

Introduction:

Introduce myself

In recent years, there has been a widespread emergence of writers, thinkers, and artists who have utilized speculative fiction as a tool to explore the scientific imaginaries of the Anthropocene. And in this exhibition, I've also turned to the power of science and fantasy as an expressive way to convey grief about the current time we live in as well as our future. It's my intention to manifest more-than-human-sympathy for the creatures we live with by using materials and imagery which show interlocking ecologies of the synthetic and organic.

IMPORTANT ISSUES TO ADDRESS WITH THE ANTHROPOCENE &

- What does the anthropocene mean —> Anthropocene. - relating to or denoting the current geological age, viewed as the period during which human activity has been the dominant influence on climate and the environment.
- think it's import to address some of the issues that arise when we engage with the term Anthropocene.

Etymology —> The word Anthropocene is derived from the Greek words anthropo, for “man,”

- The Anthropocene/climate change has been largely caused by a portion of humanity — that being the global North. If you looked at a graph of the historical emissions of carbon dioxide (the most important component of emissions) you would see that the Global North is overwhelmingly responsible for historical carbon dioxide emissions.
- A recent study that analyzed the responsibility for the ecological damage caused by 160 countries over the last half century. It finds that the US is the biggest culprit, accounting for 27% of the world's excess material use, followed by the EU (25%), which included the UK during the analysis period. Other rich countries such as Australia, Canada, Japan and Saudi Arabia were collectively responsible for 22%. That leaves only 26% of responsibility for the rest of the world.
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- When we talk about the Anthropocene in vague universal terms it prevents us from looking at the historical responsibility specific nations and systems have. And prevents us from directing attention to the effects of colonialism, neoliberalism, and imperialism.

DONNA HARAWAY & ANTHROPOCENE

- I think Donna Haraway succinctly unpacked the term “anthropocene”

She says:

“ The Anthropocene refuses to name the political and economic apparatus that drives the practices that are so destructive, and it treats the dilemma we’re in as if it’s our own natural evolutionary trajectory. That’s simply not true. We act that way in historical conjunctures and systems that can be changed. It’s not human nature that’s the issue, but a situated historical metabolism with the planet in conditions that nurture extraction and extermination. Not all people have lived on the Earth that way, and it doesn’t have to be that way. It can still change.” - donna haraway

UNPACKING HUMANS & ANIMAL & NATURE RELATIONSHIPS &

Another aspect of this discussion I’d like to unpack is the the discourse surrounding the dynamics between humans, animals, and nature

The main subject I’m exploring in this work is the relationship between animals and humans, particularly the dependency we have on animals and how their future might change.

- The relationship that the Global North has towards animals and nature isn’t universal. There are a myriad of indigenous cultures around the world who have an awareness and devotion to an ecologically interconnected reality where the land, animals, and other organisms are respected and considered as equals. So, this installation is directed towards Western society’s anthropocentric conception of the world and hopefully makes room for introspection.

Something that connects all of these works = speculative Fiction:

SPECULATIVE FICTION:

- **Speculative fiction** - a genre of fiction that encompasses works in which the setting is other than the real world, involving supernatural, futuristic, or other imagined elements.

Some of the questions I've asked myself in regards to speculative fiction:

- In what ways can I use speculative fiction scientific to make us reflect on the relationship we share with animals?
- How can I utilize this tool to depict the grief?
- How can art be a site of internal reflection?

NEW EMPIRICISMS IN THE ANTHROPOCENE & THINKING WITH SPECULATIVE FICTION ABOUT SCIENCE AND SOCIAL INQUIRY BY ELIZABETH DE FREITAS AND SARAH E & TRUMAN

This article explores the power of speculative fiction to help us rethink empiricism in the post-human ecologies of the Anthropocene, in the midst of post-truth conditions and growing science denialism. They foreground speculative fiction as a way to open up scientific imaginaries, rethinking the relationship between nature and human “sense” making. They show how such texts offer alternative research methods for studying pluralist ecologies and new forms of worldly belonging. The authors highlight speculative fiction as a mode of expanding scientific imagination, reassessing the relationships between technology, nature, and human perception.

- Emerging interest in new empiricisms and transdisciplinary methods has driven individuals concerned with social inquiry to interact with 20th-century post-classical physical science. A lot of these projects perceive past theories of sociality as being dismissive of the beauty and importance of the non-human material world.
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- *The authors explore the following questions:*
 - Are there scientific imaginaries evoked in speculative fiction that might be helpful in rethinking the nature of empirical inquiry?
 - In what ways does speculative fiction present alternative research methods for studying pluralist post-human ecologies and new forms of worldly belonging?
- The authors address that the turn to science by scholars has been haunted by the legacy of science being subservient to industry and colonialism. Science has played a fundamental role in shaping the Anthropocene, Capitalocene, and Plantationocene, but they state that it would be ill-advised to paint science as solely serving the white establishment, especially now under our neoliberal post-truth climate. Climate science is heavily contested in the U.S. due to scientists with biased agendas misconstruing the truth. This has led sociologists and scientists to raise alarms about the war being waged against science by the Christian right.
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ANNIHILATION:

- This article uses the film and book *Annihilation* by Jeff VanderMeer, as an example of how powerful SF can be, as it allows readers a way of imagining *sympathetic* relations with the more-than-human, and shows how such sympathy must engage with affect and thought, while “holding onto” a non-relational outside.
- The plot and poetics of SF novels like *Annihilation* immerse us as readers into worlds where more-than-human sympathy and post-human ecologies are *part of the fabric of reality*.
- These literary realities invite us to imagine both scientific method and the annihilation of the socio-biological body.
- The authors of this article mention *Bruno Latour* (a French philosopher and anthropologist) as someone who demonstrates how science is a highly terrestrial human practice dedicated to encountering various agencies that proliferate and populate the world.
- **Quote:**
 - They write, “science, at its best, is deeply committed to a mutational “metamorphic zone” and to increasing the number of alien and/or nonhuman voices that can speak, on their own behalf, as part of a growing political ecology.

From this perspective, science opens up environments so that “we” can better sympathize across species and across materiality.

For instance, science shows how human bodies are bacterial colonies, or that atoms are indeterminate coalitions of micro-particles, or that forests mobilize vast signaling networks. These are all examples of how science, at its best, proliferates nonhuman agencies and remixes the metamorphic zone of life. ”
- **In search of new forms of Anthropocene inquiry, such narratives help us make sense of new corporeal metamorphosis and mind-body mixtures.**
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- This article focused on speculative fiction applied to literature, but I think this way of thinking was useful for me to apply to this body of work.
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Soundscape

INTRO

- I Thought I would start with the piece inspired me to expand on the topic of solastalgia in relation to my thesis by talking about the soundscape I created for this show.
- **Solastalgia Definition**: This is a neologism that plays off the term “nostalgia”, solastalgia refers to the distress that is produced by environmental change, This is a sensation that has been felt across the globe by countless people, including myself, as climate change is rapidly reshaping ecosystems.
- I actually started working on this soundscape my Sophomore year at PNCA. My intention for this piece was to create a dramatized field recording once we no longer have the sound source, which I executed by using a variety of approaches to mimic various animal bioacoustics.

POLLUTION

- Another thing I had in mind when making this piece was the acoustic pollution caused by anthropogenic noise. Scientific research has shown that it has potential to change behavior, alter physiology and even restructure animal communities.
- the study of the production, transmission and reception of animal sounds is called Bioacoustics.
- Niche Hypothesis —> The acoustic niche hypothesis predicts, in a mature ecosystem, species will avoid competition by singing at unique bandwidths, or pitches, at unique times. Therefore, no two species should sing simultaneously at the same frequency. This means that acoustic pollution affects the way animals communicate by taking up their bandwidth.

COMPOSITION &

To reference the anthropogenic noise, I put in industrial field recordings.

- An approach I originally took was aiming for accuracy. I started to move away from that approach and lean into the uncanniness of recreating animals.
- Originally, I composed this work as a long thematic planned out piece where the audio traverses through different terrains like swamps, forests, and underwater. Later, I decided to deconstruct this audio to create a more generative composition.
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Brian Eno - Generative Music:

Generative music is a term popularized by [Brian Eno](#) to describe music that is ever-different and changing, and that is created by a system.

Considering Brian Eno's descriptions of generative music, two criteria for music to qualify as “generative” emerge:

- It must change continuously and never repeat itself exactly.
- It must last forever.

Generative Music approach:

- I approached this generatively by cutting up the tracks of my completed thematic sound scape, where I then sorted them into snippets which would be triggered randomly through Ableton. I then did a similar approach but with various effects that could subtract from the sounds
- The technique I used in Ableton allowed me to create a sound piece that was always changing

- I chose to rethink this initial approach because the density and pace left no space for the listener to project their own fantasy. So, by deconstructing the material I previously had I was able to generate a composition that was more fluid and sat more harmonious with the other art.

- It's worth noting that while I did reassemble this composition using a generative approach, For the sake of convenience I recorded out this audio to loop every 20 minutes.

TECHNICAL ASPECTS &

- For my soundscape, I used various synthesizers and foley to mimic the bioacoustics of animals to create this dramatized field recording.
- **Methods I used to create this piece:**
 - Foley, which is a technique often used in film and television that involves creating and “performing” every day sounds.
 - Digital synthesizers
 - Subtractive synthesis
 - Wavetable
 - FM synthesis
- **Techniques I used:**
 - One of the approaches I used to mimic the sounds of animals was playing real soundscapes in tandem with a spectrogram. The spectrogram performs realtime frequency analysis and provides a visual representation of the spectrum of frequencies of a signal as it varies with time. Having this visual feedback was extremely useful for me to recreate the sounds I was listening too.

Panning:

- Ambeo Orbit:

You can use it to position any mono or stereo source in three dimensions (or to pan sounds that you captured with binaural mics). This essentially allows you to pan things up and down, and in front of or behind the listener. In addition, you can alter the stereo spread, and change the 'clarity' level of the sound source.

Phylotypic project pt1

BIOTECHNOLOGY

- This cast acrylic piece reflects my interest around the implication of biotechnologies and the way we perceive specific animals in relation to their utility.
- The choice of juxtaposing the human and mouse embryo was my attempt at reflecting the ancient genes we share and the dependency we have on mice for research.
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Life as Surplus:

- Recommended by Katja Novitskova in a podcast
- This book was a lot different than what I was expecting it would be. It examines the relationship between politics, economics, science, and cultural values in the United States from the 1970s to the present. The author argues that the history of biotechnology cannot be understood without taking into the simultaneous rise of neoliberalism as a political force and an economic policy.
- Biotechnology and neoliberalism
- Animal and human reproductive medicine
- neoliberalism,'s effect on animals

Something that struck me when I was reading this, was the relationship between human reproductive sciences and agricultural sciences. While there is a lot to debate about the ethics behind these technologies, I'm more concerned about the history and development of these procedures. Techniques such as in vitro fertilization were first developed by experimenting on animals and was then later used on humans. The ability to freeze embryos and eggs as well as a wave of other developments led to the transformation of human reproductive medicine. And it was all thanks to technical developments from the experimentation on animals as well as advances in agricultural sciences. I think this illustrates a really interesting perspective about how we view animals and raises a lot of questions about ethics.

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• THE APPLICATION OF FORDIST INDUSTRIAL METHODS ON ANIMALS & A QUOTE FROM THE BOOK

- “North American cattle industry being the first to deploy reproductive technologies on a large scale. And as with other areas of Fordist manufacturing the aims of these procedures (artificial insemination, hormone injections, super ovulation, etc) is to increase the production of relative surplus value (milk and meat) by getting the most out of each unit time of reproductive labor. In line with the standard rules of assembly line production seeks to eliminate underproductive time by extending fertility of animals beyond their naturally fertile years or freezing embryos for later usage; to maximize the production of surplus value, by augmenting the number of eggs produced at a time, doing away with the obstacles of space and time. the overall effect of these technical interventions is to collapse chronicity of genealogical time, rendering each moment of the reproductive process exchangeable against any other, and to transgress the boundaries between bodies and lineage. Hence, as several commentators have noted, some of the most disquieting effects of the new reproductive sciences--in particular, the suppression, confusion, or reversal of generational time--were evident in the field of animal biology long before their human applications brought them to the attention of bioethicists.”

DONNA HARAWAY

• When species meet

- She Pushes against “human exceptionalism” which severed the ties between human kind and all other kinds. She insists that we should see ourselves as just another knot in the worldwide web of interspecies dependencies
- Some of the stories she tells in this book are about scientists who do use animals for research purposes. She makes the argument that the quality of the research depends on respecting the ethical obligations humans have to animals. She thinks humans should learn to share the suffering that occurs in non-mimetic ways, namely not by taking the place of the animal victim but by understanding what the animal is going through in order to get this unequal relationship and power structure right.

My take away:

- Capitalism and neoliberalism further deteriorates the treatment of animals and negatively affects our perception of animals. Perceiving animals as merely raw material and disregarding their sentience ultimately leads to abuse. A capitalist profit motive as the only governing process of farming and animal research, it becomes difficult to allow moral sensibilities or intuitions, such as compassion for the suffering individual.
- additionally, I think it's worth thinking about the dissolution of the commons and the expropriation of animals

“*phylo*typic”

- To reiterate what’s happening in this piece, I am juxtaposing a human embryo and a mouse embryo. In the middle is an ovum which depicts the mouse and human embryo residing in the same space. This work is intended to sort of function as a way to disrupt human exceptionalism.
- The *phylo*typic stage is a key concept in evolution and development. It can be defined as the time point in the development of an animal when it most closely resembles other vertebrates and This means species that were distantly related on the evolutionary scale, even after millions of years, all had the same molecular basis that defined the blueprint of body formation.

MOUSE ©

- The green color of the mouse embryo directly references the creation of glow in the dark mice that were produced by chemists and gene therapy experts by inserting the code for modified proteins into the cells of mice.
- The embellishments in this design I took from the Allen Mouse Brain Atlas, which is a genome-wide, three-dimensional map of gene expression throughout the adult mouse brain. The purpose of this atlas is to aid the development of neuroscience research.

HUMAN PANEL

- The embellishments on the human panel were sourced from a 3D viewer created by PDB-101, which is an online portal for the general public to promote exploration in the world of proteins and nucleic acids. I chose to use
- Ornamentation
- It’s worth noting that this embryo is the only depiction of a human form in this body of work.

FABRICATION PROCESS

- Essentially what I have in my final design is a laser cut enclosure which contains three addressable LED lights which are connected to an arduino which sends code that assigns each strip a color.
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- I had to learn a lot of new skills in order to create this piece. Such as utilizing CAD(fusion 360) for a CNC, soldering, arduino coding, and design considerations for laser cutting,
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- I had to do a lot of iterations of my enclosure design because I ran into a lot of troubleshooting and had difficulty finding an accessible place to get this piece fabricated. My original design was intended for a CNC machine, but I eventually settled on redesigning the entire concept for laser cutting the cost.
- I was really happy when I was able to test this out for the first time, because I had to put in a lot of precise planning when making this so everything would work.

Seashell Project

Intro:

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- This work depicts a seashell that contains a small speaker instead of a mollusk. This work references the folk myth that the sound of the ocean can be heard through seashells. The ocean-like sound is due to resonance of the seashell, which has a similarity between the airflow and the sound of ocean movements.
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- As I was working on this project I realized that white noise sort of sounds like the ocean. Again, I was leaning into the uncanniness of mimicking natural sounds.
- The noise seashell is no longer being an intimate experience but rather something imposed on you
- I wanted the seashell to be clear so you can see the technology

SEASHELL FABRICATION PROCESS

- This seashell started out as a 3D model, and was my first ever attempt at 3D printing. I had to test out different seashell meshes in blender. You have to make a lot of adjustments to make sure the 3D print looks good. I modified the mesh in blender to have a cavity for the speaker.
- I split up this model in half for the sake of time. I did a lot of research on the filament I wanted to use because I wan't to achieve translucency. The filament I used was called "T-glase" which was interesting to use but unfortunately it wasn't as transparent as I wanted.
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- I glued together the two halves of the 3D model and sanded it down. Next, I filled all the inconsistencies with car body filler which I sanded down again. After that I decided to create a Silicone mold which I then made a cast resin model of. This was another process I've never done before, but luckily I had Crystal Schenk let me sit in on her class to learn how this was done.
- After, I released the model from the mold, I had to do another round of sanding + polishing.
- I later ordered a small speaker and a PCB which generated the noise signal. I finally soldered everything together.

- This seashell piece relates to something I was thinking about when I was making the remaining pieces I have yet to talk about which is my interest in plastics/synthetic materials
- Plastic has become an ever-present surface, like a screen that separates us from *and* bonds us to this new kind of natural world.
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PLASTIGLOMERATES & MICRO PLASTICS AND SYNTHETICS ANIMALS

- The term “*Plastiglomerates*” refers to “a solidified, multi-composite material made hard by agglutination of rock and molten plastic . Essentially, it’s stone that contains mixtures of sedimentary grains and other natural debris (such as wood and shells) and is held together by hardened molten plastic. As a geological artifact, the plastiglomerate is an indicator of human impact on the ecology of Earth
- In article by Kirsty Robertson called *PLastiglomerate*, she quotes Roland Barthes in his book *Mythologies* saying, “Plastic soon shed its utopian allure, becoming hard evidence for the three c’s—the triple threat of capitalism, colonialism, and consumerism—as well as a kind of shorthand for all that was inauthentic and objectionable about postwar everyday life. Plastic was just the latest evidence of bio-cultural cynicism. As earlier forms of extraction—such as the exploitation of rubber from trees and animals for their products—became unfeasible, the continued expansion of the three c’s was made possible through new forms of extraction, such as resource mining *and* oil-field development. While the site of exploitation may have moved, the underlying patterns of accumulation, colonization, and consumption remained unchanged.”
- Robertson’s response to this stood out to me as she wrote, “ Was Barthes correct in saying that plastic can be made into anything? In the past, it might have been assumed that “nature” was the one thing that could never be made from plastic. Plastiglomerates suggests that this is no longer the case. It is an ecological paradox such that the mind struggles to separate its plasticity from its telluric oily past.”
- This article greatly contributed to this synthetic hybridity that I was interested in conveying.

MICROPLASTICS

- Various animals that have been found to have micro plastics in their body. For example, in the blood of farm animals including cows and pigs.
- There are small ocean dwelling-crustaceans that can break down micro plastics into even smaller nano plastics, which are so tiny they can even get inside cells. There is data out there that suggests the potential for nano plastics to infiltrate and distribute throughout the bodies of fish. And how exactly these nano plastics could affect an organism is still widely unknown.
- With this knowledge in mind, I was imagining the transmutation of animals into the materials they are consuming.

Other ways I've been thinking about plastic:

HURRICANE LIZARDS AND PLASTIC SQUID:

- This book covers how plants and animals are responding to climate change.
- The term “*plasticity*” in relation to Biology refers to the capacity of organisms or cells to alter their phenotype in response to changes in their environment. This property can be studied at the level of the genome (by analysing epigenetic modifications), the individual cell, and the organism (during development of the embryo or changes in behaviour in adults, for example).
- I think this is another interesting way to think about “plasticity” although it may just be a play on words.

ANOTHER INTERESTING FACET OF PLASTIC

- A part of plastic’s emergence was a promise to displace other products that relied on animal remains and natural resources: bone, tortoiseshell, ivory, baleen and whale oil, feathers, fur, leather, cork, and rubber. One pamphlet advertising celluloid in the 1870s stated, “has celluloid given the elephant, the tortoise, and the coral insect a respite in their native haunts; and it will no longer be necessary to ransack the earth in pursuit of substances which are constantly growing scarcer.”

CHARISMATIC MEGAFUNA &

I chose to feature animals that aren’t considered charismatic megafauna, which is a term that refers to larger animal species that have widespread popular appeal.

RUBBER GATOR AND SKIN PROJECTION:

- My intention was to have these two pieces play off each other.

UV printed illustration:

- The imagery if it isn't clear, is a rubber alligator
- I really wanted to incorporate a piece that allowed me to draw. I took a leap of faith when I attempted this because I hadn't really rendered anything from my imagination before and had no idea how long it would take or what the outcome would look like.
- I did the illustration in photoshop and had it UV printed on clear acrylic.

Skin Projection:

- Projection skin —> blurring the line of the synthetic and the natural
- I animated this projection in Blender. How I animated this was quite simple as I used keyframes, which allowed me to automate where the lights are overtime, so there was glistening.

Fabric Fabrication

- I sourced these 3D models on an open-access archive/ data repository , called Morphosource, where various museums, universities, and biologists upload 3D scans of objects catalogued in scientific collections of museums and universities.
- I went through hundreds of models, and downloaded the models which stood out to me. But I'm actually using the same model over and over again on this fabric piece, but it looks different in each iteration due to me manipulating the mesh in blender.
- I really wanted to get a synthetic look for this model so I used a plastic shader. The coloring and appearance of the model is largely influenced by the various HDRIs.
- HDRIs are basically an image format that contains from the deepest shadow up to the brightest highlight information. Using HDR images in 3D environments will result in very realistic and convincing shadows, highlights and reflection. The HDRIs I used were taken in environments such as a prairie, forest, and desert.
- I've never used a sewing machine before and this material was a very expensive silk called Habetai, so I ended up hand sewing everything, and unfortunately had to start over a few times
- It's suspended with acrylic tubes and monofilament.

This will be the last piece I'll be talking about —> Bone projection:

- This is the other animation I made.
- This is another model I sourced from Morphosource. It's a curled snake
- Something I haven't touched on much is my interest in animal mutation/adaptation. I see the contortion of the mesh representing the change a creature might undergo at the skeletal level
- I thought it was interesting that it looked like a hypnotic spiral

- That about wraps things up!
- I want to give a shout out to Megan for helping me trouble shoot things and providing emotional support. And a shout out to Seth for providing his mentorship and guidance.
- As labor intensive as this project was, it really did provide me with a plethora of new skills that I can incorporate in my future work.
- I learned to value self-efficiency —> I think this process taught me that getting my work fabricated can produce more hurdles for me and that I should foster practices that involve me making work that is more accessible for myself
- I'm proud of what I was able to accomplish despite the unfamiliarity I had with most of these materials.
- In the near future, I'm going to take a step back from sculptural pieces and reinvest myself back into working in 2D, just for the sake of convenience.
- Let me know if you have any questions!

