

# Pleasure, Pain and the Art of Questioning Science

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## ABSTRACT

Scientific “materialism”, more recently coined as “scientific physicalism” can explain the physical evolution of life on Earth and to some extent the biological mechanisms of sensation, but science cannot fully explain the subjective experience of emotion and consciousness. In this paper I will investigate three approaches to observing emotion and consciousness through the realms of science, art and philosophy. Science tells me the origin of life emerged from the sensations of pleasure and pain, leading to a biologically rich planet full of animals and eventually humans which are capable of emotions and consciousness. Art, particularly portraits of ambiguous emotional expressions drawn from concerts, help reveal the limits of scientific explanation and open alternative ways of understanding pleasure, pain and the human experience. Philosophy helps to illuminate the blind spot of science, and create new ways of thinking outside of the strict confines of the scientific lab. This paper is about science, art and philosophy combining to create an understanding of emotions, consciousness and the universe.

## **ACKNOWLEDGEMENTS**

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## INTRODUCTION

The tension between science and art is a great force in my life. After falling in love with both subjects in high school I completed a Biochemistry Degree, with a minor in Visual Art from the University of Guelph. I went directly to teachers college at the Ontario Institute of Education where I became a high school Biology and Visual Art teacher. While teaching I realized how much incredible scientific information the students were learning on YouTube. In my spare time I decided to make educational science videos about my favourite scientific concepts, and put them on YouTube. It took off, and for the last 12 years I have been a full time science communicator on YouTube. I created a YouTube channel entitled AsapSCIENCE where I make complicated scientific concepts make sense to as many people as possible. The videos in total have over two billion views and allowed me to teach science to millions of people, but on the other hand, it pushed my artistic passion to the side. When I entered this degree, I had over a decade of scientific thinking pulling me unevenly towards the sciences and further away from the arts. I am going to explain what happened as I challenged my scientific thinking with art making.

This paper, plus a series of portraits, is going to explore the science of human emotion, consciousness and its relation to pleasure and pain. While doing this, it will examine the pitfalls of science, and potentially open up new ways of understanding these themes. The portraits I create are of people experiencing deep pleasure at concerts, but without context the paintings can appear unsettling, angry, or even tortured. The act of painting became an exploration of pain and pleasure, or emotional “ups and downs”. The portraits are a study on the ambiguity of emotion seen in the human face and my eventual questioning of physical science theories. This paper, this portrait series and this overall thesis is about using art and philosophy to question theories of physical science.

## SCIENCE

### The History of Everything

I need to first explain a short history of how we got here, literally. Using scientific information, I am about to explain the history of the universe, and how the sensations of pleasure and pain led to the creation of our neurology. This information continues to blow my mind, and is part of the reason I will always be interested in science.

13.8 billion years ago a primeval fireball exploded in what is known as “The Big Bang”. (Carroll, 2019) Current particle physics labs are capable of estimating what happened one-trillionth of a second after The Big Bang, and at this time the universe was likely filled with radiation, composed of massless particles like photons and neutrinos.

(Prescod-Weinstein, 2021) There were no stars and no galaxies because this primordial fluid was “unclumped”. (Godfrey-Smith, 2020) 50,000 years after The Big Bang and the universe transitioned from being radiation dominated to matter dominated. (Singer, 2007) Essentially things began to cool down and clump together. 200,000 years after The Big Bang and stars were born. 400,000 years after The Big Bang photons decoupled from electrons and protons. (Prescod-Weinstein, 2021) Essentially the radiation had now cooled down enough that the fundamental forces of gravity and electromagnetism could pull the subatomic particles of electrons and protons together to form the first atoms. (Singer, 2007) This led to the first forming of hydrogen atoms, because they are the simplest structure. One negative electron, one positive proton. (Belk et al. 2016) The force of magnetism in the universe at the time caused these subatomic particles to clump together and become an atom. Hydrogen atoms began clumping into even larger hydrogen clouds in which photons began to escape. The photons escaping these clouds led to the beginning of light as we know it. (Singer, 2007) At this point light was created and the universe continued to expand. There was now room for the creation of even more complicated atoms, planets, galaxies and eventually all life on Earth.

Life on Earth began 3.7 billion years ago. The first sign of life on Earth was in the form of ‘protocell’ systems which produced their own membranes, transitioning from an abiotic to biotic world. (Godfrey-Smith, 2024) Most recent theories assume the contents of these ‘protocell systems’ either evolved near the intense heat of geo-thermal vents, or arrived on Earth from an asteroid. (Kukushkin, 2025) Yes, the biochemicals needed for protocellular life on Earth either started due to the heat of a geothermal vent, or slammed into Earth from an asteroid. These protocells eventually evolved into the first cyanobacteria which began to biochemically transform radiation from the sun into chemical energy by exciting charged particles around atoms within their membrane bound cells. (Kukushkin, 2025) Essentially they began to use the energy from the sun to split water (which was covering the Earth) into its constituent parts, hydrogen and oxygen. While doing this the cyanobacteria actually extracted electrons from the hydrogen atoms to utilize the sun's energy, and released oxygen out into the atmosphere as a byproduct. They absorbed carbon dioxide, and spit out oxygen. This was (and still is) the most important chemical reaction for life on Earth, because this was the beginning of photosynthesis. Over time oxygen accumulated so much in the atmosphere that it created what is known as “The Great Oxygenation”. (Kukushkin, 2025) We are now at 2.4 billion years ago, when levels of oxygen rose high enough on Earth to support a huge boom in life. The cyanobacteria now clumped to create algae. Therefore technically the ancestors of all life on Earth is algae. (Godfrey-Smith, 2020) Soon after moss was growing near ponds, and expanding into ferns.

Fungi was evolving near root systems and biological processes were thriving all over the world. (Belk, et al. 2016)

Animals came after this. We (animals) all evolved from a non-moving sea sponge that allowed water to flow through it. As water flowed through, the sea sponge would absorb or 'eat' cyanobacteria and debris. Again, these sea sponges were static, they did not move, but they had polyps that would fall off of them which other sea sponges would grow out of. At one point, some polyps likely landed on the sea floor and began to evolve movement in order to traverse along the bottom of the sea bed - which was now covered in tons of edible debris, and dead bacteria. (Kukushkin, 2025) On the sea floor there was tons of "food". The polyp over time would grow in complexity, gaining a mouth and an anus. A head and a tail. From this point forward animals began to explode in number all over the planet leading to what is known as the 'Cambrian Explosion'. (Godfrey-Smith, 2020) Around 541 million years ago, fossils now show there were tons of worm-like things. It was essential for these animals to have a mouth and anus, in order to move forward. Some scientists call this era of animal explosion the "anal breakthrough". (Kukushkin, 2025) One of the most important aspects of our evolution is evolving an anus, and becoming a tube that moves in one direction. All animal evolution as we know it started at this time, which is the reason all animals on Earth are bilaterian, aka mirror images cut down the middle with legs and arms on either side - because we all evolved needing to push ourselves forward to eat food, and poop it out. (Belk, et al. 2007) Some scientists define all animals in relation to movement. Unlike plants and fungi - all animals need to MOVE to get food. It turns out this movement required the evolution of neurons and a nervous system. The evolution of a nervous system relied on the sensations of pain and pleasure.

### **The Polyp, the Slug and the Evolution of Pleasure and Pain**

Back to the sea polyp, aka "sea slug". I'm stopping to talk about these sea slugs because they contain the first evidence of neurons, which begin the evolution of our brains. The first neurons evolved in line with the concept of pleasure and pain. One reason pleasure and pain plays such a key role in my art, is because the ability to "feel" pleasure and pain led to the origin of the human brain, and essentially all animals. Potentially the first sensations ever perceived by an "animal" was a form of "pain".

*"The earliest evolution of the brain on Earth came from something we all evolved out of that resembled a sea slug, with two simple neurons. When you apply pressure to a sea slug's skin, one neuron nearby can sense the touch through its dendrite and become activated. One tail sensory neuron that reacts if you poke the tail, and one head neuron that reacts if*

*you poke the head. The neurons, in turn, activate the nearby motor neurons, which are also dedicated to specific body parts and send signals back to the muscles in that tail or head, causing them to contract. This is the first example of a potential reaction to being touched.*

*This would go on to evolve into the first potential reactions to pain”*

(Kukushkin, 2025, pg. 165)

This scientific information has always fascinated me and is now a key concept for my art. The neurology of all animals on Earth evolved out of our nervous system attempting to get us to move to “seek” pleasure and “avoid” pain. These sensations built our brain. Pleasure and pain are inseparable companions. (Weil, 1997) Our whole physiology was based on pleasure and pain.

Even from an action potential perspective. All energy in the brain is related to an action potential that requires a neuronal spike - which travels like a wavelength. An appearance of physical ups and downs, pleasure and pain linked to human cognition.

*“The neuronal spike is one of the most elemental stripped-down manifestations of cognition - the process that we generally refer to as thinking. We don’t tend to put philosophical weight into cells and molecules, but a spike is a perfect place to do just that. It represents an essential bridge between a neuron and a mind - more broadly, between the physics and chemistry of living matter and our inner lives. It is in search of such bridges between small and big, between mundane and profound, between specific and abstract, between pleasure and pain that we find meaning.”*

(Kukushkin, 2025, pg. 167)

Scientists tend to look for consciousness in organisms that act as if they are capable of seeking pleasure and avoiding pain. It is one of the ways that scientists try to categorize animal ‘life’. They try to explain that if a biological system is capable of actions that reflect pleasure and pain, it may be on its way to ‘feeling’ emotions. Pleasure and pain are essentially integral aspects of complex conscious life.

*”How can a physical system feel pain - a system that senses like a thermostat does not feel pain... looking at insects - to search for pain, and therefore a potential for consciousness, we may look at 1) tending and protecting injuries, 2) seeking out analgesic chemicals, 3) learning to avoid particular behaviours or situations and 4) trade off between choice situations where an animals seems to balance the badness of an experience with the other costs and benefits.”*

(Godfrey-Smith, 2024 pg. 82)

From a scientific perspective, life is sometimes defined by the ability to avoid pain, (injury) and seek pleasure (food). How do animals avoid pain and seek pleasure? They have a brain and a nervous system that makes them move. The complex neurology of animal life. The neuronal spikes that started in a sea-sponge in order to avoid pain - grew in complexity over millions of years to make us humans seek pleasure and avoid pain in order to survive. Before this degree I was convinced that the science of seeking pleasure and avoiding pain extended to the evolution of our emotions and consciousness. But as I continue my exploration of this topic, I began to learn that science is actually unable to explain human emotions or consciousness.

### **“Materialism” / “Physicalism”**

*“Materialism / Physicalism’ - is a form of philosophical monism which holds that matter is the fundamental substance in nature, and that all things, including mental states and consciousness, are results of material interactions of material things.”*

(Godfrey-Smith, 2024 pg. 12)

Most of the books, papers and research that went into the history of the universe I just gave you relies on ‘materialist / physicalist’ concepts. (Frank et al, 2024) Understanding the universe's evolution over billions of years requires a fundamental understanding of how the physical world works. There are laws of nature and physics that allow us to understand how the universe potentially happened. Forces, pressure, atoms, molecules, food, energy transfer etc. are all key elements of the history of life on Earth. Where science begins to fall apart is when it tries to explain the fundamental feeling of now. The fundamental feeling of experience, the fundamental feeling of emotions and consciousness. (Frank et al.)

I now think science cannot explain emotions, consciousness and what it feels like to be ‘alive’ because the study of "physicalism" is devoid of life - it is a lifeless pursuit - using a scientific lab to extrapolate to real life is not possible. Life is too complex. I was only able to think like this after exploring human emotion in my art, and discovering new ways of thinking outside of materialism. I entered this degree thinking materialism could explain everything, including human emotions and consciousness but I no longer think this. In the next section I will explain how “materialism and physicalism” controlled my painting practice, and the art making moments that allowed me to finally question the pitfalls of “materialist and physicalist” theories.

## **ART**

### **Early Paintings Influenced by Materialism**

At the beginning of this MFA I was looking to the physical sciences for inspiration in my art. I mined scientific theories of “materialism / physicalism” to enhance my painting practice. I hit a crisis moment. Not only was I struggling to make paintings with the intense inspiration and kinetic feelings I’d had in the past, but my research on ‘physicalism’ was bringing up old anxieties of death, meaninglessness and how fully subscribing to the laws of natural science can leave me hopeless. If I fully subscribe to “physicalism” then it means that all emotions and consciousness are emergent phenomena created by the collision of atoms, transfer of energy - and once the entropic stability of my body is gone - then everything is gone. There is a deep fear of death and nothingness that comes with materialism. As well it can make joy and love feel “not real”, instead registering them as just sprays of chemicals in our head.

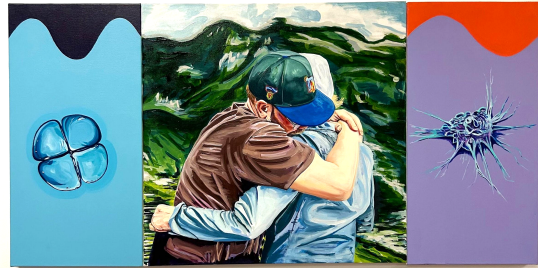
Here are some of the paintings throughout my degree, along with my thinking and progression that led me toward an eventual questioning of physicalism, new found love of painting, and finally towards a painting show I could have energy behind. This is a history of a few of the paintings I made in my degree, along with notes on each. It shows how my painting practice changed.

*ENTROPY* // Acrylic and oil on canvas, 42" x 32" (2024)

This painting is read from left to right. An embryo grows into my life, which will likely end in cancer.

My mom was recently diagnosed with bladder cancer, and this was a painting of me hugging her. It was an attempt to release and explore emotions I felt around life, death and my mom’s deep love.

I was trying to show life through the lens of materialism. An embryo grows into a human life full of love, which ends in death (likely by cancer). At the top you see a ‘wavelength’ going from higher energy to low. Our life is energy that disappears.



*DECOMPOSITION* // Oil, Acrylic and Soil  
on Canvas + Board, 24" x 42"

This painting is read from the bottom up.  
Soil contains microbes that will eventually  
consume my body and release the nitrogen  
that kept me alive.

This painting is of what it felt like to trip on  
mushrooms in High Park. I was  
contemplating my own death from a  
materialist perspective. It felt humorous,  
and the effect of the paintings gave me  
some comfort around death, but at this time  
materialism was still controlling my life.



*Neoliberal Shipping Containers // 24" x 30"*

Acrylic on Wood, with cut acrylic and an acrylic speedo

With the tariff war starting - my week was consumed with reflecting on Canadian history, consumption and supply chains. I began to learn a lot about how I am complicit in a tariff war, and that late stage capitalism really is on its way out. As I said earlier, I believe the term "contemporary" in "contemporary art" coincides with the years of the climate crisis, another theme I tried to follow here.

The text in the middle says "a gay guy once told me that Speedos® are single use"

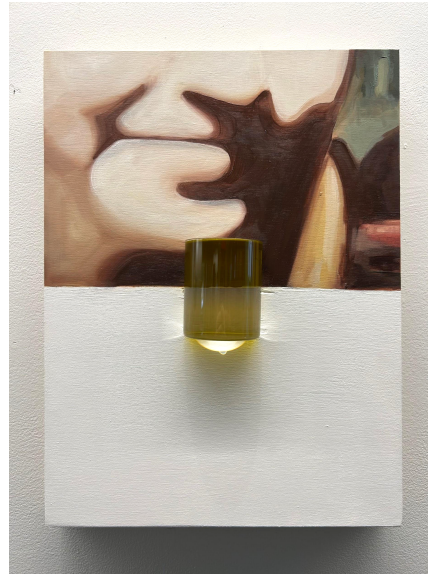


*My Sister's Smile* // 18" x 20" Oil paint,  
linseed oil and acrylic gesso on wood

I was painting all year with oil and water based paint. I began to think about a painting inspired by how oil and water cannot physically mix, and about how something as intellectually complex as love is due to biochemical reactions (physicalism).

One of my deepest loves is my sister. I began to create a painting to show this. I chose to zoom in on my sister's smile.

Looking back, there was something about the ambiguity of the smile that ended up being an idea I would follow.



#### THE FIGHT:

Our professors brought in two guest curators for a class critique. I recorded the conversation and after the critique my professors encouraged me to write it out and include it in my final thesis paper. So here it is:

- Guest Curator 1: "Do you love the material paint?" I say, "no" but, "I love the act of painting". He then says "you need to love the material of paint, or else there is no point in being a painter."
- Guest Curator 2: interrupts him (kind of angry). "It's about the act of painting - not the material - the top part is sensual. The love is there - do not give up painting, I can see the love and care in your sister's smile. I'm interested in you as a painter. I also think this could be defined as a sculpture?"
- Guest Curator 1: Interrupts. "This is not a sculpture - and the top of the painting doesn't show any love for me. Could have been a fragment of the Mona Lisa. It isn't obviously a sister. Love involves care, dedication and time. Maybe making

hundreds of sculptures - reflecting on your sister's smile and creating membranes - meticulously adding oil and water to create membranes - that is care."

- Guest Curator 2: "Can you explain to me how the top part doesn't show love and care to you? I don't get what you are talking about - all these other ways you want him to explore 'love and care' are about taking time - but to me painting also takes time, and the whole painting is doing that - showing time love and care in a new way."
- GC1: "This remains partially illustrative - need to employ and not illustrate - you need a practical demonstration. I think it is an interesting painting - but don't close up shop and put jars in figurative paintings. You're talking about membranes, then show us more about membranes."
- GC2: "I think what you're describing has no love attached to it, but okay fine, I think we can just agree to disagree - but I think I can see that he is a painter."
- GC1: "I'm not saying he's not a painter - I just think this painting is not as effective as you're making it out to be - and he shouldn't continue to make paintings about oil and water and membranes and if he does he should show us in another way. What can I say - I find it boring. I can't really even tell the top part is a smile without knowing the context or name of the painting"
- GC2: kind of angry says "we can agree to disagree"
- The critique timer goes off.

It was fun to watch but I was blushing with nervousness. My professors were excited to debrief after. Both of my professors agreed that I should not continue to make paintings with jars of oil and water built into them, but they were excited about the energy the painting created. They felt that the zoomed in composition of the smile was really working. Portraits without context. They also saw that my painting style was evolving. They weren't sure what I was actually trying to say ABOUT science, they felt I was still just using it as inspiration - and not having a deep take on it outside of showing us that it is "everything" and could be "love". They encouraged me to look into texts that question science. They felt the answers to my questions about life, death and love probably aren't going to be answered by science. They

wanted me to continue to think about the evolution of emotions, and where love and consciousness come from, but they didn't think science was where my answers would be. To be honest I didn't know what they meant at the time - but looking back it makes sense to me that this could be when I started to question science.

At this point we had one final week left in the semester, so I tried to create as many pieces as possible. I made 3-4 paintings which were all not successful. Including the one below, which would be a stepping stone towards a more complete idea. This painting does not work, but the concept behind it led me to a new perspective on pleasure and pain which eventually allowed me to fully question physical science.

"*Bieber fever*" 42" x 42", Oil on Canvas

This painting is of a Justin Bieber fan in Mexico City watching him perform from the front row.

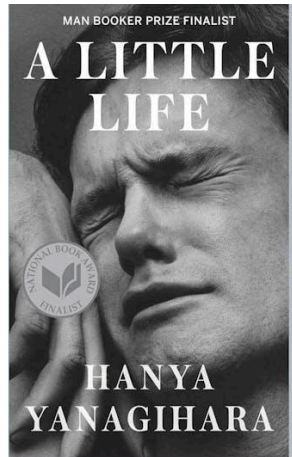
Darwinian theory states that based on the 43 muscles in the face - we can understand anger, sadness, confusion, joy and surprise, but recent research has found out that our brain relies on context to understand emotions and consciousness.

I cropped in on this face to eliminate context, and see what type of emotions it would evoke.



### Discovery of Ambiguous Emotion

I started to reflect on how this painting of ambiguous emotion in some ways ended up being an expression of a life long obsession with pleasure and pain, ups and downs and wavelengths of energy.



It reminded me of Peter Hujar's photograph *Orgasmic Man*. Used as the cover for the queer novel "A Little Life" by Hanya Yanagihara, the photograph is meant to confuse the viewer as to whether the person is feeling pleasure or pain (orgasm or crying). This is the exact feeling I wanted to evoke from the Justin Bieber concert painting. The fact that my classmates were humans unable to properly read the emotions seen in this painting, and could not understand if it represented pain or pleasure, made me question the human brain's ability to properly assess emotions at all. I was also reading a book by Simone Weil called "*Gravity and Grace*" which in many ways was about spirituality and the questioning of science. As well - a new book came out by one of my favourite materialist writers Peter-Godfrey Smith. It was about "predictive processing", a new theoretical approach to human consciousness. Essentially your brain is always predicting what it is going to see, relying on the context of your surroundings and your senses to fill in the gaps.

*"A newer theoretical project, 'the predictive processing' framework, stems from work on perception. It emphasizes the importance of prediction, and the ongoing correcting and updating of predictions, within ordinary seeing and hearing. In perception, we continually keep track of the differences between the stimuli we expect and what actually comes in. An extension of this view argues that action, too, is part of the project of prediction."*

(Godfrey-Smith, 2024, pg. 134)

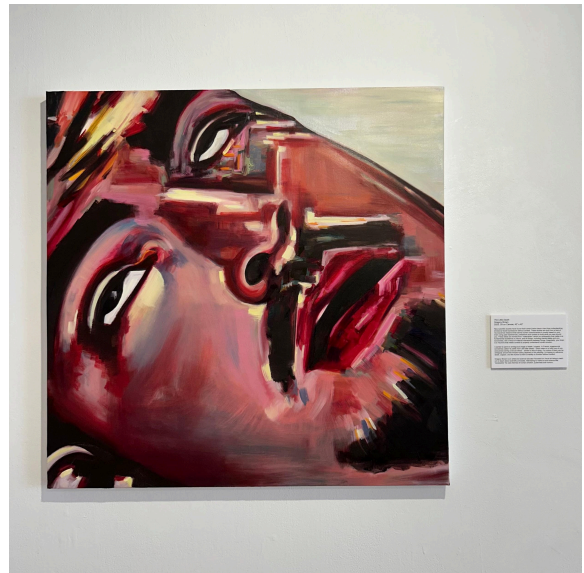
I think it is for this reason that without context - our brain is unable to understand human emotion. We put so much of our lived experience into what we predict, and therefore perception of emotion in faces without context could be an example of materialism falling apart in real time.

This was also when I started to work with Natalie Waldburger as my primary advisor. We were talking about a painting I had just started. A cropped image of someone having an orgasm from gay porn, but it almost looked like they were dying. Cropping in, losing context

and creating paintings of ambiguous facial expressions that towed the line between pleasure and pain. Natalie mentioned that in France, orgasms are sometimes called "*le petite mort*" (the little death) - which refers to a brief loss of consciousness during a sexual climax - similar to that of dying. This was fascinating to me and was going along with themes I was trying to tackle in my painting practice at the time.

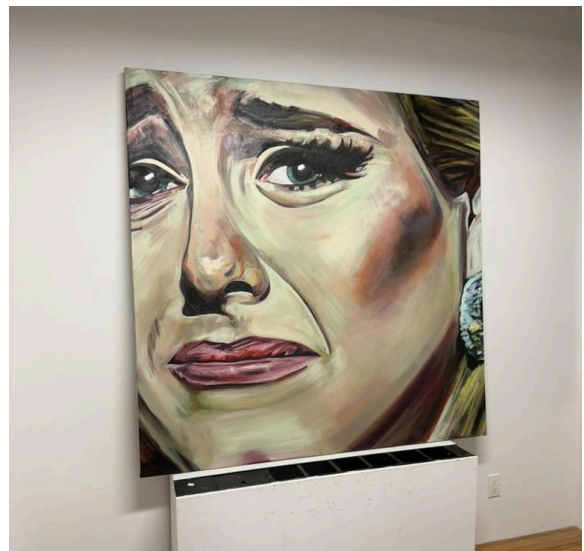
*The Little Death // 42" x 42"*

New scientific studies have found that human brains have a hard time understanding emotional facial expressions without context.



*Adele winning her first grammy // 60\"/>*

I was looking for source material to paint, for example times when humans were feeling happy, but looked sad. Feeling ecstatic, but looked in pain. I was drawn to award ceremonies. These are displays of deep gratitude, pride and joy - but sometimes the winners look as though they are in pain. I found this moment of Adele winning her first Grammy and it struck me. I decided to crop, expand and really study her face. Paint it, and flush out this idea that we don't understand human emotion in the face. Science cannot explain it.



On the left is a painting of a Real Madrid fan, on the right is a painting of a moment from “Saving Private Ryan” that I remember disturbed me as a kid. He is dying and calling out to his mom, but cropping in and with this colour palette I find the painting to be sexual.

I was trying to play with what happens to emotions in the face without context.



If materialism was true - I think everyone should be able to look at these paintings and understand the emotion they are trying to evoke. Materialism makes me think that the context of a painting should be the same for everyone, if the same sensory information is hitting people’s retinas, the same emotional interpretations should come through. If people disagreed about the emotion of the painting they are seeing, or questioning it, that made me question my materialist views of the world.

My hope became to create a painting series that could make people feel emotionally charged but confused about what the exact emotion is. I want people to reflect on pleasure and pain, potentially reflecting back to people what it feels like to be alive today.

With all of this in mind I began to meet with my newly assigned advisors Natalie Waldburger and Amy Wong. They could see where I was coming from - but felt that the paintings I was doing were not a reflection of “me”. They thought the ideas were potentially compelling, but felt my personal attachment to these paintings wasn’t there. They also wanted me to reflect on what it feels like to paint and think more about what I was choosing to paint, and why. Finding images from the internet for inspiration lacked specificity. They also felt my queerness and personality was lacking in these paintings. Except maybe the reference to pop culture with Adele. I could tell they felt the person they were meeting wasn’t being reflected in the paintings. The scientific research was interesting - but there was not enough specificity in what I was painting.

As I researched more about how emotions manifest in the human face, I realized emotions were not fully understood within the realm of materialism. In fact - there was no scientific consensus on the nature of human emotion.

*“Emotions are at the heart of how we understand the human mind and of our relationships within the social world. Yet, there is still no scientific consensus on the fundamental nature of emotion. A central quest within the discipline of affective science is to develop an in-depth understanding of emotions, moods, and feelings and how they are embodied within the brain. Although this may be physically impossible.”*

(Burrows, 2016)

Essentially scientists were arguing about the fundamental nature of emotion. The concept of materialism is currently unable to define why emotions exist and why they feel the way they feel.

Could I make a painting series ambiguous facial expressions? Could painting be a way to explore emotions outside of the realm of science? How could I create a painting series about my personal connection to pleasure and pain?

*“By nature we fly from suffering and seek pleasure. It is for this reason alone that joy serves as an image for good and pain for evil. Hence the imagery of paradise and hell. But as a matter of fact pleasure and pain are inseparable companions.”*

(Weil, 1997 pg. 68)

### **Concerts as Methodology of Collective Emotion**

I began to reflect on some of my earliest childhood memories. When was I happiest? It made me reflect on my first concert, which was a Celine Dion concert with my mom. It was a bit of a lightbulb moment, as I realized, I have been hyperfixated on going to concerts my whole life. As well, I had already painted a Justin Bieber fan, and a Real Madrid fan. Fandom was interesting to me. Concerts, pop stars, fandom, huge stadium shows of collective crowds coming together is a huge part of queer culture. I was reminded of an episode of *AsapSCIENCE* that I did about the science of concerts. It was an animated video I had researched and created about the term ‘collective effervescence’ coined by Emily Durkheim. (Leibst, 2019)

*“The ingredients for collective effervescence include a number of copresent individuals, physically gathered in a demarcated place, sharing a common mood and focus of attention. These variables are further reinforced through bodily processes of rhythmic entrainment by which participants become synchronized with each other’s motions and emotions. This leads to an “intensification of shared experience, what Durkheim called*

*collective effervescence, and the formation of collective conscience or collective consciousness". The subsequent ritual outcomes are the building of emotional energy in the individual combined with the growth of group solidarity, morality, and membership symbols."*

(Leibst, 2019)

Concerts are a place of collective effervescence. Concerts create a collective consciousness. Concerts create a synchronicity of positive emotion. More personally, concerts with my family and friends were significant memories in my life. Concerts create an atmosphere where you lose self-consciousness. Self-consciousness is lost among loved ones, friends, and even strangers through screaming and collective joy.

I began to comb through the footage on my iPhone of all the concerts I had seen in the past 7-10 years. There it was, people experiencing extreme forms of pleasure, moments of ecstasy. As I cropped in on their faces, I could see the pain. I could feel the derangement. I knew I needed to eliminate the context of the concert due to the scientific principles I had studied before, but it led me to these flashpoints of emotions, where faces were giving off interpretations of pain, pleasure, surprise, happiness and even fear all in one moment. I decided I wanted to pursue this idea. Could I use the video clips from these concerts as inspiration for paintings? Could I listen to the music of the artist they were watching as I painted? Could I try to emote the feeling of being in these concert settings as I painted? I felt that this idea related more personally to my experience of pleasure and pain. It referenced pop culture and entertainment while reflecting who I am at the same time.

*"Joy is the overflowing consciousness of reality."*

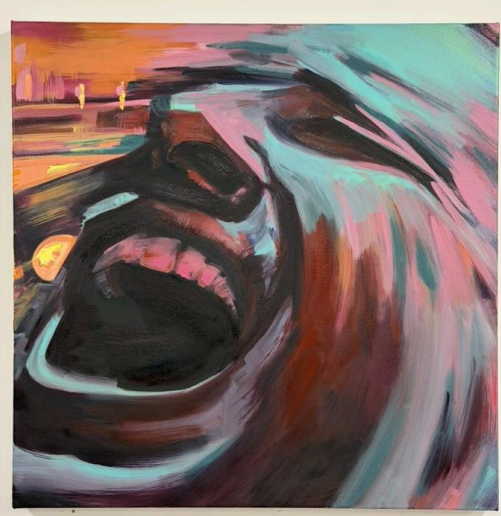
(Weil, 1997)

That statement summed up what concerts feel like to me.

## Painting as Methodology

*Ribs*, Lorde: “The Solar Power Tour”

Oil on Canvas  
24” x 24”



The first painting I made for this series was of my best friend Mark at a Lorde concert. It was during the climax of the song *Ribs*. This moment moved me, I remember we were jumping, screaming and ‘losing our minds’. I wanted to create a painting that could be a scream of agony, but in my head I knew it was a scream of deep pleasure. How you read this painting is context dependent.

*“Artworks, like any other stimuli that humans interact with, are not experienced in isolation. Rather, experience is strongly context-dependent, mediated by who we are, what we are doing, and how we engage our environment.”*

(Kühnapfel et al. 2023)

*Ella Baila Sola*, Peso Pluma: “Doble P Tour”

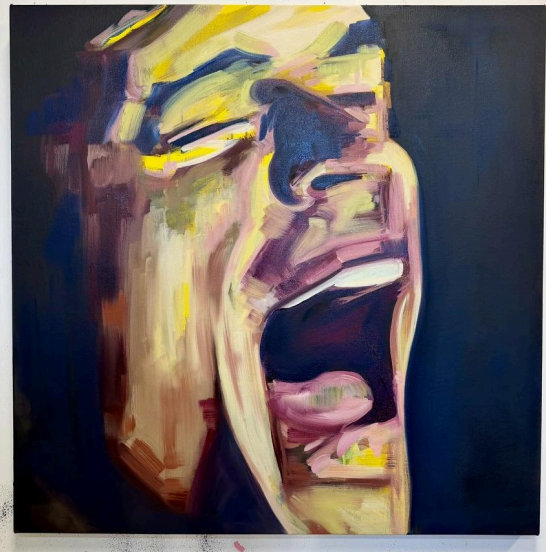
Oil on Canvas  
24” x 24”



The second painting was made after a Peso Pluma concert I had just gone to. I was drawn to the sadness that this face was provoking even though he was singing along to a song he loved.

*LoveDrug*, Lady Gaga: “The Mayhem Ball”

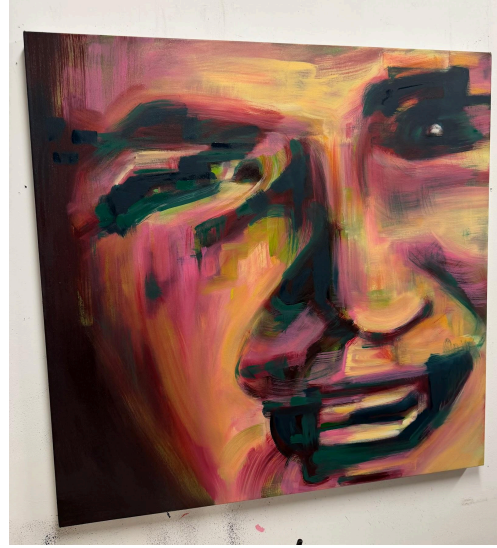
Oil on Canvas  
36” x 36”



This painting is of my boyfriend at a Lady Gaga concert. I found a blurry image of his face from a video during one of his favourite songs. I used a larger canvas in order to increase the brushstroke size. I was trying to make the paintings more fluid. The image did not look like this, but I used it as inspiration to create a much more detailed depiction. I tried to think about what colours the song reminded me of, which was yellow. A colour I usually have a hard time with. I made the background yellow, and used purples and blues to go overtop.

*Honey*, Robyn: “The Honey Tour”

Oil on Canvas  
32” x 32”



This is a painting of my sister from a Robyn concert we went to one year after she had her first child. It was a catharsis for her to be on a trip, but she was sad to be away from her new baby for the first time. I remember feeling so much love for her but also a feeling of sadness. I tried to paint this with only large brushes, and keep the intensity of her face.

I was starting to feel like these paintings were looking the same. The intensity of feeling was there, but the colours, brushstrokes and overall impact was becoming similar. Natalie and Amy were giving me incredible advice. They asked me to look into artists who have created similar work such as Marlene Dumas, Karen Kilimnick, and Micheal Borremans. Peter Morin told me about an artist named Christian Boltanski which was incredibly inspiring. They encouraged me to study other painters. I saw a show online by Miriam Cahn which helped me be more push my painting towards more abstraction and freedom.

I began at this time to learn about new research on how we perceive the world through low and high order abstractions. Each brushstroke in a painting is a lower order abstraction which is then built upon other brushstrokes to create a higher-order abstraction of something visible which your brain then uses context to build an even higher-order abstraction of deciding what it is perceiving (in the case of my paintings) as pleasure or pain. (Kukushkin, 2025) If a painting is less resolved - if a painting has fewer brushstrokes - is less 'clear' than it is a lower order abstract painting and therefore your brain may have to “work harder” to interpret it. This got me thinking, maybe making 'lower-order' (less 'realistic') paintings was a better way to create the 'meaning' I was trying to evoke.

If the show already had the four 'realistic' paintings then the observer would be primed to see faces in any canvases I made moving forward.

*Greenlight*, Tate McRae: "Miss Possessive Tour"

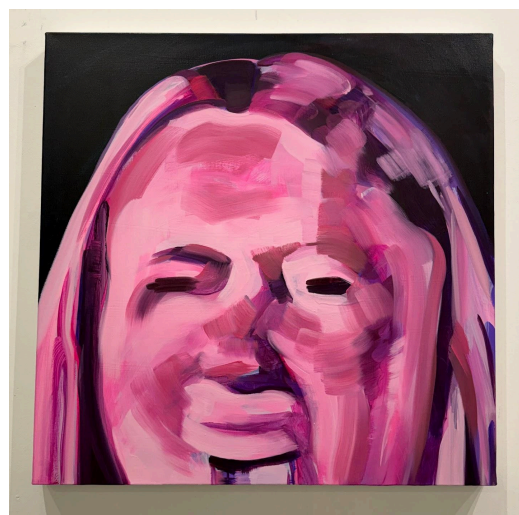
Oil on Canvas  
24" x 24"



I wanted to create a more abstract painting, with less information. Make it monochromatic. I based it on a moment while watching Tate McRae perform a song called "Greenlight" in concert and was blown away by the positive energy of all the fans around me. They were young, exploding with energy, full of love, confidence and joy. In the end it created a more abstract, morbid and deranged painting. This felt closer to what I was trying to create. An uneasy image, questioning the pleasure and pain of being alive right now.

*Anything Can't Happen*, Dorothea Paas:  
"Live at the Garrison"

Oil on Canvas  
24" x 24"



I wanted to stay within a more abstract and monochromatic painting style. I was now seeking out concerts, and places of collective effervescence. I had seen my musician friend Dorothea Paas perform at a church in the west end of Toronto. This is not a painting of someone in a crowd enjoying music, this is someone performing. There was something so intense about her face the whole time she was singing. I tried to remember what she looked like and paint this image from memory. If I painted from memory - it would be even more likely to be a low-order abstraction. Something I had become interested in.

*Saoko*, by Rosalia: "The Motomami Tour"

Oil on Canvas  
24" x 24"



Instead of honing in on the friends and family around me at concerts. I thought about the strangers and people in the deep background of videos. One of the most creative and mind blowing concerts I have ever been to is the MOTOMAMI tour by Rosalia. She was wearing this distinctive blue dress outfit. And since I was still trying to go for simple, low order abstracted monochromatic paintings. I used the dress as inspiration for a colour palette, and painted what I thought someone "far away" in a crowd would look like.

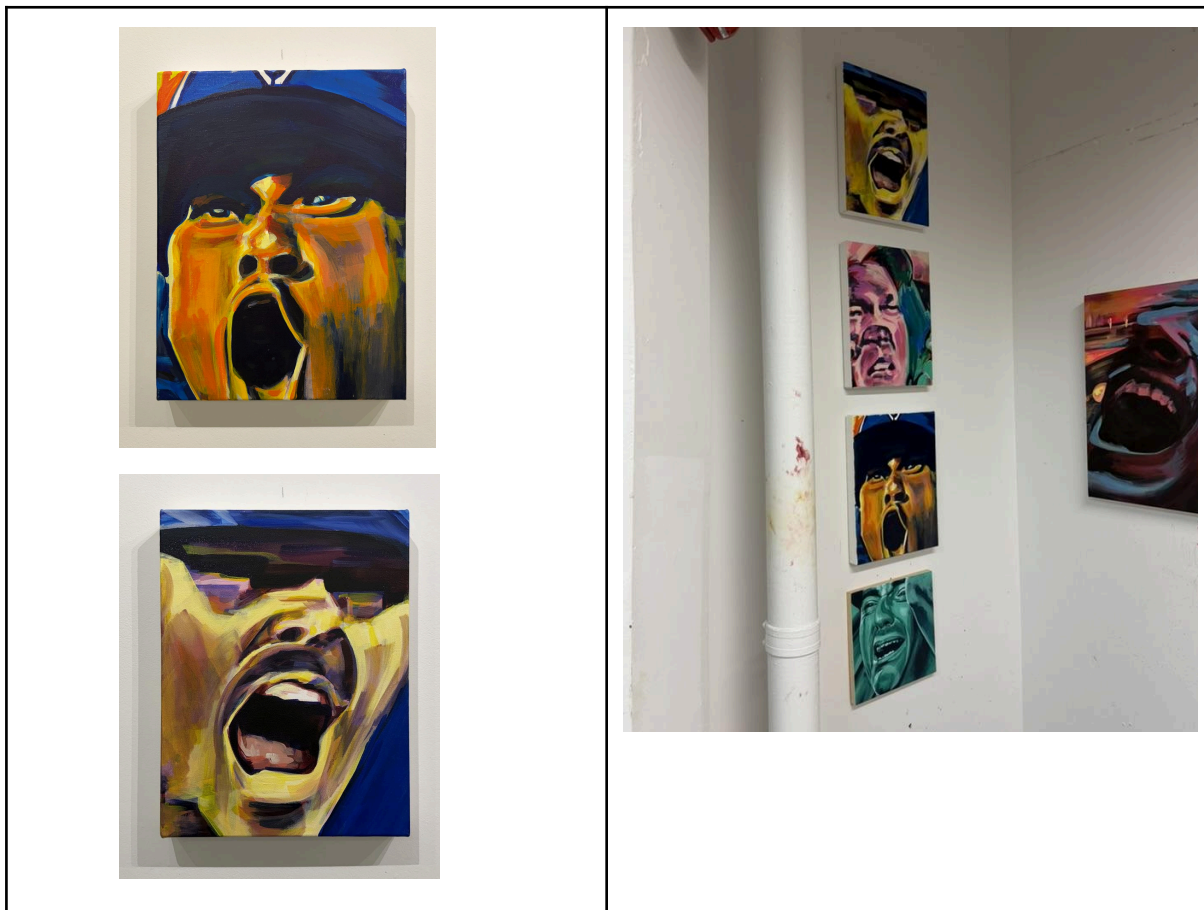
Rosalia at the MOTOMAMI tour in Toronto.



*“We, on the other hand, appear to actively participate in our own perception. To see, we need to decide what we want to see...so, instead of trying to perceive the world as completely and accurately as possible, we use what we already know about the situation to rebuild the missing parts, interpret the context and cancel out alternatives and distractions. This is what the top-down flow of information does.”*

I was really enjoying that these paintings were all from concerts, but Natalie and Amy were questioning if this theme could expand into other areas. They were constantly giving me incredible advice, and questioning the aspects of the art practice I hadn't thought as much about. I became aware that all the subjects in my paintings were queer men or women. Not one straight man in the bunch.

The world series was happening at the time so I painted players and fans after a grand slam for the Blue Jays.



I will not end up using these paintings in my final show. There is something about them that I don't see working. Maybe you can tell I wasn't there, maybe I need to be in situ having the feeling to have the proper energy to create the painting. These were based on moments I was watching on TV. I was not in the stadium. I was not a part of the emotion of

the moment. In every other scenario I was making a painting based on a moment I had partaken in.

*Missing You*, Robyn: “The Honey Tour”

Oil on Canvas  
24” x 24”



Natalie was making me think more about ambivalence - feeling two extreme things at the same time. To me I remember this was a moment when I felt two very simple emotions at the same time, happiness and sadness. This is a self-portrait of me at a Robyn concert with my sister after her first baby. I was so happy to be at a concert with my sister, seeing our favourite artist together, but something was different now that she had a baby. A loss of our youth. Something sad that I couldn't put my finger on, but we were singing and hugging each other the whole time. I remember this moment as ambivalence. I felt like I was out of control. It was reflecting on these moments while I painted.

*2 hands*, Tate Mcrae: “Miss Possessive Tour”

Oil on Canvas  
16” x 12”

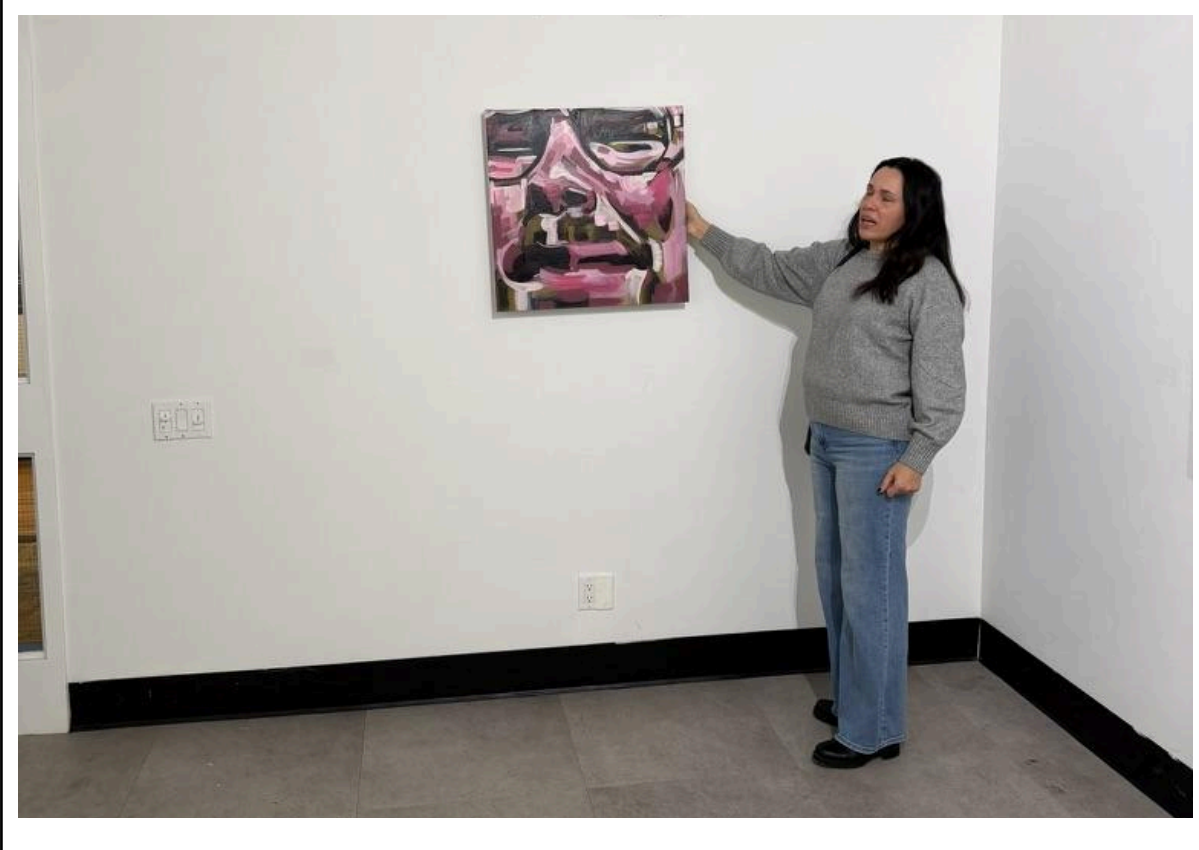
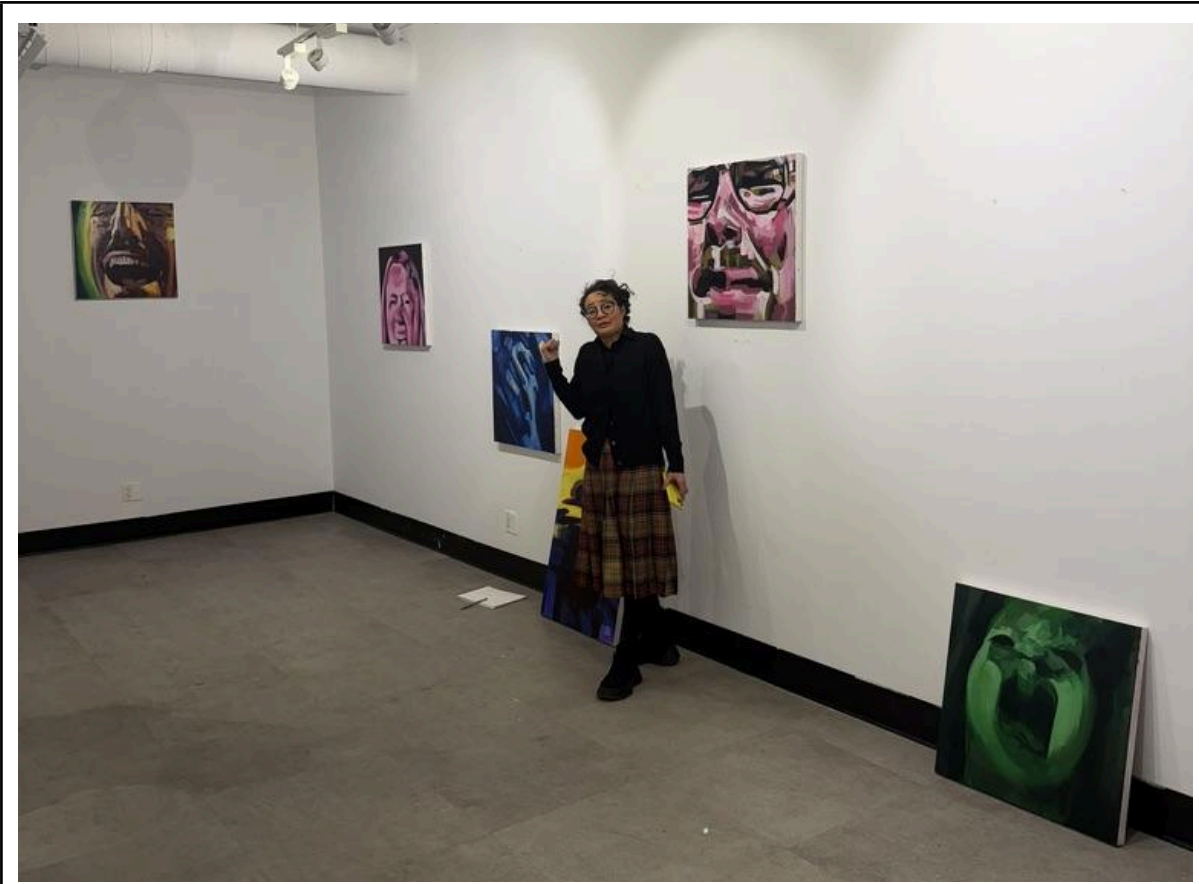


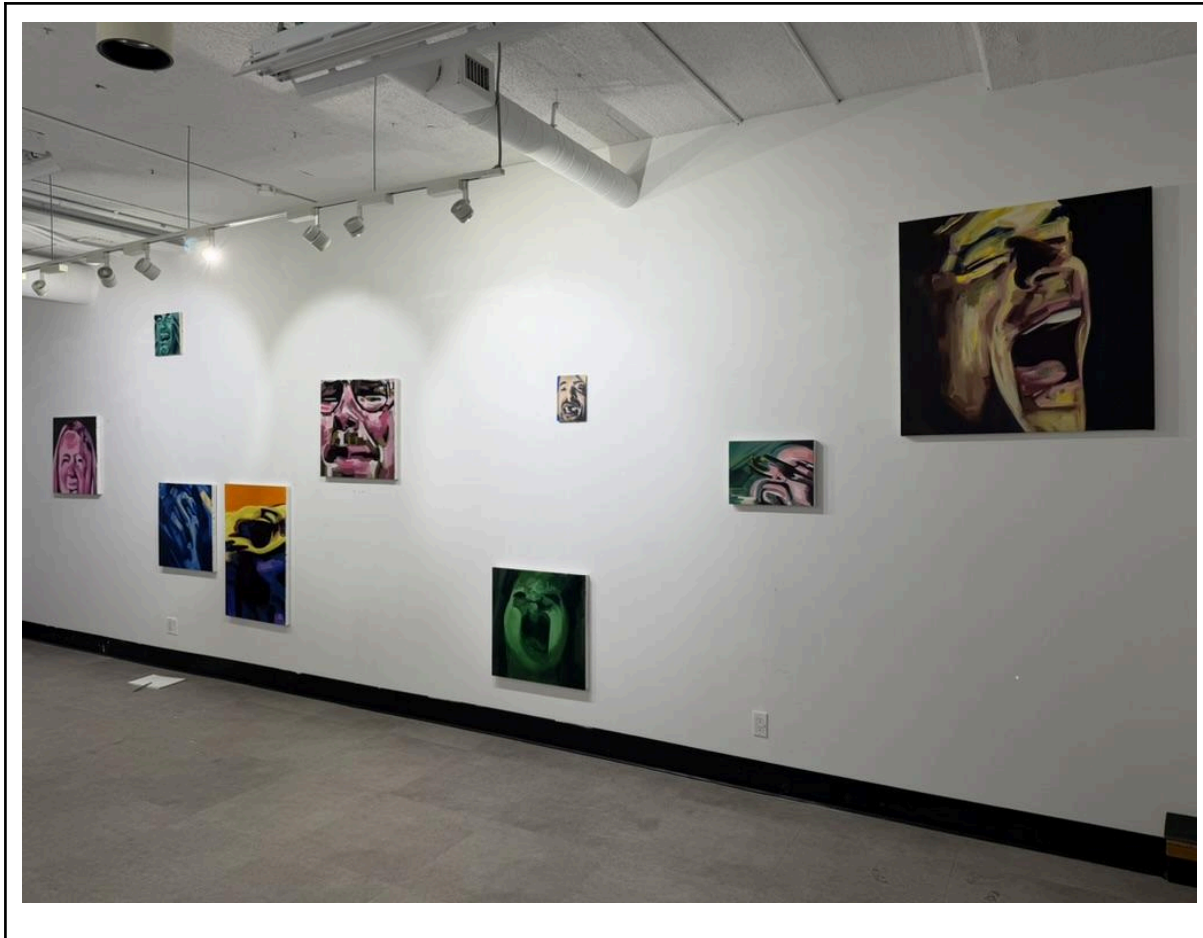
I tried to cut off part of the face, to test how much of a face needs to be visible to read any sort of emotion. I did not want these paintings to be monochromatic. I used skin tones, plus added in green and a complimentary bloody red. I also wanted to add in a sense of movement, so I chose to paint from a still image taken from a video that was moving. It created a sense of potentially screaming in pain, but it was actually just my gay friend losing his mind (in a good way) at a Tate McRae concert.

At this point - Natalie and Amy very importantly told me I needed to rent a room and start to lay out these images on the wall to see how the emotional impact began to read. I did that, and thank goodness for this advice.



I went home that day with a huge pit in my stomach. There was something about the layout that was not having the emotional impact I wanted. It felt like the paintings were bleeding together. I didn't know what it was, but I felt like something was wrong. It was a very stressful feeling. Our studios are extremely small so I'd been painting with them all cramped together, and I thought that on the wall they would breathe more and have a larger emotional impact. For some reason the emotional impact felt smaller to me.





Natalie, Amy and my friend Nadia came to help me with the layout process. They informed me that I will need to edit out and delete some paintings, in order to give the most effective ones physical room to breathe. This was incredible advice. As we spread the paintings out, their emotional impact began to appear. I was hugely relieved. It also gave me insight into what was working and what wasn't. The more abstract and bold coloured pieces were actually creating a sense of pleasure and pain more than I had initially thought. When more abstract pieces were mixed with a few clear paintings, context began to come in and out of focus. The potential emotion of each painting became more ambiguous. They also found paintings I had worked on but ignored and brought them into the fold.

This was an unfinished painting of my friend on a canvas I laser cut to the size of an iPad. They both agreed there was something about the mouth and the way it was painted that was working.



This was a painting just of the eyes of a woman beside me at a Celine Dion concert. I was cropping out parts of the face to see what registered as emotion or not. They thought this painting was interesting. They also thought hanging it sideways was a way to have the audience question what a face "is".

They were encouraging me to really push what is necessary for someone to feel an emotion in a painting of a face that was emoting.



They also told me it was time to edit and accept that some paintings just won't make it into your show. Here are some paintings we took out after seeing them in space.

*Til' The World Ends, Britney Spears // 24" x 24" Oil on Canvas*

The brush strokes are frustrating. I was trying to bring bold colour into the palette - but the yellow and blue created specific browns that are not working.



I laser cut canvases to be the size of iPhones.

I received a lot of great feedback on these paintings, but the size of the cellphone was distracting from my actual thesis. I was interested in the way the paintings were perceived. I think the iPhone shape makes it more about the commodification of concerts through technology. There is something here, but maybe it is a different series.

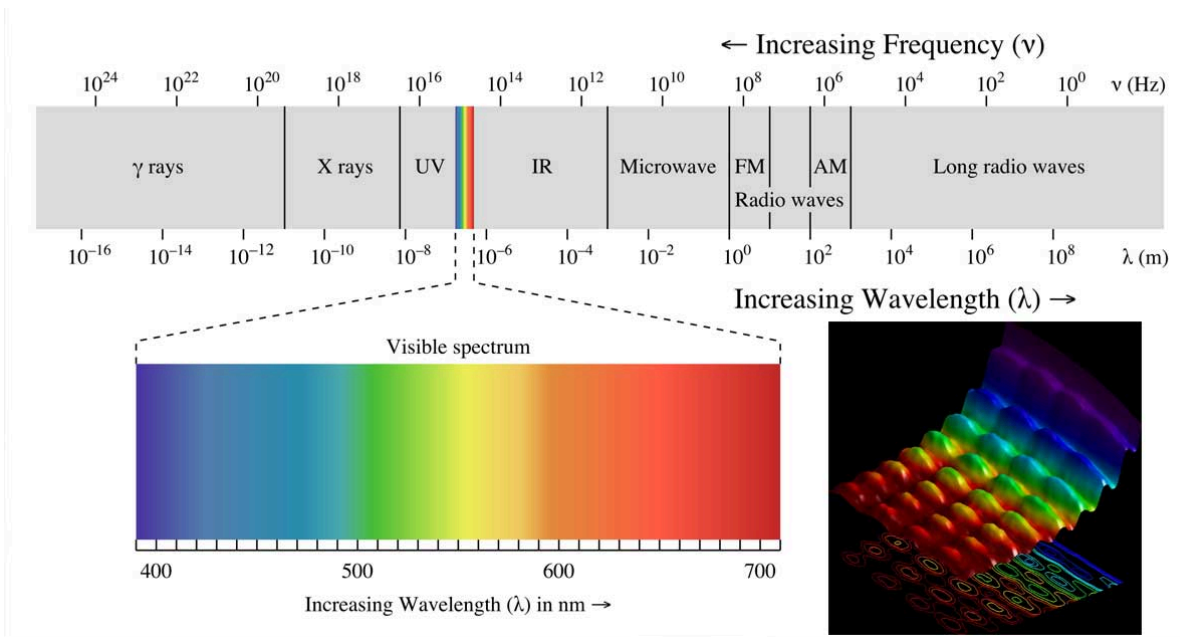


I attempted to make a painting ABOUT concerts. Trying to show the crowd from behind - watching a concert - a distorted face coming out of the souls of people experiencing something. The top right is surgical gloves holding a human heart. A reference to life and death and out of body experiences that happen at concerts.

It was a fun exercise, but it wasn't related to my painting show properly. It made me want to go back to my initial idea and hone it more. Continue the abstraction and try to push the emotion and paintings in new ways.



With this new information I continued to paint. I was getting close to the show date. And based on the scattershot / salon style composition that Natalie and Amy had helped me come up with for the show, I felt less despair. I now wanted more bold colours. I wanted more abstraction. I wanted to create canvases of different sizes. I was also looking at the visual field of the electromagnetic spectrum for inspiration for colour palettes that would be bold.



(Belk, et al.)

*Favourite Daughter*, Lorde: “The Virgin Tour”

Oil on Canvas  
18” x 24”



*BAILE INoLVIDABLE*, Bad Bunny: “No Me Quiero Ir De Aqui Residencia”

Oil on Canvas  
24” x 24”



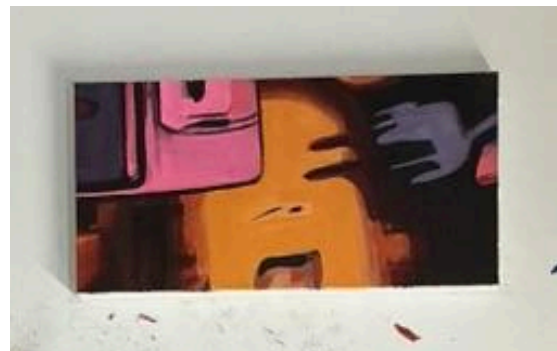
*Hawai*, Maluma: “Live in Cali, Colombia”

Oil on Canvas  
16” x 20”



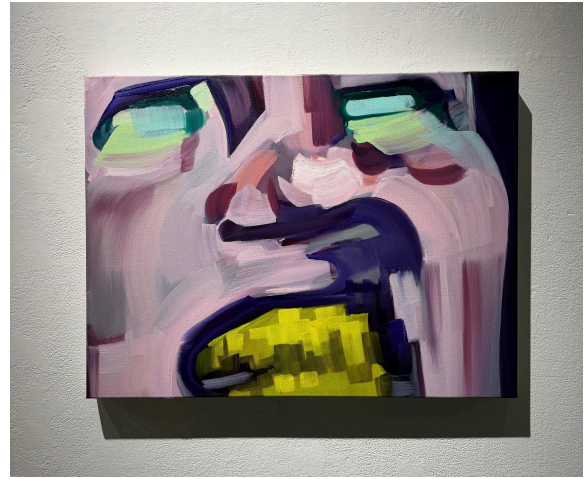
*Runaway With Me*: “Carly Rae Jepsen with the Toronto Symphony Orchestra”

Oil on Canvas  
16” x 8”



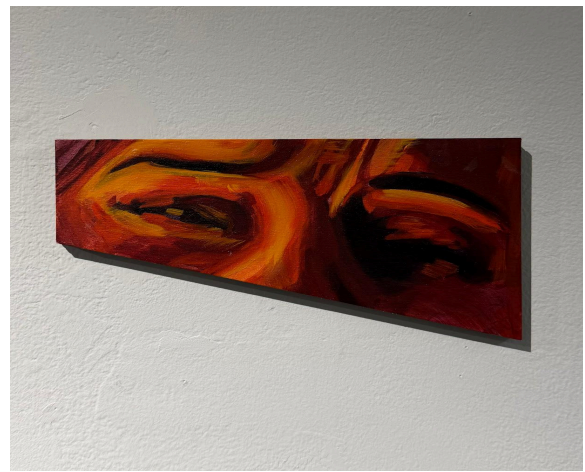
*Kill v. Maim*, Grimes: “Rhinestone Cowgirls Tour”

Oil on Canvas  
24” x 18”



*Garden (Say It Like Dat)*,  
SZA: “S.O.S. North America Tour”

Oil on Canvas  
8.5” x 6”



*Burn*, Usher: “Past Present Future Tour”

Oil on Canvas  
36” x 48”

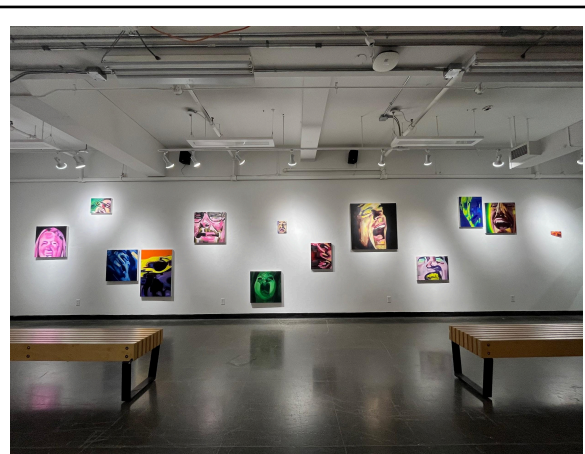
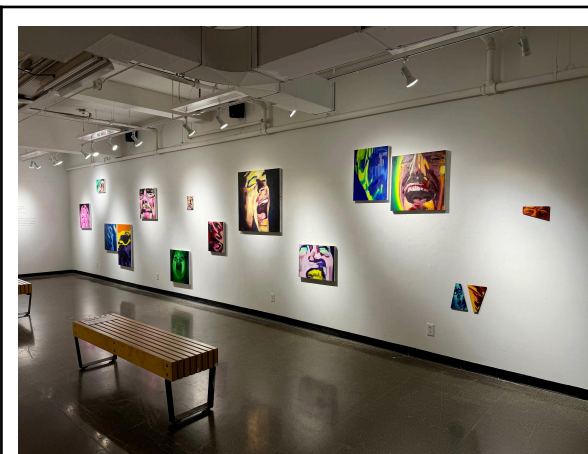


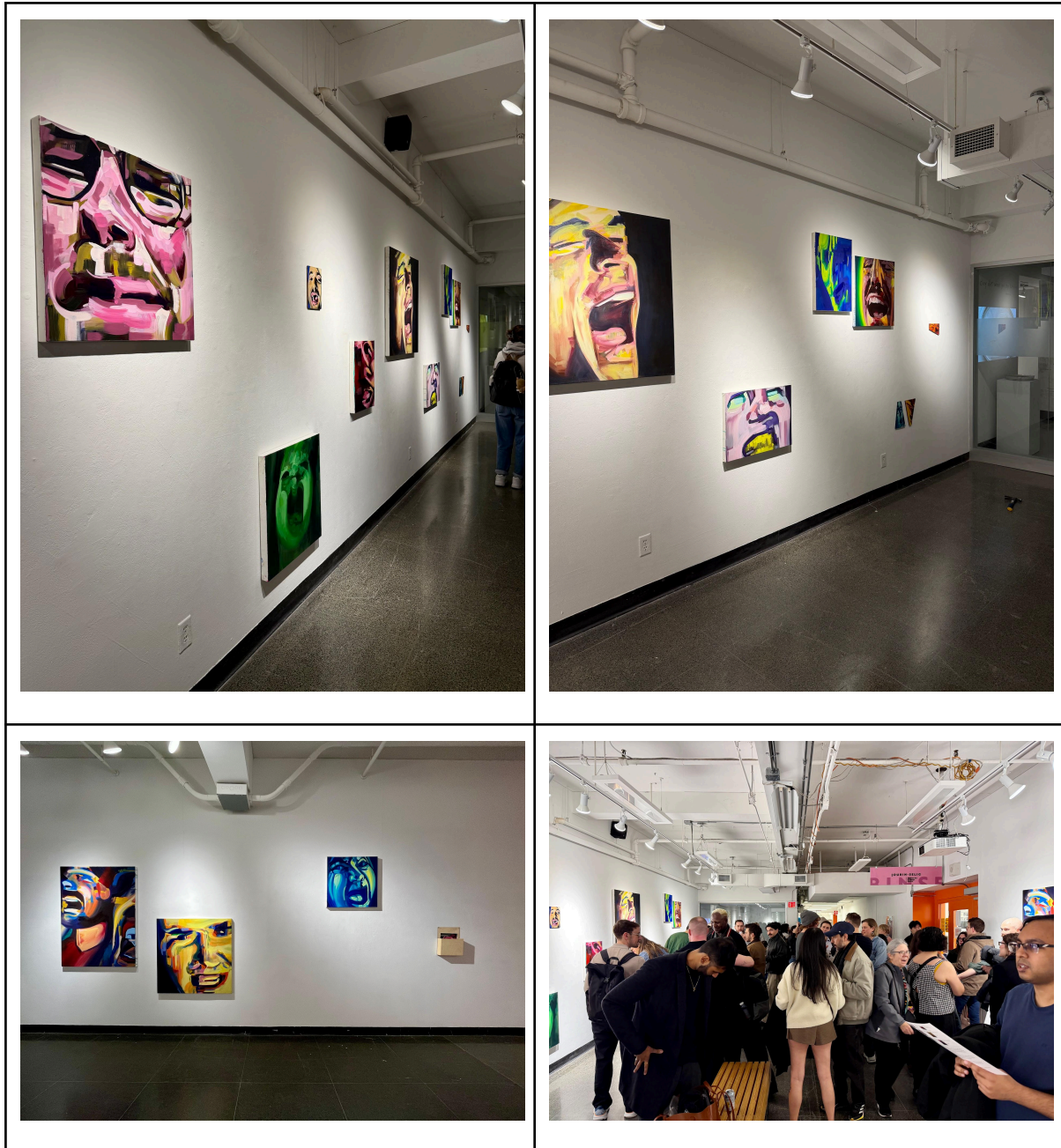
*I Follow Rivers:* Lykki Li: “So Sad So Sexy Tour”

Oil on Canvas  
13.5” x 12”



Here are some photos of the final layout and show opening.





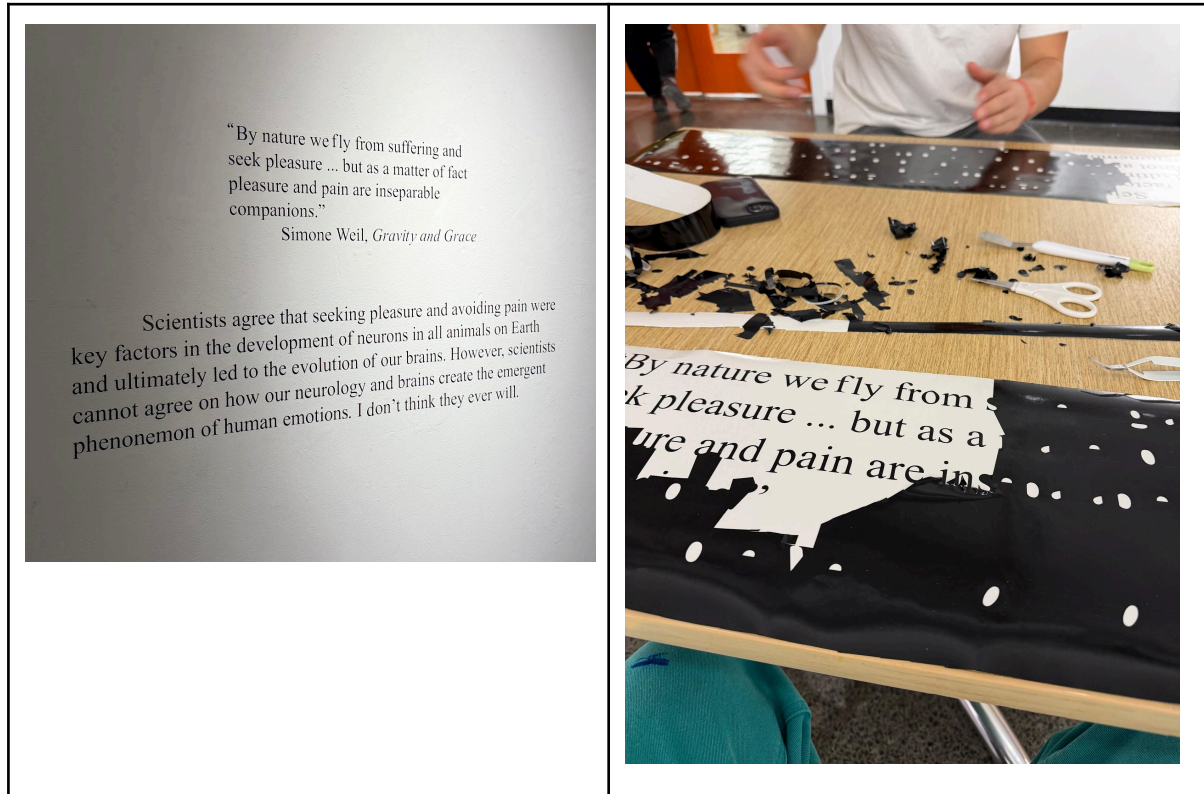
My goal for any didactic on the wall was one quote and three sentences. One of my favourite art galleries, the Detroit Institute of Art, makes no more than three sentences in didactics to make art feel accessible. This is what I ended up with. I used vinyl print to ensure that the text felt elevated.

***“By nature we fly from suffering and seek pleasure, but as a matter of fact pleasure and pain are inseparable companions.”***

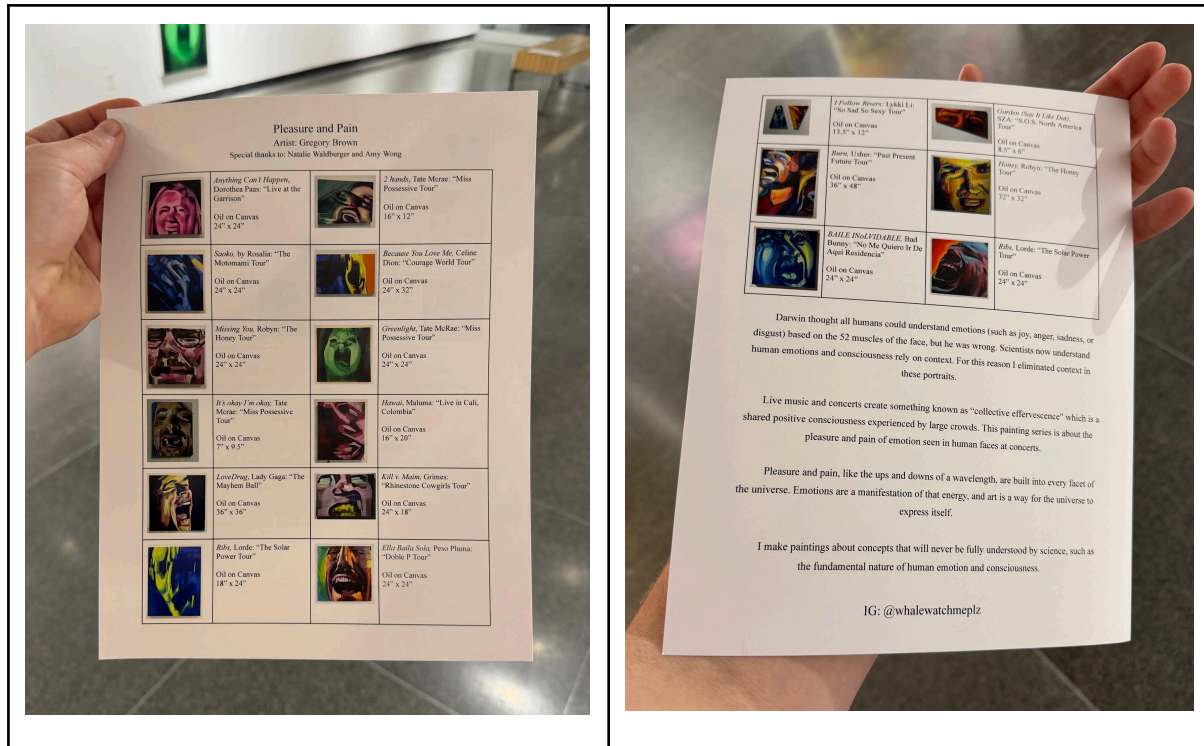
***- Simone Weil, Gravity and Grace***

**Scientists agree that seeking pleasure and avoiding pain was key to the development of neurons in all animals on Earth, and therefore ‘feeling’ pleasure and pain led to the evolution of our brains. However, scientists cannot agree on how our neurology and brains create the emergent phenomenon of human emotions. I don’t think they ever will.**

Below are images of the set up process.



Below are images of a handout I made so that the paintings could be absorbed by the audience in the space, and then extra information could be available to those who needed it.



Text from handout:

**Darwin thought all humans could understand emotions (such as joy, anger, sadness, or disgust) based on the 52 muscles of the face, but he was wrong. Scientists now understand human emotions and consciousness rely on context. For this reason I eliminated context in these portraits.**

**Live music and concerts create something known as "collective effervescence" which is a shared positive consciousness experienced by large crowds. This painting series is about the ambiguity of emotion seen in human faces at concerts.**

**Pleasure and pain, like the ups and downs of a wavelength, are built into every facet of the universe. Emotions are a manifestation of that energy, and art is a way for the universe to express itself.**

**I make paintings about concepts that will never be fully understood by science, such as the fundamental nature of human emotion and consciousness.**

### Painting as Knowledge

*"Consider metabolism, one of the key features of any living organism. This glorious system allows us to stuff into our mouths virtually anything and, somehow, without any effort whatsoever, transform it into thoughts and actions. There are two sides to metabolism:*

*anabolism, the build of big molecules from small ones, which require energy, and catabolism, the breakdown of big molecules into small ones, which releases energy”*

(Kukushkin, 2025 pg. 215)

I love the idea that painting is a form of anabolism. I am using energy from the sun, eating plants, and using the energy to create an object of significance using oil and pigment. I think that combining science inspiration with my painting practice could be an example of using energy to understand the universe. I'm using the energy of the sun to paint on canvas. This is an emergent phenomenon of something coming from my consciousness and creating an artifact that is trying to express what it means to be human. It is the universe trying to express back to the universe what it means to be alive. It is a human offloading information about emotions through the expression of mark making.

*“In cognitive science, when a person makes marks of some kind, (drawing, painting, typing etc.) to make use of again later, this behaviour is described as “offloading.” Information is offloaded from the brain to the wider world, and then taken up again. The practice is often more transformative than that term suggests.”*

(Godfrey-Smith, 2024 pg. 118)

I feel like the challenge and puzzle of mixing colour has always been a lifelong obsession of mine. I always push bold colours in the paintings I make.

*“The surfaces of objects around us, as a result of their makeup, reflect some wavelengths of light and absorb others, and our eyes then absorb what reaches us. (Jackie Higgins comments in her book SENTENCY that a “red” flower is, in a sense, not red but anti-red, rejecting red and absorbing the rest.) The phenomenon of colour, then, involves objects reflecting and radiating light, the radiation itself, and the responses of the eyes and brains of animals, which can differ between us, other mammals, insects and so on.”*

(Kukushkin, 2025 pg. 201)

I wanted to create a painting series of people around me at concerts, as a way of nature trying to express itself. I wanted to make paintings that showed ‘this is how we live’. Therefore I wanted them to be deranged.

I also think that a painting is a form of information. Taking matter (paint) and turning it into a painting (information).

*“In the broadest sense - I-life is the life of matter, we-life is the life of information. Matter is the stuff from which everything is made, information is how the stuff is arranged ... Culture is also like that: it is its own separate we-life, sustained by repeatedly re-creating itself in new*

*material objects-our brains. At the most general level, culture is sustained imitation. Painters imitate famous painters. Musicians imitate conventions of a musical style. Almost all modern humans imitate each other while wearing clothes.”*

(Kukushkin, 2025 pg. 245)

I wanted to create a painting series as an attempt to contribute to the culture of now. To speak about my own pleasure and pain, and what it feels like to be alive right now. And to make physical objects that reflect my personal philosophical growth. Moving away from materialism to a philosophical outlook that considers science, but also questions it appropriately. This has allowed me to expand my mind, my art practice and my science communication practice.

## PHILOSOPHY

### What Science Can't Know

*“Cosmology tells us that we can know the universe and its origin only from our inside position, not from the outside. We live within a causal bubble of information - the distance light traveled since The Big Bang - and we cannot know what lies outside. Quantum physics suggests that the nature of subatomic matter cannot be separated from our methods of questioning and investigating it. In biology, the origin and nature of life and sentience remain a mystery despite marvelous advances in genetics, molecular evolution, and developmental biology. Ultimately, we cannot forgo relying on our own experience of being alive when we seek to comprehend the phenomenon of life. Cognitive neuroscience drives the point home by indicating that we cannot fully fathom consciousness without experiencing it from within”*

(Frank et al. 2024 pg. viii)

This sums up philosophically where I have arrived at the end of this degree. Instead of believing that materialism or physicalism can explain “everything”, I now understand that the physical sciences cannot explain consciousness and emotional feelings from within. Creating portraits of people’s faces feeling ambiguous emotions was able to make me question science.

*“This is how an emotional label such as “anger” is not (quite evidently) a whole that intuitively contains gradations and subtleties all comprehensively summed up by that one term. We may find within it hesitation, a sense of humor, sexual passion, grief.”*

(Morton, 2017)

Emotional labels are complex. Within them is our history, our humour, ourselves. Emotions are a sliding scale of contextualizations, experiences and histories. They are so complex that they will never be explained by the mathematical or physical computational calculations of neurons in the brain. Science cannot explain them.

On the other hand, of course I cannot have answers to the questions that science cannot understand, but by searching for other philosophical views, I now understand the possibility that every subatomic particle, every atom, every part of the universe created from The Big Bang could have a form of consciousness on its own. (Morton) Each smaller part might in fact be greater than the sum of its parts. (Morton) Although there is no way to know this is true, I now understand that science cannot say this is “not” true. It gives me a sense of solace around my fear of death, and makes me want to continue to use science, art and philosophy to dissect this further.

*“Scientific knowledge isn’t a window onto a disembodied, God’s-eye perspective. It doesn’t grant us access to a perfectly knowable timeless objective reality, a “view from nowhere.” Instead, all science is always our science, profoundly and irreducibly human, an expression of how we experience and interact with the world.”*

(Frank et al. 2025 pg. 9)

The god’s eye view of science is something I used to believe in. Now I understand that all aspects of science are our creation, and therefore I now reject “scientific triumphalism” (Frank et al.) the misguided conception that science can create a sense of truth around consciousness and emotion.

Reductionism, a complex system of ideas, essentially saying that elementary particles are the fundamental building blocks of matter (Frank et al.) and everything in the universe reduces to them can be summed up into this quip

*“Biologists defer to chemists, who defer to physicists, who defer to mathematicians, who defer to god.”*

(Frank et al. 2025 pg. 17)

Essentially physics and math will always fall apart when trying to study these concepts. Not only from a quantum perspective, where it is well known that every time we measure something we lock the data in place in a specific way that makes all mathematical and physical equations to a certain extent inaccurate, (Carroll) but also physics and math at their core are just approximations based on equations that never take into consideration the real complexity of the world.

*“Mathematical idealization and approximation constitute a method for knowing how things will behave under various conditions. But the method doesn’t tell us what things are and why they behave as they do. Hence, to think that the idealized laws of mathematical physics describe the inherent being of nature is fundamentally mistaken”*

(Frank et al. 2025 pg. 24)

Essentially, science falls apart, from a philosophical perspective when it ignores experience. The experience of emotion and consciousness may very well be better explained by art. Art is a manifestation of experience, and is not trying to over explain. Science, which at times tries to explain the computational or mathematical workings of the brain in regards to experience, is getting too far ahead of itself, as science is built by human experience, therefore cannot understand it outside of experience.

*“Abstract scientific concepts (thermodynamic temperature, information, computation) spring from concrete experience and therefore cannot explain or ground experience. The abstract can never explain or ground the concrete as a matter of general principle. Rather, the reverse always is and must be the case. Part of the crisis of our scientific culture is that we have allowed ourselves to forget this fundamental truth”.*

(Frank et al. 2025 pg.19)

All concepts in math and science are trying to quantify experience, but have come so far away from that initial concept that they now forget that they emerged as an attempt to quantify experience. (Frank et al. 2025) Art on the other hand more holistically is built around experience. The creation of art and its interpretation doesn’t seem to forget the ‘notion’ of experience - in fact it is built around trying to portray it. As a science communicator and artist I am well aware of how little these fields interact, there is so much to learn from both. I sometimes wonder if science and materialism shy away from the arts because there is no way to quantify art.

From a scientific perspective, the preference for art cannot be explained or understood from a materialist perspective. (Sapolsky) When studying the brains of people listening to music they like, while taking naloxone to block the pleasure inducing chemicals in the brain it was found their body reacted differently but their subjective feeling of the pleasure of art didn’t change. Liking art has nothing to do with chemicals in your brain - it is outside of that. Potentially outside of being able to be studied in a lab. (Sapolsky)

Science, materialism and physicalism cannot capture experience itself. It cannot capture the complexity of emotions, and the sensation of consciousness. For that reason I

have now learned that as an artist I am most interested in making art about these subjects. Through philosophy I now see the profound need for art to combine with science to explain the universe.

### **CONCLUSION**

Science can provide powerful explanations for the evolution of life on Earth, and how pleasure and pain evolved the biological mechanisms of our brains. However science cannot fully explain the experience of emotions or consciousness. Painting provides another way to explore these questions, as art is an important way to explore our human experience. Through ambiguous portraits of emotional intensity at concerts I explored the relationship between pleasure and pain leading to an artistic questioning of science. The work suggests that art can reveal dimensions of human experience that remain difficult for science to describe. Ultimately this thesis project allowed me to propose a dialogue between science, art and philosophy.

### **POST SCRIPT AFTER DEFENSE**

The questions and conversations at the defense were fascinating and rich enough that I was asked to write some notes and thoughts after the thesis discussion about what it had illuminated.

Francisco-Fernando Granados was my external advisor. He gave a brilliant observation that the gallery space I was in was a hallway, a tunnel-like corridor that mimicked the physiology of the tubular animals that were created and referenced in the paper. It also made me realize the other gallery space options functioned with people entering and exiting the same hole (door), like the static sea sponge. My hallway space had a mouth, and potentially an anus - like the anal breakthrough that created all animals, and eventually pleasure and pain. This was a brilliant justification for the space, which I knew felt right for paintings, but in another way now was illuminated to make sense for the overall themes of this thesis.

He also mentioned that finding the limits of materialism, may be a return to aesthetics. I enjoyed this comment, because it added ammunition to the idea that creating art, and painting is a justified pursuit to understand more about the things science can't explain. Painting could be a survival method.

*"Aesthtitic allows us to survive"*

Francisco-Fernando Granados

He also enjoyed the concept of the universe clumping. Is a painting a version of clumping? This is something I try to express in the paper, but asking this question made me think there is a way I could justify that.



Amy Wong brought up how in my case, painting is a form of material investigation. They also mark your time on this planet, which from a scientific perspective archeologists say we have been doing for at least 73,000 years through drawing and painting. She was able to allow me to understand that painting is a methodology and in this case, led me to question science in a specific way. My painting practice should continue as a material investigation, and what comes next is now up to me.

Natalie Waldburger asked about to what extent I was rejecting materialism. This is an incredible question, because it got me to reflect on how I do love science, and I can only critique it in a very specific way to ensure that the scientific pursuit continues, but with the guardrails that I believe in. I was able to reiterate, I think that materialism / scientific physicalism falls apart only in regards to human emotions, consciousness and even the interpretation of art. For this reason I think art could maybe even be a better way of understanding and reflecting these three concepts as well. I was able to express how I think this new knowledge will be key to my AsapSCIENCE work as well, giving me a new clear purpose for both my art and science work.

Francisco saw the Rosalia “SAOKO” painting as a moment of departure. He also thought that Gerhard Richter’s “18. Oktober 1977” was an interesting counterpart to my painting practice

*Erschossener 1*, Gerhard Richter, 100 × 140 cm, 1988



<p><i>Tote</i>, Gerhard Richter, 35 × 40 cm, 1988</p>	
<p><i>Jugendbildnis</i>, Gerhard Richter, 67 × 62 cm, 1988</p>	

After researching this Gerhard Richter series I was amazed at the comparison (ambiguous emotions in the face), and the depiction of death. In this case though, the context was eliminated in order to become illuminated. All of the paintings are related to the deaths of three leading activists in the Baader-Meinhof Group, but all of the context, their emotions and expressions had been blurred. The purpose was to ensure the viewer sought out the context of the paintings in order to learn about the important history. This is an interesting way of challenging context, emotion and history in painting.

He also mentioned, “Never Pure” a collection of essays that “argue that scientific knowledge is a human, “impure” endeavor, shaped by cultural, social, and bodily factors rather than purely objective, detached discovery.” My paintings are about “observation” which is an interesting term, especially in relation to the scientific method. Potentially I can use painting as a form of scientific observation.

Amy brought up auto-ethnography, which is when you use and analyse your own personal experience in order to understand broader culture. I was analysing pleasure and pain that I had experienced at concerts, and relating it to questioning science and even changing my faith.

Natalie brought up the scientific drive to know everything, and grasping for knowledge that science can't reach. The concept of knowing as a form of ownership. This is so fascinating to me, and kind of beautiful. Science teaches you to think not knowing something is a frustration, but art has allowed me to be okay with “not knowing”. Maybe “not knowing” is a key part of doing science and art.

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