and make more intelligible aspects of contemporary science' (Glinkowski and Bamford, 2009). Once again, artists are seen as "useful", helping scientists to connect their research with wider audiences in a visually appropriate way. From another perspective, sci/art collaborations can result in artists using the scientific research as a departure point for their own practice, developing art works that may bear little relation to the original research, and from limited interaction with the scientist collaborator.

Desmond Bell advocates the development of a 'synergy at the level of invention', as a means for art to establish a 'productive relationship with science', for example by observing scientific practices and then re-appropriating them to 'achieve distinctive artistic effects' (Bell, 2019, p. 121). Bell points us towards a strategy whereby artists can retain the attributes of their practice as well as a distinct critical voice, but, in this case, we see a distancing from the science and often a lack of collaboration.

Meanwhile, Nicola Triscott has described the concept of interdisciplinary 'co-enquiry', where artists pursue their own enquiry beside the scientific research (Triscott, 2017). She goes on to describe the notion of the co-production of knowledge between art, science and society, considering this as an 'ecology of practices' (Triscott, 2017).

In connection with this sort of approach, Henk Borgdorff draws into view the similarities between the practices of scientific and artistic research, pointing out their strength for bringing new perspectives into view: 'both disciplines are capable of constituting worlds and disclosing worlds; therein lies their performative strength – in generating and revealing new ideas, understandings, perceptions, and experiences' (Borgdorff, 2012, p. 85).

Finally, O'Riordan highlights the potential for sci/art collaborations to move beyond individual disciplinary perspectives, creating a "third space" in which existing knowledge, discourses and practices are challenged (O'Riordan, 2010).

In the following section, I wish to build on the notions of the "third space" and "co-enquiry", considering the performative strength of both science and art to reveal new worlds and perspectives, highlighting the potential for fictional approaches to open up new collaborative territories.

Fictioning as Method

In their book *Fiction as Method* (2017), Jon K Shaw and Theo Reeves-Evison suggest that fiction can become a useful tool for artists to deploy within the conditions of our networked, digitised world of screens and flows of data and images, where the blurring of the fictional with the real is constantly escalating.

Simon O'Sullivan also describes the potential for a strategy of "fictioning" as a potent approach in art: 'This collapsing of hitherto separate worlds – and the concomitant production of a "new" landscape, a new platform for dreaming – is another definition of fictioning, especially when it is no longer clear where the fiction itself ends and the so-called reality begins (or where reality ends and the fiction begins)' (O'Sullivan, 2015, p.6). He also notes that fiction can be used 'not as a matter of make believe but rather in a Rancière sense of forging the real to better approximate historical and contemporary experience' (O'Sullivan, 2015, p. 6).

Fictional strategies have been integral within my art practice, where I have used them to create works in the voice of *alter egos* and anonymous collectives, non-humans and machines, as well as to develop speculative future proposals for particular sites and communities and to rethink relations with the technological. For example, in a recent project *Re-writing the machinic anthropocene* (2019*),* I developed a speculative fiction as an audio work and publication to expose and rewrite the relations between digital technologies and the anthropocene, bringing into view raw material extraction, e-waste and non-human perspectives.

When it came to sci/art collaboration, I wanted to make use of these sort of fictional approaches, adapting them to enhance the collaborative process, using fictional devices to unlock the door to a "third space", where wider discussions could be developed around the implications of the scientific research, based on the premise that both collaborators had an equal standing in the project, bringing their own distinctive research to the table.

Case Study One: Wellcome Trust Commission: *Silent Signal*

In the first project, I was commissioned to work with a biomedical scientist as part of the Wellcome Trust-funded project *Silent Signal* (2013-2017), which was produced by the London arts organisation Animate Projects.

This project began with an artist/scientist "speed dating" event when a number of artists and scientists were invited to Imperial College, London, to share their work and research and to locate potential connections. This approach proved to be fruitful, and I met scientist Darren Logan, who worked at the Sanger Institute Wellcome Genome Campus in Cambridge. I was immediately drawn

to the focus of his research on genetically influenced behaviour in animals and his use of digital technologies to analyse genome data.

After this initial event, I devised a preliminary proposal for a film that appeared as a piece of science fiction, interrogating the genome sequencing tools used in Logan's research and collaborating with him on developing a film script to consider some potential implications for the future. In developing this proposal, I focused on two key questions: firstly, how could I produce a sci/art work that moved beyond data visualisation and employed fiction as an operational tool for generating discussion, where both artist and scientist move into a third space beyond the confines of their research? Secondly, how could this use of fictional methods allow for a different sort of sci/art collaboration to take place, in which a shared speculation is enabled?

Fig. 1 → Sanger Institute - Wellcome Genome Campus, Cambridge, UK. © 2017 Charlie Tweed.

During the initial research phase, I attended a number of meetings with Darren Logan at the Sanger Institute Wellcome Genome Campus, in Cambridge (Fig. 1), itself composed of a series of buildings that are reminiscent of scenes from various sci-fi films. During this time, I learned about his research into genetically influenced behaviour and spent a considerable time becoming familiar with the genome sequencing technologies and the software tools that are used to analyse the data. As a result of these meetings, we discovered a shared interest

in science fiction and how this mode of storytelling could be used as a way of interrogating the potential futures and implications of his research.

From here, a script was developed with Logan's input, looking at various scenarios, where hardware computing code and genetic coding could be connected, so that human and animal code could then be edited. Logan explained how various new genetic technologies, such as CRISPR[1], which enables the editing of genetic code, and Optogenetics, allowed for the control of animal behaviour using coloured lights that are exposed to neurons. As the project progressed, further ideas were fed into the initial co-created film script, including the fact that researchers had recently been able to store digital data within strands of DNA. This resulted in the script operating on a number of levels, including exposing these scientific advances to audiences, alongside fictional material that mapped out scenarios for future forms of hybrid computing and the control of animals and humans. The blurring of scientific fact with fiction was an effective way of engaging diverse audiences, who immediately questioned what they were seeing, and it motivated discussion around the human desire for control over animals and the environment.

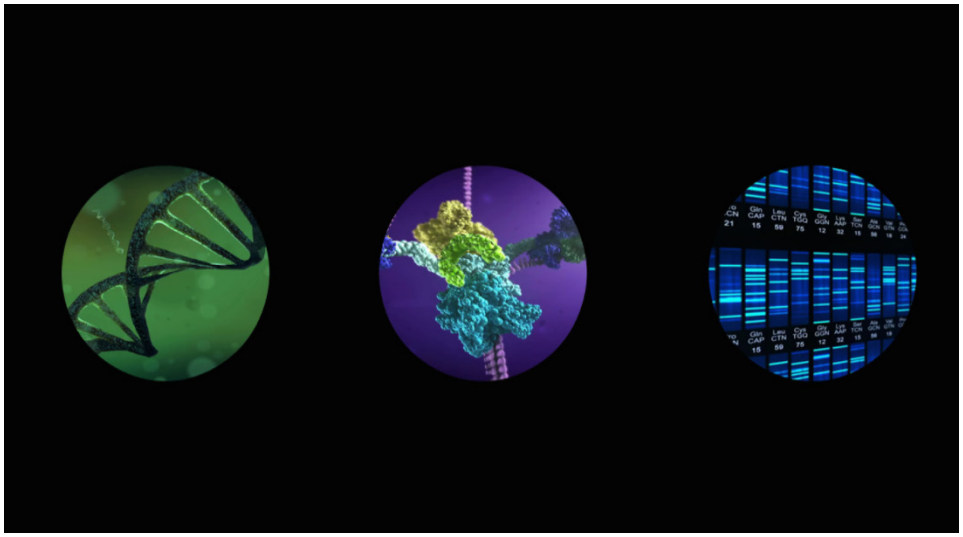

Fig. 2 → Charlie Tweed, *The Signal and the Noise.* Video, 2020. © 2020 Charlie Tweed.

The finished film (Fig. 2) fused CGI[2] animation with archive footage and filmed footage, as well as some of Darren Logan's research images and videos. The work synthesises all of this material together into an artefact that mixes

1 Clustered regularly interspaced short palindromic repeats.
2 Computer-generated imagery.

science fact with fiction, proposes a future technology and a hybrid research space, thus putting the notion of the fictional third space into practice. The work was then shown in different contexts including exhibitions (Fig. 3), film festivals and specialist science events, alongside its presentation in education materials.

The work proved to be an effective mechanism for activating discussion around genetic science and future forms of control technologies. This collaboration also provided a departure point for utilising fictional approaches to take sci/art collaboration into new territories, allowing both collaborators to move beyond the confines of their research to co-create a speculative artwork.

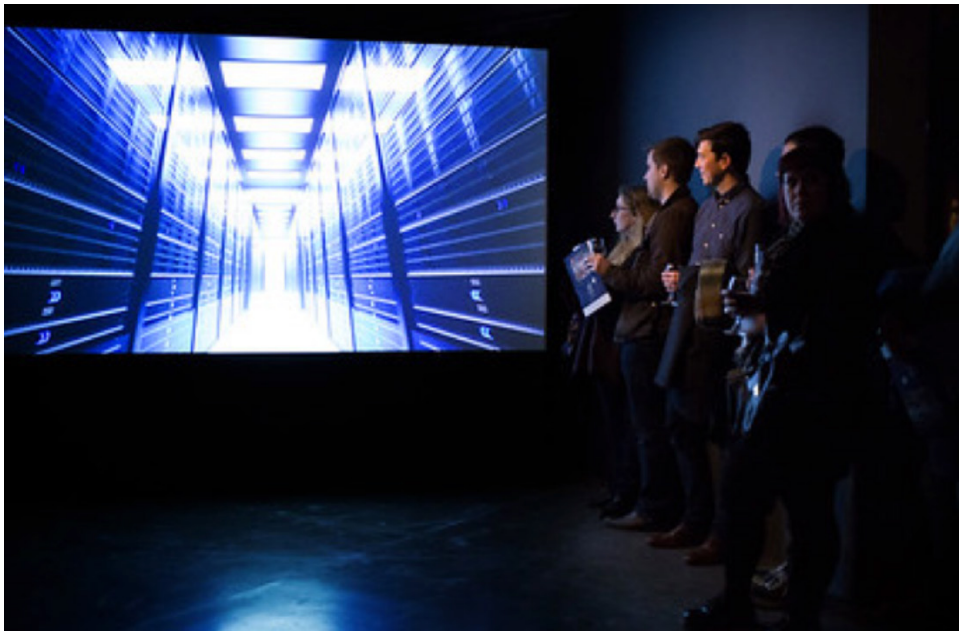

Fig. 3 → Charlie Tweed, *The Signal and the Noise*, 2020. Exhibition at the QUAD, Derby, UK. © 2020 Charlie Tweed.

Case Study Two: EarthArt Fellowship (2019-20)

These methods were then evolved during a second sci/art commission (2019-20), this time as part of the EarthArt Fellowship and residency, working with scientists in Life Sciences and Earth Sciences at Bristol University. Once again, for this project, I proposed employing fictional tactics that would enable me to explore some specific areas of research around the earth's deep subsurface and the extremophiles that live within them. I wanted to build on some of the methods used in the previous collaboration to develop a more expansive set of works for a final exhibition and event, this time adopting an approach of co-enquiry. The project aimed at opening up a third space for

discussion and collaboration through the use of fictional methods, engaging with a number of scientific researchers.

The project began with a series of meetings, locating specific researchers to learn about the evolutionary history of life, to understand particular historic events such as the Cambrian explosion, looking at fossils and rock samples and talking to researchers working with subsurface life-forms such as achaea and bacteria. The key here was using an approach that emerged from the mechanics of my practice, so that I could produce an artwork and a final exhibition that engaged wider audiences and initiated debate, but also functioned as a critical artwork that draws attention to some often neglected research on microbes and the tree of life, whilst connecting with my own wider research interests around the human relation with technologies and non-humans.

The premise of the subsurface was an interesting area of exploration because scientists are still in the process of discovering it; as a result, it lent itself to the development of fictional scenarios. These scenarios were discussed in meetings with scientists, whilst drawing my attention to the extremophile life forms that exist within the deep surface and debating research around the sorts of metabolism that these life forms have and which enable them to survive in environments with little oxygen and almost no nutrients. From this varied research process, I developed a script for the film, and this was evolved in collaboration with the scientists who fed into it, edited it and provided comments on both the scientific fact and the science fiction elements.

This led to the development of the final film work and exhibition. We believe that, in this instance, the artworks created were effective at both communicating scientific research and providing a critical vision for the future of human life on Earth.

The finished film *Notes from the Subsurface* (2020a) 'delves into deep subsurface environments and the extremophiles that live within them to consider how these lifeforms can function at extreme depths and pressure within challenging conditions' (Tweed, 2020b) (Fig. 4). The film references the zonation of life forms and their ability to live over vast timescales and with varying metabolisms that are far removed from those of humans. The work also considers notions of deep time and non-human temporalities, including life forms that exist, and geological processes that take place over hundreds, thousands and millions of years (Tweed, 2020b).

Fig. 4 → Charlie Tweed, *The Signal and the Noise*. Video, 2020. © 2020 Charlie Tweed.

The narrator gives factual information about the ecosystems and life forms that it encounters, enlisting modified ambient noise tomography as a way of anthropomorphising them. As a result, we hear from Nematodes, in an old gold mine, discussing their ability to go into a form of cryogenic suspension when resources are scarce. We also encounter the Methanogens, who disclose their "love" for carbon as well as the anonymous CPR[3] bacteria, of which huge colonies exist in the subsurface with very little being known about them by scientists (Tweed, 2020b).

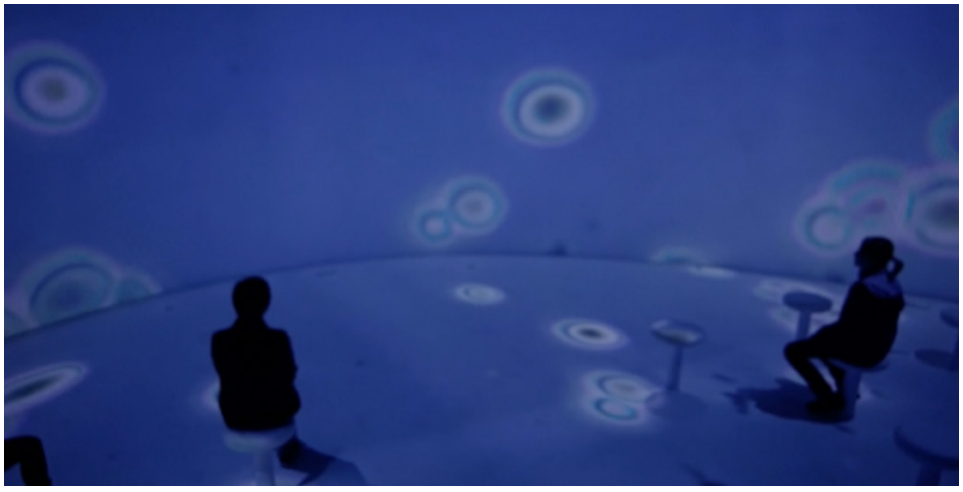

Fig. 5 → Charlie Tweed, *Notes from the Subsurface,* 2020. Exhibition at the EarthArt Gallery, University of Bristol, UK. © 2020 Charlie Tweed.

3 Candidate phyla radiation.

The second part of the film adopts a science fictional approach; developing proposals for adapting humans to live in these extreme conditions, utilising a "Vision Space" (Fig. 5) where humans can retrain, viewing the behaviour of extremophiles and simulating their actions, learning to live in extreme conditions (2020). The final part of the film proposes designs for hybrid future life forms, capable of living within these environments. With designs generated through collaboration with an AI neural network, it references discussions around genetically modifying life forms for extra-terrestrial exploration (Tweed, 2020b).

As a result, the work drew attention to niche scientific research on subsurface life forms and their relation to the evolution of life, anthropomorphising some of these life forms to draw out alternative perspectives, whilst employing the science fiction proposal as a critical tool to engage audiences in debate around the climate crisis, environmental ecocide and their relation to non-human forms of life.

Fig. 6 → Charlie Tweed, *Notes from the Subsurface,* 2020. Exhibition at the Earth Gallery, University of Bristol, UK.

The surrounding exhibition which was held at the Earth Gallery in the Wills Memorial Building in central Bristol, expanded on this discussion, utilising the showcases (Fig. 6) to draw together some of the scientists' research and to position this alongside artistic research produced for the exhibition, such as science fiction novels, theoretical texts, AI images and a fictional manifesto. The work presented in the showcases by the scientists itself breached the line

between fact and fiction, presenting forms of co-enquiry that interact, coming together to function in the exhibition space, which itself became a third space, for example by presenting scientific research on long extinct Burgess Shale animals and fossils in parallel to speculative AI designs. For me, it was important that scientific and art research became an assemblage of interactions and potentials, in order to produce an operational and interrelated set of narratives.

This layering of fictions was then taken further in the opening event, where I and the scientific collaborators all made presentations about our research, the project and the contents of the finished film and exhibition, exposing each person's specific research interests and providing a dialogue about the future of human life on Earth and the usefulness of a science fictional lens in the project. My presentation provided an additional fictional layering, a manifesto about the intentions of the anonymous authors of the exhibition and film. This included a re-appropriation of the Wills Memorial Building as a focal point for the siting of the speculative "subsurface laboratory", which stretched out into the strata below. In this sense, the fictional third space was evolved as a fictional re-assemblage of the existing building and laboratories into a future vision of non-human communication. As expressed in the performance:

> I use these words to make myself into other species, machines and objects. I becomes WE, becomes a sensor, or a future specialist technology, seeking out new directions, a translation mechanism, an anonymous power-force, a collective of potentials. WE want to unravel non-human perspectives and move away from a singular voice. WE want to harness the functionality of algorithmic governmentality, in order to take another path.
> THEREFORE, we have developed the subsurface laboratory, a vast space, stretching 5000 metres down. It can be accessed from just below your feet, descending through the basement of the Wills Memorial Building, into the deep tunnels that connect to the Redcliffe Caves before the final descent.
> (Tweed, 2020c)

Conclusion

With these two projects, I set out with the intention of utilising innovative fictional approaches to develop work that moved beyond data visualisation, or straightforward modes of public engagement and science communication, also reclaiming here a critical role for the artist collaborator. The use of fictional methods allows for another door to be opened within a collaborative sci/art

project, a playful third space where a dialogue can be initiated between the scientific research, the artist's practice and the museum audience. To refer back to Simon O'Sullivan's work, this offers up a new platform for a shared form of 'dreaming and speculating' (O'Sullivan, 2015, p. 6). It also builds on Nicola Triscott's notion of an 'ecology of practices' (Triscott, 2017) and Henk Borgdorff's arguments around the similar functionalities of both disciplines with their particular performative abilities to create worlds and reveal new ideas (Borgdorff, 2012).

Whilst the two projects have made some progress, I would propose extending some of the fictional approaches in future works, for example by enlisting a wider set of collaborators from different fields, who enter the fictioning third space and play out expanded scenarios, exploring multiple perspectives on the scientist's research. This could be done by developing experimental workshops with scientists, theorists, fiction writers and the public. These workshops themselves could be framed within a fictional research space, co-created by collaborators, allowing them to enter re-imagined laboratories and museum spaces where standardised definitions of sci/art and interdisciplinary practice, artist and scientist are re-written, and new forms of co-enquiry are initiated as an assemblage of interactions and potentials.

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