EDITED BY MARILÈNE OLIVER AND DANIEL LAFOREST

DYSCORPIA.

DEPARTMENT OF ART & DESIGN
UNIVERSITY OF ALBERTA
EDMONTON | CANADA

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Future Intersections of the Body and Technology

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First published by the Department of Art & Design
3-98 Fine Arts Building, University of Alberta
Edmonton, Alberta, Canada T6G 2C9
www.ualberta.ca/artdesign

ISBN: 978-0-9938497-6-3

Printed and bound in Canada.

▸ **www.dyscorpia.com**

ACKNOWLEDGMENTS

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SPECIAL THANKS

Special thanks to our sponsors and supporters

Supported in part by the President's Grants for the Creative and Performing Arts from the Killam Research Fund at the University of Alberta

Dedicated to the individuals who made the Dyscorpia project possible

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Introduction

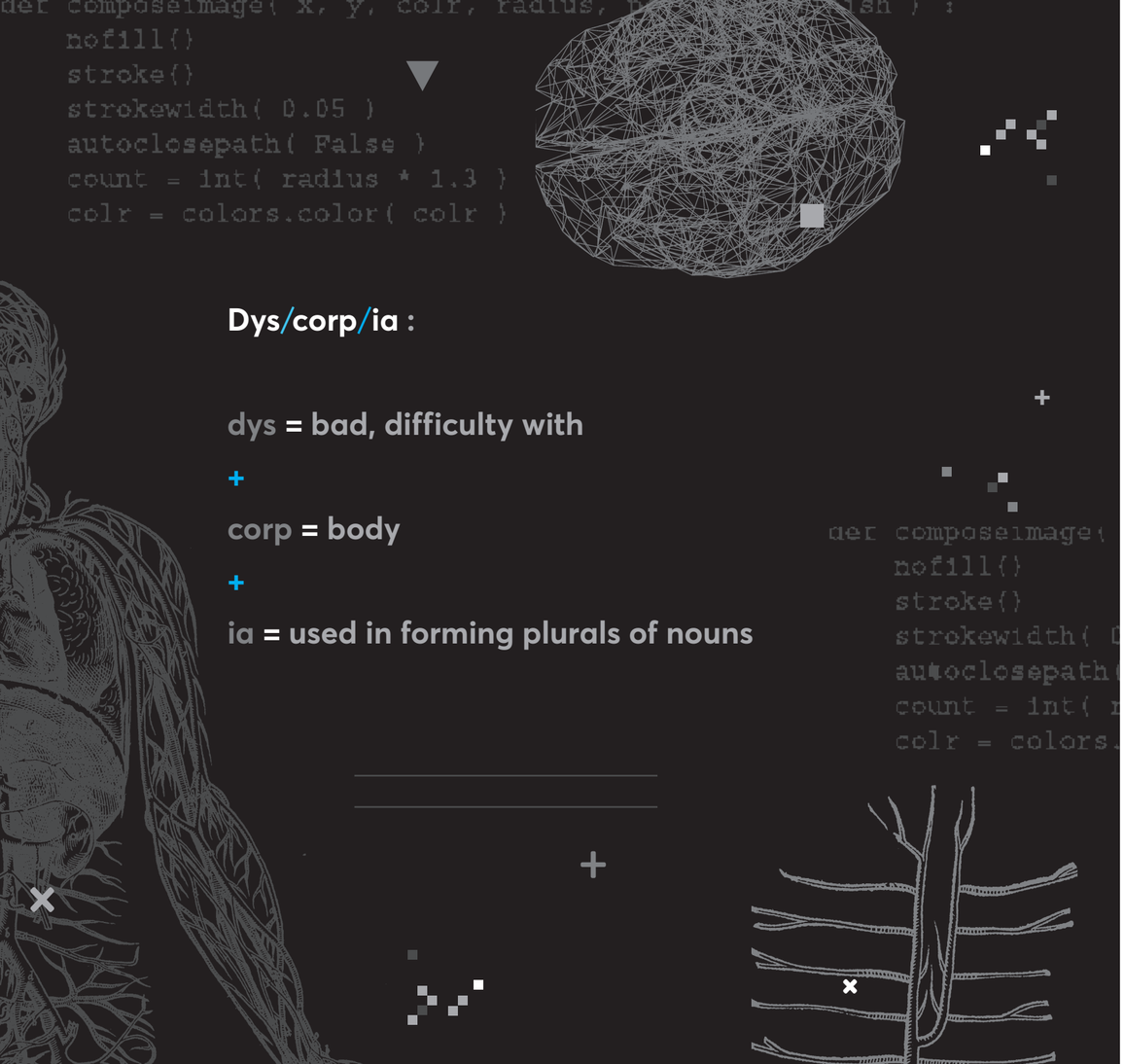
DANIEL LAFOREST

In our preparatory work for *Dyscorpia* there came the time to devise a list of "keywords" representative of the content, as is often the case with such large-scale collaborative endeavours requiring various grant and support applications. Looking at our list today, it evokes the disquieting armature for what could eventually become a poem on the contemporary state of human biology. There are words like vibrations, fluids, tendrils, wavelengths, nerves and cognition, depression and rhythms, depth and data, saturation and moods, intelligence and speed. There are more specialized and slightly ominous terms such as dysmorphia, posthuman, and Anthropocene. But two things are striking. First, nothing is really solid in there. And second, the word "body" does not even appear. I'm then reminded of the numerous passionate discussions we had in our interdisciplinary group of organizers. Diffuse anxiety or outright fear about the future of humankind and the environment were openly expressed; critical positions and discourses of resistance against the medical and societal imperatives limiting our biological expectations and aspirations were exchanged. But never to my knowledge have words like "weird" or "strange" been pronounced with regards to the elusiveness of the body itself, the seeming withdrawal of quotidian, ordinary physicality among all that. *Dyscorpia*, from its very early stages, was a project resolutely centered on the human body and its future intersections with technology, yet it was as if everyone involved had tacitly accepted the fact that there was already no concrete template—nor even a clear image—of the body to work with.

Things, of course, are never that simple. The catalogue you hold in your hands testifies to the fact that despite such blurred boundaries and ever-shifting thresholds in our traditionally accepted categories of physicality and biology, despite the omnipresence of virtual reality, artificial intelligence, medical imagery, or digital storytelling in the artworks it showcases, *Dyscorpia* is at heart an exploration of the persistence of materiality everywhere and in oh-so-many forms, often within the very questionings we develop about its alleged disappearance today. Those who got to visit the exhibition in the spring of 2019 no doubt drew their own conclusions from the experience of moving about gallery rooms populated by art works and installations bent on highlighting the idea that technology systematically transforms the body, and often pushes it to the limit beyond which there is only disaggregation. But I'd be willing to bet a majority of them were also enraptured—or eventually, hopefully unsettled—by the number of physical interactions and the amount of literal body involvement the exhibition required.

Soundscapes rely on a precise knowledge of the specificities of the room they invade; they demand that the body be posited in the locations where it can be best engulfed by the sonic waves. Medical imagery or wearable health devices, however transparent or decontextualized, carry their ghostly counterparts in the real illnesses and the often excruciating, life-impacting treatments we all know await or already befall so many of us. Virtual reality technology, in its current stage of development, requires people to don cumbersome visors or helmets, and those lost in the digitized worlds it deploys always offer the spectacle of a clumsy and ultimately absurd pantomime to those standing nearby. Digital storytelling, gaming and play all demand a prior, intuitive comprehension of the ties between narratives and human existence, and those ties are nothing if not embodied—many would say at the anthropological level. And artificial intelligence? Will it take over? No, because it has already done so. There's no "I" without a body. And there's no "AI" without a body either. Mainframes and screens and manifold hardware are required for AI to exist. They populate our quotidian existence, and with them so do the current forms of artificial intelligence. We turn a blind eye to that because we wrongly believe language is the battleground where human nature will attempt to wrestle its singularity away from new machine forms of cognition and reasoning, and that this battleground still lies ahead in the future. But the deep learning that produces artificial intelligence has already done away with trying to mimic the structures of human consciousness, drawing instead from systems of massive data analysis complete with self-generative prediction and decision abilities. Artificial intelligence is not interested in our language or even in our minds, but it needs to populate our material world, the world where our political interactions and our most intimate connections equally take root.

If *Dyscorpia* has shed light on one thing, it is that such an extensive, at once philosophical, critical, and utterly creative foray into the technologies that have begun to increasingly intersect with us over the past few decades *needs* to begin with what I can only call the crude evidence of our bodily condition. It also needs, firsthand, to take most other forms of materiality into account. There's no true virtual world, and bodies are inescapable. Every participant in the project, artists, curators, designers, writers, had to experience that along with the public of the exhibition. But this is not to say that *Dyscorpia* ended up in a sterile loop leading from the body to the body weighed down by melancholy. One popular tenet of contemporary research into the neurobiology of the mind states that the very nature of consciousness might be to wrangle reality out of chaos. Is the consciousness we have of our body doing the same? All bodies are invested by a density of life which far exceeds the categories, the values, and the habits of the relational world we define as human. All bodies are the sites of our desires, of our affection, of our basic needs and limitations, while also being the fleshy and bloody and bony and electrically animated masses through which these very human traits are constantly superseded. Among the many tasks of art today is to record, reconstruct and represent the material imprints left by this infinite tug-of-war between the coherence of our thoughts and our biology and the overflow of extraneous, still-untapped meanings it implies. It is a task that looks directly to the future because the contemporary imprints we produce with our technology-addled bodies will be the fossils of tomorrow. Welcome to *Dyscorpia*. D



Dyscorpia is a word our research team came up with to name the **feeling of unease** and discomfort you feel when you are confronted with a new piece of 'smart' technology that requires you to re-learn or re-know your body. Example: you get into a rental car, try and put the key in the ignition and realise that there is no key, but a 'start' button. You try to release the handbrake, but there is no handbrake. Momentarily your body is frozen, not knowing what to do with it-self and its superfluousness. This is dyscorpia: nausea **in the face of technology**.

— **Marilène Oliver,** *Evoluing Anatomies, Human in the Loop, Deep Connection and Space Invaders*
organizer/lead curator of *Dyscorpia*

DYSCORPIA.

Curator's Statement

MARILÈNE OLIVER

The *Dyscorpia* project started as a Skype call initiated by Isabelle Van Grimde to Sean Caulfield and myself in order to discuss *Eve 2050*—a new triptych of creative works that would explore the future of the body and the technology through contemporary dance. Isabelle hoped the *Eve 2050* project, which would include a stage performance in Edmonton, might inspire us and others to create a response: possibly an exhibition or a symposium?

I have been working with themes of technology and the body since I was an art student in the late 90s, when one evening, whilst 'surfing the web,' I came across the wafer-thin, digitized slices of the Visible Human: an online, high-resolution, anatomical, virtual dataset of a man. I was immediately captivated by this human body which had been converted from flesh to pixel through a series of mechanical and digital processes. What was this new way of seeing and experiencing another human? How would this technology change the way we know ourselves and others? In order to start answering these questions, I felt I had to see this digitized body on my own terms, so I downloaded the cross sections, screen printed them onto sheets of acrylic and stacked them back up again to create a sculpture called *I Know You Inside Out*.

Twenty years, and many artworks later, I am still striving to understand, expose and challenge the impact of digital technologies which, it seems now, have shifted to every aspect of human existence. The concept of 'surfing the web' now feels fanciful and irresponsible; it seems much safer now to only timidly dip the toe in, or else I might drown. Or worse still, to use today's metaphor, I'll risk being sucked into the cloud and never find my way out again. I know deep in my body that all this technology is not good for us. Like Basar, Coupland and Obrist, I too believe that digitization has brought too much change too fast, and that we humans don't know how to cope with it; we need time to catch up. But like many others who warn of the dangers of too much technology, I am a hypocrite. I may be able to righteously resist the latest iPhone or Alexa devices but in my artistic practice, I consistently fall prey to the allure of always wanting more data, better resolution, more virtuality. So yes, of course, we were delighted to respond to Isabelle's *Eve 2050*. We saw it as the perfect opportunity to both critique and celebrate the many intersections of the body and technology.

Eve 2050 was also an opportunity to bring together colleagues who I knew were asking important questions about technology and the body and learn more about their research. Through a series of informal meetings and public LASER events (Leonardo Art and Science Evening Rendezvous), researchers from art and design, computer science, digital and medical humanities came together to share ideas and knowledge. Vadim Bulitko told us about his research with evolutionary artificial intelligence. Brad Necyk shared his fears for the mental health of his young daughters growing up in a world overshadowed by the impending dangers of climate change. Daniel Laforest presented his thoughts on the biomedical body and how health apps and medical imaging are changing the way we create narratives about our bodies. Scott Smallwood invited us to listen to video games and cavernous industrial spaces, and to the constant hum of our technologically controlled environment. Astrid Ensslin showed us digital fiction projects that explore body image using non-linear and hyperlinked platforms. Although the presentations were from different disciplines and perspectives, there was a strong, unnamed thread that connected all the presentations—a sense that new technologies are increasingly forcing us to re-think or re-know our bodies, that there is a dys-ease with regard to technology that is rooted in the body itself. And so, in a frenzy of etymological play came forth *dyscorpia*, the title of our exhibition and symposium (**dys** = bad, difficulty with; **corp** = body; **ia** = used in forming plurals of nouns).

A series of collaborations and cross-pollinations were also born. Daniel Laforest's presentation inspired Sean Caulfield, Scott Smallwood and myself to embark on *Evolving Anatomies*—a project evoking the exquisite corpse of the surrealists which would combine, contrast and mash together the anatomy of the past and the anatomy of today. Vadim Bulitko generously allowed his generative, evolutionary AI agents to be adopted by the *A-Life Team*. With collaborators in radiology and computer science, I worked to realize virtual reality projects with high resolution MRI data. At the same time, the first phase of Isabelle's *Eve 2050*, was released in the form of a web series and we, like thousands of others (how did Isabelle manage to get so many plays so fast?), were enraptured by the exquisite scenes of twisting, gyrating and flicking multi-generational and multi-gendered Eve(s) in the desert, in a ritualistic cave, or in an empty dark room filled with dripping plants.

Now that so much great content was emerging, and the structure of the exhibition was becoming clearer, we created sub-categories to organize and balance the project. *Electrified Anatomies* would include work which explores how new technologies image and quantify the body. *Virtual Intelligences and Artificial Bodies* would feature works about AI and the proxies we create to stand in for humans in virtual spaces. *Stories in Flesh and Bytes* would encompass digital born fictions and new narratives about the body and technology. *Out on Our Limbs* would address the psychological and physiological impact of technology on the ways in which we know our bodies. Identifying these categories, creating a visual identity for them with designers Gillian Harvey, Aidan Rowe and Tess Heinricks, then allowed us to invite other local artists to also respond and be part of *Dyscorpia*.

Sound artist Gary James Joynes had given me a sneak peek of experiments he was doing with sculptor Kasie Campbell, where they were putting Gary's speakers inside Kasie's sculptures to make them vibrate and pulse; it was perfect work for *Electrified Anatomies*. Conversations with artist Liz Ingram and poet Bernd Hildebrant about the multitude of CT scans that had, and were still being amassed in order to measure and monitor Liz's cancer, and their desire to make a silk tent using these scans, were so evocative and emotionally charged that they had to be included in *Stories in Flesh and Bytes*. aAron Munson's new film *Under the Sun*, a macro examination of how carbon powder (read humanity) reacts to being dropped into different liquids (read pharmaceuticals), and Tammy Salzl's oil painting *Sunday Best* depicting a dual-headed, half-composed, half-crazed girl clutching a posy of blood-red, ripe petals in Doc Martens boots had to be part of *Out of Our Limbs*.

Including Tammy Salzl and Jesse Thomas' paintings, Blair Brennan's drawings and Royden Mill's sculptures was important not only for the provocative content but also the rich sense of materiality these works offer. It was essential that the *Dyscorpia* exhibition have a balance of new and traditional media, so that visitors be required to evaluate their relationship to artworks mediated and enabled by technology, compared to those less touched by it and more imbued with the hand of the artist. A work that confronted this especially well is *Beyond Intelligence Uncertainty* by Royden Mills, which features two hospital bed-like steel structures on casters. On one bed is a life-sized, hand-carved wooden figure, its head and neck uncomfortably strained in an attempt to understand its surroundings, the left leg is bent and articulated yet redundant, the right arm stretched and extended, rendered too heavy to lift. In the stomach, Mills placed a metal tube into which objects and tools (from alarmingly dangerous scrapers to whimsical feather dusters) can be inserted and 'activated' by cranking a lever on the inside of the bed. Mills' work is full of anger and sadness, fuelled in part by being with his brother in the hospital and the confusion and helplessness he felt being surrounded by so much medical technology, and also, I suspect, by the pressure of being an artist who insists on working with traditional methods and materials in an (art) world where new media often try to steal the show with interactivity and cleverness that humans can hardly compete with.

We also invited two international artists, Yves Netzhammer from Switzerland and Paul Harrison from Scotland, to contribute to *Dyscorpia*. Netzhammer conjures dark poetic worlds populated by simple humanoid figures that defy the physical laws of gravity and corporeality, yet embody empathy and tenderness. For *Dyscorpia*, Netzhammer created a new installation of wall paintings, projections and digital drawings. In *Soliloquies Approach like Shy Deer*, Netzhammer's puppet-like figures intersect with other species and objects: legs and arms float up and away from their human body in order to connect to and caress a small herd of deer, hands cradle a table that soon transforms into a dead bird. Offering a very different perspective, Paul Harrison's work is about epigenetics, the study of gene expression, phenotype, and heredity as a result of external or environmental factors. His prints are based on drawings made by biologist and philosopher C.H. Waddington in 1942 to first describe an 'Epigenetic Landscape'.

The final and crucial element of *Dyscorpia* was the inclusion of student works. Again, nodding in agreement with Basar, Coupland and Obrist, those over 40 like myself and many of the other artists and researchers in the *Dyscorpia* team remember what life was like before all this technology. My teenage years were free from Instagram and Snapchat, Google didn't have AI deep learning, and trolls were mostly confined to key ring chains. Our students however are digital natives, and so their hopes and fears about future intersections of the body and technology had to be central to *Dyscorpia*. Two rooms, situated at the centre of the gallery space, were therefore dedicated to student works.

What our digital natives presented us with was not easy: for sure the dys of dyscorpia was underscored. Graduate students offered multiple dyscorpian bodies. Phoebe Todd-Parrish's semi-transparent figure is penetrated by an arm stretching to reach another hand. The body is a conduit, a forwarder of other people's messages—no contact is made, the body is left untouched. Tamires Para's *The Flesh That Carries Me*, shows a figure wrestling with its own flesh in front of a green screen. Jamie-Lee Girodat's looping animation *Embryonic Sway*, presents us with a glass-encased humanoid creature feeding a swaying basket of pulsing flesh. Jingyu Zhang's hairy beast man sits in a wheel chair, eats noodles from a box, has a mobile phone jammed between his shoulder and ear, a book of spikes on his lap and Apple's spinning pinwheel in his mouth. The undergraduate students provided equally provocative and thought-provoking artworks. Jondrei Alcain's *Sorry to Bother You* shows documentation of a performance where he dragged a television screen back and forth for eight and a half hours (the average time young people spend on their screens every day). Jason Abma's futured spaces are void of human figures yet pregnant with the sense of the Anthropocene: plants are potted, windows of television screens are barred and senseless graffiti spoils clean surfaces.

The 'response' of all the artists and researchers involved in the *Dyscorpia* project, but also the audience response to this response was more than we ever expected—so much so that the exhibition was extended for several weeks. Visitors who came to the exhibition often returned and would spend hours with the art works. *Dyscorpia* received numerous reviews and was featured by several local news outlets. What this exemplifies, in addition to recognizing the quality of all the work in the exhibition, is that the impact of digitisation affects us all: at a time of extreme political polarity, this at least we all agree on. *Dyscorpia, Eve 2050* and similar, concurrent exhibitions in major cultural institutions such as *AI: More Than Human* at the Barbican, London, *Age of You* at MOCA, Toronto, and also to a large extent the 2019 Venice Biennale exhibition *May You Live In Interesting Times*, are all demanding that we stop and take a good hard look at what technology is doing to us. Artists and creative researchers offer us potent visions and reflections to collectively feel and think with. Art has the power to reach out and reassure us that we are not alone, that we are not the only ones feeling in the ways we feel.

Dyscorpia clearly warns us that we need to be careful, that we are losing ourselves and each other to technology, that we need to re-think the private and the public and, as *Human in the Loop* encourages, that we must consider our ethical relationships to AI and automation. For all its warnings and fears however, *Dyscorpia* was also a celebration of the creative and positive power of technology. From aAron Munson's captivating macro film of carbon powder exploding on the menisci' of liquids to Daniel Evans' exquisite *Archipelago* VR experience, *Dyscorpia* demonstrated that by working with technology we can discover entirely new, spectacular ways to see and understand ourselves. Furthermore, *Dyscorpia* was a collective and community driven project that allowed us to take stock of the important issues affecting our lives and reflect upon them together. To borrow the title of Sherry Turkle's latest book, *Dyscorpia* 'reclaimed conversation,' empowering us all to steer towards healthier and happier intersections of the body and technology. D

THEME 1

Electrified Anatomies

Renaissance anatomists relied on artists to show the world what they had discovered. Later, scientists strove for an objective body free from artistic contamination. Digitized medical imaging technologies facilitate just that: the artist is no longer needed to render the interior body visible; machines now do it in their place. Where anatomical art once told us to “Know Thyself” as mortal or as a divine creation of God, the digital scan suggests we can know ourselves as virtual, electrified products.

Sound intersects with visceral sculpture. Pulses and subsonic vibrations subterfuge the liminal surface. A wall of images illuminates anatomical representation from the Renaissance to today, the past thrown back into now, transparent and visible. Images show the lucidity of illness, the subjective grinding and wearing down of the body. Here artists evolve, reshape and reform anatomies, to reflect the economic, technological and social tensions that brand us.

DYSCORPIA.

Exploring an Anatomical Palimpsest

LIANNE MCTAVISH

The intriguing sounds get louder as I move toward the gallery entrance. A scratching noise—is it a scuttling insect?—causes me to hesitate but then a sonorous gong calls me forward, into the space. Once inside, I contemplate an intricately constructed anatomical environment. I look closely at a series of tall, darkly stained maple panels along the back wall. With finely carved lines, they display human bodies, some upright and some upside down, opened to show bones and blood vessels. These dissected figures are accompanied by smaller organs and fanciful plant-like forms. Anatomical silkscreen prints on polycarbonate overlay sections of the large bodies, while laser cut acrylic shapes—a white brain, extended spine, and the capillaries of the lungs—provide thicker accents. Two of the dark panels additionally support colourful video projections; one shows human lungs expanding and contracting with breath, and another portrays a floating, transparent leg. I back up to examine the three dark, relatively small enclosures arranged in front of this active, screen-like wall. With the peaked roofs of simplified Shinto shrines, these shelters are covered with similar imagery: limbs, rib cages, organs. The most substantial architectural form is surrounded by a low, wide platform on which rest more fragments of the body. Molded from wax and other materials, these body parts are placed in patterns that are at once deliberate and mysterious. I walk slowly around the space, recognizing some of the bones, muscles, and tendons but puzzling over others, listening to the eerie soundscape, and watching the videos transform.

Entitled *Evolving Anatomies*, the collaborative installation by Marilène Oliver, Sean Caulfield, and Scott Smallwood provides layers of information about bodies and embodiment. Combining historical representations with modern visualizations of the body, the installation is reminiscent of a palimpsest, a term that usually refers to material on which writing has been effaced to make room for new text even as traces of the original marks remain. Visual palimpsests can be seen on the walls of medieval cathedrals when older paintings that have been updated or censored begin to show through the damaged or thinning portions of later imagery. A similar effect is present in *Evolving Anatomies*, where representations of the body from different centuries coexist with, overlap, and support each other. The large, carved anatomical figures on the back panels stem from the weighty treatise, *On the fabric of the human body,* first published by the Flemish anatomist Andreas Vesalius in 1543. The woodcut plates used to create the famously well-illustrated text for Vesalius resurface in the material structures—wooden wall panels, shrines, and platforms—that enable his artistic reconstructions of the human body to reappear beneath and alongside modern medical imagery.

The palimpsest layers insist that knowledge of the human body does not increase in a progressive manner, whereby past understandings are corrected and then erased by modern innovations. In *Evolving Anatomies*, the decorated wooden plates are the foundation for subsequent imaging technologies, including later prints as well as the video projections made by reassembling computerized tomography (CT) scans. In many ways, CT technologies continue Vesalius' efforts to see inside and know the human body directly, albeit by using a revolving x-ray beam to take images from different angles around the body, creating cross-sectional images of the bones, blood vessels, and soft tissues. Despite depending on historical efforts, CT scans differ from Vesalius' work by revealing the hidden depths of living rather than dead bodies. Vesalius strove to anatomize as many corpses as possible, dismembering and effectively destroying them in the process. Although sometimes identified as the rebellious "father" of modern anatomy who rejected ancient practices, Vesalius was equally indebted to the work of his predecessors. Vesalius followed, for example, the Roman physician Galen's advice to learn from human flesh rather than textbooks, a process that led the Flemish anatomist to challenge some of Galen's written arguments.

Evolving Anatomies shows how anatomical technologies have both persisted and changed over time, suggesting their advantages and disadvantages. While the digitized images of the present are impressively vibrant, they seem disembodied and fleeting in contrast to the solid materiality of earlier representations. There is no simple story of the rejection and subsequent improvement of the past.

A particular figure from Vesalius' treatise is repeated throughout the installation. Created to demonstrate the blood vessels, the body stands upright as if alive, with arms extended and palms open. This now standardized "anatomical pose" was invented during the sixteenth century to counteract the prevailing assessment of anatomical dissection as a punishing act of butchery. The anatomical pose portrays a human body that welcomes and even desires dissection, offering its interior as a gift to the viewer. This allusion to gift giving recurs throughout "Evolving Anatomies." The video clips are, for example, constructed from a CT dataset of a full body, known only as "Melanix," offered online for free downloading. These accessible digital scans enable artists, medical practitioners, and others to learn from and refashion an anonymous human body. Another reference to gift exchange is conveyed by the wax body parts laid out on the wooden platform; purchased in Brazil, they are ex-voto forms regularly left in sacred spaces or near healing waters, by people giving thanks for a cure received. Small wax images of the formerly ill body part, whether eyes, skulls, breasts, or hands, materialize gratitude while documenting a physical cure that resulted from prayers or promises made at a spiritually important site. Like other elements of the installation, these ex-votos have layers of significance, for they also relate to the way in which the installation was collaboratively produced by the three participating artists. Each artist took turns giving their collaborators gifts, including objects, prints, drawings, sounds, and words, which elicited return gifts. This generously interactive process of knowledge production finally resulted in the evocative anatomical environment presented to visitors within the gallery space.

Another art work stands quietly against the far wall, separated from and yet in dialogue with *Evolving Anatomies.* Created by Chantel Schultz, *Permeable Bodies* consists of small translucent ochre and charcoal-coloured vessels placed atop a narrow metal platform supported by slender legs. Displayed at the eye level of visitors, the containers are roughly formed, as if folded together from a thick, fleshly material. Some appear to be charred and melting like wax, alluding to the votive candles lit in memory of deceased relatives in Catholic chapels.

Evolving Anatomies | 2019

WOODCUT MAPLE BOARDS, SCREEN PRINTED POLY-CARBONATE, LASER CUT ACRYLIC, VIDEO PROJECTION, WAX, ACRYLIC VARNISH, LASER CUT & SCREEN PRINTED PLYWOOD, MULTICHANNEL AUDIO

SEAN CAULFIELD
MARILÈNE OLIVER
SCOTT SMALLWOOD

Caulfield's and Oliver's installation is backed by a wall of images that contrast and combine anatomical representations from the Renaissance to the present day. Caulfield's starting point is Vesalius man, while Oliver's is *Melanix*, an open source full body CT scan of a woman. This installation of woodcuts, silkscreen prints, sculpted models and video projections explores ways technology, and specifically diagnostic imaging, is shifting the ways we perceive and understand our own bodies. Smallwood infused and surrounded the installation with a soundscape made of flowing water, heat, ice melt, and data-driven textures, mixed with secret messages, glitches, and distorted broadcasts.

The vessels in *Permeable Bodies* nevertheless have an active presence, seeming to move and expand at will, in defiance of human efforts to shape them. One even folds over the corner of the platform, threatening to drip on the floor and gradually inhabit the space, like a plant or other organic form.

This suggestion of a burgeoning and fertile substance is reinforced by its scent, at once faintly sweet and acrid. This fragrance stems from the outer layer of the vessels, which the artist made by mixing scoby, a symbiotic culture of bacteria and yeast, with a fermented tea known as *kombucha* and sugar. Schultz cultured, dried, and then molded this dynamic and pliable substance. Her methods were inspired by the human microbiome, an invisibly crucial entity comprised of trillions of bacteria and microbes that live within and on the human body: less than half of these cells are human. By including generative bacteria in her art work, Schultz points beyond a strictly human body. Her materials extend the project of *Evolving Anatomies* into the current and future project of anatomical research, which increasingly frames the human body as one part—probably not the most important part—of a broader ecosystem. *Permeable Bodies* indicates that this more sustainable and less ego-centric future knowledge of the body is not flashy or particularly spectacular; it is thoughtfully constructed with attention to interdependence, nurtured but not controlled by human actors.

Schultz's work highlights an environment that extends beyond traditional conceptions of the body as a bounded and relatively stable entity. Her use of scoby to create a sculptural material complements ongoing experiments by scientists, artists, and designers to reshape dried kombucha into biodegradable products, including a leather-like fabric that can be made into clothing. This citation of sustainable design in relation to embodiment draws attention to another layer of meaning within the gallery. It allows the soundscape of *Evolving Anatomies,* which permeates the entire space, to take on renewed significance. The periodic gong is interspersed with noises that mimic the movement of insects—creatures that surpass the number of human beings on earth—as well as another, emerging reference: is it the sound of ice cracking and melting? This indication of environmental decay and climate change finds echoes in the organic forms on the wooden wall panels. Flames sometimes seem to consume or replace elements of the carved human bodies, creating a smoky atmosphere within which the colourful lungs of the video continue to breathe. When considered together, the work by all four artists portray bodies that both fall apart and endure within a fluctuating environment that conveys danger as well as the potential for survival. +

Permeable Bodies | 2019

WAX AND SCOBY
(SYMBIOTIC CULTURES OF BACTERIA AND YEAST)
◂ DETAIL

CHANTAL SCHULTZ

Permeable Bodies is an exploration of the body as a host to ancient technologies containing ancestral information about the past as it impacts the present. It highlights the growing concerns for individual health and ecological responsibility as we envision new, sustainable consumer products. It acts as a provocation to consider the micro-ecosystem within the body.

The *Dys-* in *Dyscorpia*

DARIAN GOLDIN STAHL

The *Dys-* in *Dyscorpia* performs a crucial linguistic task: it signals us to bring our full attention to a radically-present body. The opposite of a disappearing body, the 'dys-appearing' body is incapable of receding into the background because of its anomalous transparency. Biomedical imaging technology exceeds the natural frontier of flesh to reveal, measure and quantify our corporeal depths, but what gets left behind in the quest for objective anatomy? The artists whose work is included in *Electrified Anatomies* sensitively apply scientific innovation onto soft skins to focus our awareness on the consequences of hyper visibility and the complex emotions between vitality and mortality. They also accomplish the formidable task of materializing some of the most important ethical considerations for our dys-appearing bodies: the exponential expansion of bio-technology, an uncertain economic future, and the ineffable disquiet of our encounters with medicine.

Picturing Beyond Words

The body in pain is a body that makes itself inescapable. Although most stimuli tend to recede from our focus after enough repetition, pain bends all aspects of time and existence around itself until it is the center of attention. Even though it is ever-present to those who experience it, chronic pain is invisible and therefore difficult for others to fully comprehend. To overcome this communicative obstacle, Blair Brennan's work in *Dyscorpia* makes visible the phenomenon of pain through his daily drawing practice.

Presented in a round and enveloping composition, the sheer number and variety of loose and even playful collages invites viewers to spend time here, take a closer look, and discover shared moments of inhabiting an unreliable body. The intertwining of spines, pills, mouths, and text present a complex image of bodily unease, which is then further nuanced by color schemes of exuberance. Many of these images take a mirroring composition, reminding one of the oscillations between illness and health, living in the present and the future prognoses, or the desire to separate a well mind from the misbehaving body. Put back together and taken as a whole, Brennan's body of drawings visualize the inexpressible and make present for every viewer a full range of all-too-human emotions after a diagnosis.

Sensing the Interior

If Brennan's work pulls back the frame of reference to reflect on the wider affects of medicine, other works take us on a deep dive into our vibrant interiors. Certain biomedical technologies dys-appear the body by vividly portraying its minute pulses as otherworldly images of anatomy. For example, fMRI or PET scans bring awareness to the changes of blood flows by portraying them as bright spectrums of color flooding into our brains. In a similar way, the iridescent materials of art collective 34DD's *Anticipated Alliterations (Body Talk)* boldly present the rippling effects of pulses under the skin. This particularly multi-sensory work merges vision, vibration and temporality to create fantastically strange and mysterious bodies.

The forms in this installation are reminiscent of microbes or organs inflated up to human scale. These organisms reverberate to communicate with one another, acted out as an entrancing performance of shimmering flesh and sound. A tension is thus created in this sonorous play between the dazzling technicolor pulsations and our attempts to understand an alien conversation. Relating these supernatural figures back to our own encounters with imaging technologies, this work brings our full sensory awareness to how biomedical scans are at once mesmerizing to view but possibly difficult to decipher. As audience members, we are tasked with reading this body language and, perhaps, comprehending these bodies through our durational attention and care.

Commodified Flesh

Many of the *Electrified Anatomies* artists focus on dys-functioning of flesh. These representations of the human form go beyond the clinical framework and replace typical anatomy with imaginative morphology caused by the deep unease that our bodies are not entirely our own. Holly de Moissac's *Lingering on the Surface* presents a patient body subsumed by medical intervention. The multitude of saline drips, whose surplus salt spills out around her, causes this disjointed torso to become more like a solid geological formation than a body made of tissue. Tamires Para and Jasrin Dhatt's paintings, on the other hand, exhibit a surplus of malleable skin. These compositions are dominated by folding, pulling, and pinching flesh—the struggle to claim and inhabit one's own skin when it is also a material for public evaluation. The hyperbole of these works makes the affect of the medical gaze more apparent by materializing their excess.

The breakneck speed of medical innovation has left behind the much slower tasks of embodied reflection, ethical distribution, and the effects of these technologies on the sense of self. Nathaniel Fair, Selene Huff, and Xi Jin's work tips the scales towards a technologically dominated future where the human body is entirely transformed into a site of un-restrained commodification under the guise of medical progress. The deficit in this scenario seems to be human agency itself, as our food choices are dictated by wellness propaganda (Jin), or the aftereffects of our bodies becoming more machine than biology (Huff). What this work also questions, particularly by Fair, is which bodies benefit within extreme economic polarity, and who is left out of technologically advanced healthcare?

Speculative Futures

The *Dyscorpia* exhibition brings our complete attention to the lived body's intersections with medical technologies. By engaging these innovations rather than rejecting them, these artists merge imaged and imagined anatomy in the creation of wondrous hybrid bodies so they may be seen, heard and more fully considered by others. The works of *Electrified Anatomies* ultimately fill the spaces between artist and viewer with multi-media corporealities for every-body to experience and speculate on their own future intertwinings with bio-technology. +

There's Something Inside Me | 2013–19
My Medicine | 2018
PRN | 2000–PRESENT
MIXED MEDIA ON PAPER

BLAIR BRENNAN

Blair Brennan's oval installation is made up of three series of drawings and collages made since 2013: *There's Something Inside Me*, *My Medicine*, and *PRN*. These works explore his experience of living with severe spinal arthritis and, more recently, the diagnosis and treatment of a more serious neurological condition. In this work Brennan addresses the complexities of living with illness and the need to visualize one's evolving physical condition both medically and in his daily drawing practice.

◂ DETAILS AT LEFT


DON'T WORRY
GIMP
OBVIOUS
GHOST DOCUMENT
SUFFICIENT
ACTUAL SIZE
ACTUAL SIZE

EpiGeneScapes | 2015

MIXED MEDIA (DIGITAL AND SCREENPRINT)

PAUL HARRISON

EpiGeneScapes is a series of prints by Paul Harrison (developed in collaboration with Dr. Mhairi Towler and Link Li) that are part of a long term investigation of the original model of *Epigenetic Landscape* conceived by developmental biologist and philosopher C.H. Waddington, who coined the term "Epigenetics" to describe how genes might interact with their surroundings.

...to me it means looking at the body for what it really is. That's what I believe Dyscorpia does.

— Daniel Laforest, writer, researcher, translator, co-organizer of *Dyscorpia*

Drawn for Thought | 2017

MIXED MEDIA (DIGITAL AND SCREENPRINT)

PAUL HARRISON

Drawn For Thought is a series of prints inspired by *Tools for Thought*, an archive of developmental biologist and philosopher C.H. Waddington's original drawings and works.

Anticipated Alliterations | 2019

FABRIC, FISHING LINE, COTTON BATTING, WOOD, HARDWARE, RECYCLED GUITAR STRINGS, AUDIO SPEAKERS, BUTTONS, WIRE, AMPLIFIERS, EPOXY RESIN, GLUE, CRIMPING BEADS, SOLDER, AUDIO CABLING, CONNECTORS

34DD: GARY JAMES JOYNES & KASIE CAMPBELL

In *Anticipated Alliterations (Body Talk),* sound artist Gary James Joynes and sculptor Kasie Campell intersect sonic vibrations and soundwave energy with the textural surfaces of soft sculpture in order to animate and inter-relate objects. Over the duration of Joyne's 50 minute composition, Campbell's cellular, organ-like forms shudder, shake and talk to one another.

SOUND SOURCE: PROGRAMMED MODULAR SYNTHESIZER VOICES WITH COMPUTER MULTI-CHANNEL AUDIO PLAYBACK

Lingering on the Surface | 2019

PLASTER, PAINT, ALL-NATURAL-ARTIFICIAL-GREENERY, INTRAVENOUS BAGS, FISH HOOKS, ALUMINUM, SALT

HOLLY DE MOISSAC

Lingering on the Surface is an imagined fusion of land and body in 21ST century. This body is deeply rooted in an elemental landscape of aluminum and salt, which have been processed into products for human consumption. This fusion is uncomfortable and is made possible by the presence of a gently drifting medical narrative.

Dyscorpia is a poetic play with the word 'corporeal.' How is technology shifting our perceptions of our body and our sense of self?

— **Sean Caulfield,** *Evolving Anatomies*, **co-organizer of** *Dyscorpia*

Barrier | **2019**

VACUUM-FORMED SCREEN PRINTED PLASTIC

XI JIN

Barrier is a plastic wall that has popular sayings and advertising slogans about health and longevity and the body pressed deeply into and onto it. In *Barrier*, health is commodified, shadows are cast and language is broken.

Dyscorpia offers the space to dream a little and present metaphorical, dynamic takes on 'body' that question human perceptions of self at this moment in time.

— **Holly de Moissac, MFA student,** *Lingering on the Surface*

Untitled 12 | 2019

STEEL, SPRAY PAINT, CHALK PAINT

SELENE HUFF

Untitled 12 articulates in sculpted steel, the internal struggle that is the process of an organic entity accepting components into itself that are digital or mechanical in origin, asking the question of whether these disparate pieces of material can come together to create a single form, and what it means for that form to be whole.

Dyscorpia, a play on *dyscopia* with an added 'r' for *corpus* ('body' in latin) or *corps* ('body' in French, not corpse). It could suggest a world that cannot cope, or getting out of the body (discorpia as in disrobing…) or dissecting, deconstructing the notion of 'bodies'…

— **Isabelle Van Grimde,** ***Eve 2050***

The Patient | 2019

MIXED MEDIA SCULPTURE

NATHANIAL FAIR

The future of technology being mixed with humanity is often idealized as a world of immortality, a world where the physical fallibility of humanity is eliminated. However, this infallibility is likely to come first to those who can afford to preserve themselves, while many will end up as second class citizens simply because they cannot pay to stay alive. *The Patient* is a monument to these future citizens who will fall prey to their humanity before they can be saved by technology.

The Flesh that Carries Me | 2019

OIL ON CANVAS

TAMIRES PARA

The Flesh That Carries Me references the objectification of flesh through the processes of green screening and Photoshopping that aim to create a form of hyperrealism through image distortion. Para's paintings focus on depictions of bodies that have been shaped, scarred and consumed by a patriarchal society entertaining a distorted view of what women are.

Dyscorpia...speaks to both a dissolution and de-materialization of the body—becoming both less physical and less cleanly circumscribed. It opens up a space to explore how conventional notions of the boundaries that define the body are constructed and policed, and how they may be challenged.

— **Daniel Evans, MFA student,** *Archipelago*

Give Bodies Back to Data

SILVIA CASINI

Medical imaging is a space where scientists, patients and technology meet, albeit only in the guise of a body or a brain scan. Moreover, the medical image often signifies the absence of the patient's body. Medical images are not photographic snapshots of a pre-existing object, but data visualisations, transcriptions of codes and algorithms that remain black-boxed. The extraction, analysis and use of data in medicine enables to take decisions that invest the body. By giving the body back to data, artists show how imaging technologies fit into a wider network of relationships and into a global infrastructure. Bringing the body back means to open the black box of data visualization asking questions of care and responsibility—what counts as data and for whom.

In science and medicine, "facts", including data-visualization strategies, are constructed, then stabilised and black-boxed. Science studies philosopher Bruno Latour defines "Black-boxing" as

> The way scientific and technical and social work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one needs only to focus on its inputs and outputs and not on its internal complexity. Thus, paradoxically, the more science and technology succeed, the more obscure they become.[1]

The black box is a metaphor to describe scientific practice—to conduct science is to construct and close a black box. To give an example, it is through images of the brain that the culture and politics of neuroscience become visible, solidifies, and spreads across a wider public arena beyond the closed circuit of neuroscientific discourses. In spite of the highly mediated procedure for generating a brain scan and the enormous complexity of data acquisition and image processing, these images are often presented in mass media as if they were a visual proof of brain activity.

How does one know what is inside these images? One way is to pay attention to the bits and pieces of technology that are black-boxed and that can become object of epistemic interest. From the 1990s onwards, world-renowned artists working in different media have been using biomedical imaging technologies to explore and creatively re-assemble personal, medical and scientific narratives around human identity.[2] In some of these works, the tendency has been to focus on issues of portraiture and to critically interrogate the visual evidence provided by brain scans in particular. However, these interventions were limited to the use of the final visual output, that is, to brain scans. Were artists tracing configurations of subjectivity alternative to the cerebral subject by creating another politics of the neural image, by creating a different iconography of the brain?[3] Or were they still simply carrying the laboratory-stabilised image interpretations out into the world? Artists who want to open up the black box of MRI or other biomedical imaging technologies need to work with the artisanship of image-making in the laboratory. For example, they could look at and examine the data visualization pipeline in MRI before it is turned into a standard protocol. Or they could look at the relationship between signal and noise, at the sound made by the machine, or at the concept of uncertainty in data visualization.

Artists working on MRI and other biomedical imaging technologies are currently shifting their focus away from the final visual output to focus on the materiality of science and on the impact that science and technology have on societal and ethical issues. To do that, they need to open up the black box and pay attention to science in the making. This is available in the laboratory (science in the making *now*) and in the archive (science in the making *then*). Laboratory ethnography or collaboration with a scientist is not always possible: access to a lab requires resources in terms of money and time, and often also requires the presence of an institution supporting the collaborative project between a scientist and an artist. And sometimes it requires a time machine. The archive can provide an easier and more layered access to science in the making. The archive is the place where historical records of science are kept, in which scientists wrote about their experiments, their methods, their leaps in imagination, their tinkering with materials. The archive is this place where science in the making is visible before it gets black-boxed.

The black box helps us to think about transactions between the worlds of art and science. How do we create and support such transactions? By enabling a trading zone between the two epistemic cultures of art and science. The concept of the trading zone, which stems from the history of physics, can be adapted to the worlds of art and science. The science historian Peter Galison defines the trading zone as "a social, material, and intellectual mortar binding together the disunified traditions of experimenting, theorizing, and instrument building."[4] The trading zone can be created not only between different scientific communities (that of experimental and theoretical physicists as in Galison) but also between scientists and artists. Science and art are both skilled practices characterised by a synergy between the body, the tools, the raw material and the environment.[5]

To create this trading zone artists and scholars alike need to engage with how aesthetics, bricolage craft and affective investment are already present in science. These are part of the situated, material conditions of knowledge production that have been considered peripheral to science and that artists can bring to the foreground. Looking at how scientific knowledge is produced rather than innocently discovered, is akin to looking *under* data-visualization to consider its assumptions and conventions.

What does "*looking under*" data-visualization mean? There is nothing natural or predetermined when it comes to data visualization. *Data* (literally, "the givens") is one of the most taken-for-granted words in all the sciences: short and unpretentious, it expresses the simplest and seemingly most straightforward elements of empirical research. Whether inscribed as magnetic signals, digital information, scribbles on envelopes or meticulous entries in lab notebooks, data supply the essential raw materials for all scientific activity, from observing to theorizing. Data are not given: they are made. Philosopher of science Sabina Leonelli said: "they are the results of complex processes of interaction between researchers and the world, which happen with the help of interfaces."[6] Visualization is a crucial component of how data are produced, interpreted, displayed and contested inside but also outside the laboratory.

As the history of science and technology has shown, scientific practice has always been about creating new worlds and new objects

(so that they become visible) or about throwing new light onto familiar things (so that the way we look at them changes). Well-known examples from different historical periods are Leonardo da Vinci's anatomical drawings, Galileo Galilei's observations of the moon surface made visible by his telescope, Santiago Ramón y Cajal's drawings of neurons and neural functions visualized and lit up in colourful brain scans. All these visualizations enable us to interrogate, rather than simply represent, the object made visible.

The choices that scientists make in the laboratory often emerge from intellectual, technical, political or economic struggles, or from power imbalances, that remain hidden in the final published visual output. Thus, data visualization does not speak for itself but always embodies a specific voice—usually from the dominant group among various stakeholders (for example, a certain research group). Furthermore, images are entangled with memory and affect. Though traditional wisdom pertaining to data visualization emphasizes simplicity and condemns embellishments, critical theories of data visualization and design, particularly in feminist studies, have long insisted upon the embodied, visceral character of our cognition and vision. [7]

Artists can re-contextualise data and highlight their neglected dimensions, such as the fact that data are aesthetic-laden and the product of body-work, decision-making and affective investment already inside the laboratory. The laboratory is a space of experimentation in which the intersections between scientific "objects," instruments, and experimenters quiver with uncertainty—where the liveliness of experimentation has not yet been stilled by epistemological resolution. A living experimental system, the historian of science Hans-Jörg Rheinberger argues, has "*more stories* to tell than the experimenter at a given moment is trying to tell with it." [8] Because such a system still holds "excess" within itself, it "contain[s] remnants of older narratives as well as fragments of narratives that have not yet been told." [9] Digging up archival material and conducting laboratory ethnography are key actions to preserving the vitality of the laboratory. This vitality is often black-boxed. Artists can and should re-open the bits and pieces of technologies that are black-boxed to turn them into objects of epistemic interest. +

FOOTNOTES

[1] Latour, Bruno. *Pandora's Hope: Essays on the Reality of Science Studies*. Harvard University Press, 1999, p.304.

[2] See Casini, Silvia. "Beyond the Neuro-Realism Fallacy. From John R. Mallard's Hand-painted MRI Image of a Mouse to BioArt Scenarios.", *Nuncius. Journal of the Material and Visual History of Science*, vol.32, no.2, 2017, pp.440–471.

[3] Vidal, Fernando and Francisco Ortega. *Being Brains: Making the Cerebral Subject*. Fordham University Press, 2017.

[4] Galison, Peter. *Image and Logic. A Material Culture of Microphysics*. University of Chicago Press, 1997, p.803.

[5] Ingold, Tim. "Beyond Art and Technology: The Anthropology of Skill." *Anthropological Perspectives on Technology*, edited by Michael Brian Schiffer, University of New Mexico Press, 2001, pp.17–31.

[6] Leonelli, Sabina. *Data-Centric Biology: A Philosophical Study*. University of Chicago Press, 2016, pp.71–72.

[7] On feminist approaches to science and technology studies see Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies*, vol.14, no.3, 1988, pp.575–599.

[8] Rheinberger, Hans-Jörg. "Experimental Systems: Historiality, Narration, and Deconstruction." *Science in Context*, vol.7, no.1, 1994, pp.65–81.

[9] Ibid. 78.

THEME 2

Virtual Intelligences & Artificial Bodies

What will our bodies look like thirty years from now? In a century? What will morph and twist and code? How will we (em)body ourselves onto the world? In our dance with knowledge, in our yearning for greater, these artists explore the consequences of now, imaging better.

Artificial Intelligence – the intelligent virtual – is changing the way we think about and know the world and ourselves. What kinds of bodies, human proxies are being imagined and created for AI? What is the body good for in a world where AI is increasingly privileged? What do we want AI for and what is deep learning from? And what do we learn from it?

These artists' works forecast worlds, project realities. Beautiful, frightening, we enter our alien potential. Visitations by ourselves, our machines, a new body-technology. Futured space. Begging the question: as we grow into technology, does technology grow into us?

DYSCORPIA.

ESSAY

On the Corpse of Knowledge

GEOFFREY ROCKWELL

In the 1992 science fiction film *The Lawnmower Man* we see virtual reality used to enhance the intelligence of a landscaper called Jobe. Predictably it goes wrong and the lawnmower man starts murdering people. When cornered he leaves his body behind for the network announcing his rebirth by ringing all the phones. While it was not a particularly good movie, it showed actual virtual reality technology like VPL Research's head-mounted displays, and it leveraged what were then cutting-edge computer graphics to represent the action sequences taking place within the virtual world. It showed us both how our bodies might be disciplined by technology here in this world, and how they might be coloured, so to speak, in the virtual. We technophiles were primed by the movie for virtual reality technology to become real. It was just a matter of time. Alas, in the 1990s virtual reality for all was not to be. Mobility and smart phones (and soon tablets) proved a more interesting future for the human-computer interface. Carrying computing and connection around in your pocket proved more appealing than immersion into a pixelated word. Virtual reality faded back into the labs.

Today the two technologies of virtual reality (VR) and artificial intelligence (AI) are getting hyped again. VR is back as a new way to be immersed in videogames. The *Oculus Rift* Kickstarter campaign of 2012 captured the imagination of gamers. This provided seed funding for an affordable VR head-mounted display (HMD) which was eventually released in 2016. That Facebook's Mark Zuckerberg would acquire *Oculus* VR for USD $2.3 billion confirmed speculations that virtual reality was going to be the next big thing. All of a sudden VR was something the rest of us could play with or develop for. The expensive HMDs shown in *The Lawnmower Man* were now something you could get for your gaming console or use in art like Marilène Oliver's *Deep Connection* and *Body Invaders* in the *Dyscorpia* exhibition.

The *Dyscorpia* exhibition and symposium brought together an interdisciplinary team of artists, dancers, computer scientists, literary writers, health humanities scholars, and thinkers to reflect on the body and what we know about it. As we are inundated with industry-driven news about AI and VR innovations (Brennan 2018), *Dyscorpia* challenges us to go beyond the hype. The art of *Dyscorpia* mixes AI and VR so as to get us thinking generatively about "Virtual Intelligences & Artificial Bodies." Just the word *dyscorpia* by itself is unsettling. It presents as a portmanteau that packs in different words from "dystopia" to "corpse." It reminds us of how the body appears, disappears and moves through our ideas about technology as they play out in dystopic futures.

Dyscorpia the symposium was anchored by Isabelle Van Grimde's keynote about the *Eve 2050* project which weaves dance and science speculation around a symbolic Eve of the future. This project includes a web series of 5 videos that were projected in the exhibition and are available on the web.[1] These video shorts are rich in symbolism, but resist any simple reading. Is this Eve of 2050 dancing the rebirth of humanity over an earth made desert? Whatever your interpretation, the Eve is no corpse. Her dance through the series, sometimes slow, sometimes viscerally fast, confront us over and over with the body in motion, alien and snapping in a seizure of life. Eve is no Frankenstein's monster sparked into life. She is not a virtual body generated by technology. She is the life itself that sparks in the term dyscorpia.

But what about AI? Could the Eve of 2050 be a new hybrid of human body and machine intelligence? Artificial intelligence has, like VR, been hyped and dismissed. It has sparked the public imagination and has generally been portrayed as our incorporeal other. Think of HAL 9000 in the movie *2001: A Space Odyssey* (1968): a perfectly round red eye with a space ship as its body.

The term "artificial intelligence" was coined in a funding proposal to the Rockefeller Foundation that computer scientists John McCarthy and colleagues put together in 1955 (McCarthy et al. 1955). The request was for support for a summer research retreat at Dartmouth that was then organized in 1956. The term with its paradoxical combination stuck, and soon the media was reporting predictions about how long it would be before we got what had been coined as such. The hype balloon eventually popped. This led to an "AI winter" when funding was cut and AI went back into the lab to articulate more modest goals. Philosopher Hubert Dreyfus was partly responsible for the aforementioned winter with his trenchant critique in a report written for RAND under the title "Alchemy and Artificial Intelligence" (1965) which was later evolved into a book under the title *What computers can't do* (1972). He pointed out that what passed as demonstrations of "intelligent" symbolic processing coming out of the labs wouldn't necessarily scale up to the human. He joked that following the definition of progress used in AI research, "the first man to climb a tree could claim tangible progress toward flight to the moon." (Dreyfus 1965, 17) We weren't virtually there at all.

More important to *Dyscorpia* was the critique of how intelligence was framed so that computing could solve it. Early AI research defined intelligence as cognition in the mind that could be represented as symbol processing. This Cartesian move, as Philip Agre pointed out in *Computation and Human Experience* (1997), conveniently left out the body and defined intelligence so that the computers of the time could easily simulate thought. For Dreyfus and then Agre, the presupposition that intelligence is mental symbol processing was just that: an unproven assumption about human intelligence. Agre, who was an AI researcher himself, went on to argue that intelligence should be thought of as activity where there isn't a clear mind-body split. Both the body of the intelligence and the physical design (or body) of the computer trying to emulate intelligence had to be rethought. Such thinking led to new designs and new approaches which are now paying off in the current renaissance of AI research. AI, like Eve in Van Grimde's project, had to become embodied and had to find new ways of learning from experience before it could be effective at intervening in the real.

Dyscorpia shows what the arts can bring to the conversation. Works like *Human in the Loop* by the A-life team led by Vadim Bulitko provoke speculation about just what we are looking for in artificial life. Can simple models lead to emergent intelligence? Would we know social intelligence in a swarm of agents if we saw it, or are we limited in our imagination of how intelligence is embodied? What role do we, the humans in the loop, play in the emergent behavior of such artificial life simulations?

Archipelago by Daniel Evans provokes us to think about all the data we throw off. Evans uses the location data of a single person to build up a virtual landscape of islands through which the player can move using VR. He also machine-printed the islands of his data archipelago so that the work can be experienced inside and out of the virtual.

Anticipated Alliterations (Body Talk) by Kasie Campbell and Gary James Joynes is an installation of textile organ-like sculptures that respond to sound with disconcerting movement. You are in the body, and you are asked to think about the intelligence inside. We are multitudes, after all. Science has shown us that we aren't the simple unities from Descartes' story, but worlds of symbionts collaborating, mostly. The intelligence associated with the homunculus of the mind may have little to do with the inner life of the herds of beings that populate our organs.

Marilène Oliver's *Deep Connection* and *Space Invaders* are the last two works I will comment on as I found them the most provocative of the virtual bodies exhibited. When you put on an HMD the works invite you to reach into virtual scans of bodies. As I invaded the personal space of these bodies I had a physical reaction that belied the virtual/real distinction. I may have known the bodies weren't real, but my gut knew otherwise. When a virtual work can affect you viscerally it is no longer merely virtual. You realize that the body is a site for knowing. It is a site of tacit knowledge that goes beyond the intellectual. It is what knows how rather than knowing what. It is with my hand that I reach out and then pull back.

This is perhaps the challenge of *Dyscorpia*, a misfit corpse of a word that like a burr under the saddle spurs on our thinking about the artificial and virtual. The exhibition presents discordant ways of knowing through virtual intelligences and artificial bodies. Indeed, it presents the virtual and artificial as extensions of our body of knowledge rather than something other than us. ▼

FOOTNOTE

[1] Van Grimde, Isabelle. "Eve 20150 Webseries" *Van Grimde Corps Secrets*, 2019, http://vangrimdecorpssecrets.com/en/oeuvres/eve-2050/webseries/. Accessed 1ST Dec. 2019.

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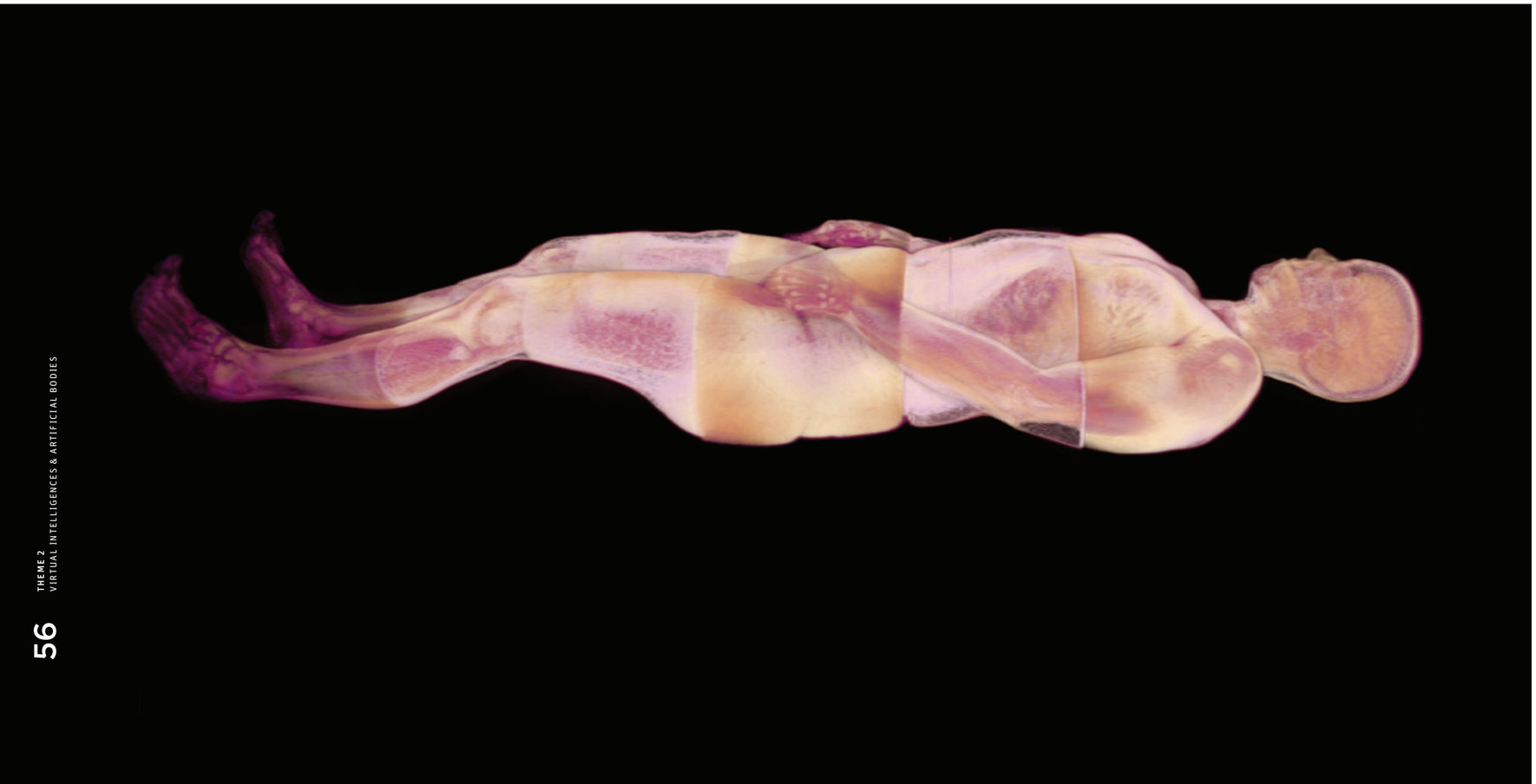
Our current **social climate** is characterized by an increasing investment in revealing how certain bodies (abled, cis, male, white) have far fewer limitations placed on their ability to be present and visible.

— Daniel Evans, MFA student, ***Archipelago***



Deep Connection | 2019

LASER-CUT COROPLAST SCULPTURE AND VIRTUAL REALITY

MARILÈNE OLIVER

Working with radiology and computer science researchers at the University of Alberta, Marilène Oliver created high-resolution full body magnetic resonance (MR) scan datasets in order to create two installations for *Dyscorpia*, both including VR components. In *Deep Connection*, a body floats in VR space. The viewer can walk around and dive inside the body and explore its inner workings. Holding the body's hand animates it: a 4D dataset of the heart beating and the lungs breathing is triggered. As long as the user holds the virtual body's hand, the heart beats, the lungs breathe and a human voice sings softly. The installation is comprised of a row of 3 sculptures of bodies into which the VR hardware is embedded/housed. Gary James Joynes created an original audio track using recordings from the original MR scan and Marilène Oliver's voice.

THIS WORK WAS MADE WITH THE GENEROUS SUPPORT AND EXPERTISE OF ASSISTANT PROFESSOR KUMAR PUNITHAKUMAR, PROFESSOR PIERRE BOULANGER, PROFESSOR RICHARD THOMPSON, DR CHRIS HANSTOCK, PETER SERES, AND COMPUTING SCIENCE GRADUATE INTERN STUDENTS PREET GIRI AND MADHAVI NIMALARATNE

Space Invaders 2019 | 2019

LASER-CUT COROPLAST SCULPTURE AND VIRTUAL REALITY

MARILÈNE OLIVER

Space Invaders creates the uncanny experience of having our personal physical space invaded by virtual bodies. When the viewer enters the VR space, they find themselves surrounded by three MR-scanned figures which it is possible to move through and into. Gary James Joynes created an original audio track using recordings from the original MR scans.

THIS WORK WAS MADE WITH THE GENEROUS SUPPORT AND EXPERTISE OF ASSISTANT PROFESSOR KUMAR PUNITHAKUMAR, PROFESSOR PIERRE BOULANGER, PROFESSOR RICHARD THOMPSON, DR CHRIS HANSTOCK, PETER SERES, AND COMPUTING SCIENCE GRADUATE INTERN STUDENTS PREET GIRI AND MADHAVI NIMALARATNE

Human in the Loop | 2019

WEBCAMS, A-LIFE SIMULATION, PROJECTION, AND INKJET ON PAPER

A-LIFE TEAM

Human in the Loop was a collaborative venture between the Departments of Art & Design, Computing Science, and Philosophy at the University of Alberta. It is an interactive art installation that offers an opportunity for viewers to quantitatively evaluate how their actions affect artificial life agents (and vice versa). It invites viewers to engage with an ever-evolving population of agents whose behavior is governed by a simple model of artificial intelligence.

The Body Possible and Practical Cyborg

JONATHAN GARFINKEL

1

Beginnings, or, a Return to the Body-Narrative

When looking at Isabelle Van Grimde's *Eve 2050* film, I'm struck by the bodies before me, the possibility they propose. Who and what will our bodies be in 50 years? In 100? What will morph and twist and code? How will we (em)body ourselves onto the world?

Van Grimde's *Eve 2050* is an ambitious project, transdisciplinary and multidimensional in its approach. It is a web series of five episodes; a film installation; a live performance. The triptych is a meditation and a question: given the technological innovations we are currently exposed to in biomedicine and artificial intelligence, what will it mean to be human in the future? At the *Dyscorpia* exhibition we are privy to the film, in which Van Grimde proposes extrapolations of an imagined future through a series of choreographed images brimming with both apocalyptic and utopic concerns. It stretches our conception of what a body is and what it can do, redefining notions of gender, body and self, implying innovations not only technological, but cultural and theoretical as well.

The gender fluid dancer of Van Grimde's film is confronted by stone monolith and ancient heat, traversing desert-like and lunar-reflective landscapes. Clips of other bodies, cultures and ages appear, subliminal. Archetypal imaginings flit by in architectures strange and familiar, outer and inner space. References to the ancient are superseded and countered by laser and projection, proposals of the digital mapped onto the body that evoke hybridity and enhancement. An exposed spine, the transparent organ.

Van Grimde's work made me reflect on my own mutations and enhancements. In March 2017, I hacked into my own body. I joined a Do-It-Yourself, bio-hacking group of Type One Diabetics (T1D) called *Loop*. Not only am I a member of this amorphous, transnational, Facebook-based community that refuses to wait for government legislation of new medical devices, I'm alive because of it. If I am, as Donna Haraway intones, a cyborg of our century (1988), I'm a practical cyborg, living with a host of technological intrusions, technical anomalies and DIY hybrids. The practical cyborg bends our traditional image of the narrative self in medical humanities, and our very belief in a patient's life-story. For, as I grow into my own flesh, medical technology grows into my diabetic body.

2

The Practical Cyborg

Eve 2050 proposes new bodies, new ways of being in the world, thirty-one years from now. If you had shown me in 1986 a video of myself thirty-three years later, I would've been perplexed. Who is this man with tubes and wires hanging from his body, administering insulin through a phone? How is it possible to check one's blood sugar from a watch? What does this man become with all of this technology? Has he grown into it, or has the technology grown into him?

If a non-diabetic's blood glucose level (BG) is 5.0 mmol/L, I'm rarely there, though always striving toward it. The challenge for a diabetic, they say, is to think like a pancreas. But how does a pancreas actually think? Insulin levels, stress, adrenaline, hormones, sex, drugs, sleep, carb intake, exercise, alcohol, weather, all affect BG. In other words: a diabetic encounters life itself. We must be adept at decoding both body and world.

To predict the future and learn from the past. To read the flesh's code: its changing relationship to our changing environment. To feel and to trust that feeling: hypoglycemia has a distinct and ravenous, animal-like quality. To hold on—dearly—to reason—amongst the irrationality of moving things.

But when I heard about *Loop*, the DIY, open source software, "Artificial Pancreas", I was intrigued. The idea that a machine could make the decisions I had to make—often erroneously—both appealed and frightened me. To relinquish control—to an algorithm created by diabetic software hackers?

Jean-Luc Nancy writes,

> Personal contingency intersects with the contingency of technological history. Earlier I would be dead, later I would survive by other means. But 'I' always finds itself tightly squeezed in a wedge of technical possibilities. Hence the vain debate… between those who wanted a metaphysical adventure and those who preferred a technical performance: certainly both are at stake, one inside the other" (162).

In search of both a metaphysical adventure and enhanced technical prowess, I bought an Apple Developer's software license. *Loop* spoke to the phenomenologist in me, as well as the traveler, the anarchist and the diabetic in search of the Edenic 5.0. It also conjured the storyteller: in wanting to tell the story of an enhanced body, I would read the world in new ways. With X-Code, a Macbook Air and an iPhone, I built the *Loop* app on my phone. That it's open source software is significant: in the legal and political grey zone that is the *Loop*, the community has circumvented government restrictions because nobody is making any money from this. We've all—with the help of the online community—built it ourselves. Diabetics have developed, programmed and are now living on the most sophisticated form of insulin delivery currently available in the world.

When *Loop* works it's a green circle in the upper left corner of my iPhone. It's a reassuring image: the artificial pancreas is working. To the right, my Continuous Glucose Monitoring (CGM) numbers. Below is an amber graph with my predicted glucose levels, an orange graph with my former glucose levels. A small rectangle marks the algorithm's calculations, temporary increases or decreases recommended in minute dosages of bio-synthetic insulin called Novorapid.

It's not a perfect system. A mini-Bluetooth computer, called the *Riley Link*, regularly craps out. My iPhone doesn't always cooperate. When *Loop* doesn't work, the circle turns red, a symbol of negative capability, a point of frustration. "I'm seeing red," the saying goes, which means my cyborg existence is on hold, which is also a reminder of the imperfections of our technology. Human, all too human.

In *A Cyborg Manifesto*, Donna Haraway writes,

> Contemporary science fiction is full of cyborgs—creatures simultaneously animal and machine, who populate worlds ambiguously natural and crafted… The cyborg is our ontology; it gives us our politics (4–5).

But what is this cyborg ontology? And what is this politics?

Haraway evokes a utopian, nonbinary, post-human reality that feels both inspiring and

Eve 2050 | 2019

18 MINUTE FILM

ISABELLE VAN GRIMDE & DAVAI

Isabelle Van Grimde's 18–minute film *Eve 2050* is a reworking of the web series created as part of Van Grimde's *Eve 2050* triptych which includes an interactive installation and a stage production. The *Eve 2050* film combines contemporary dance, video, and music, with visual and digital arts in order to engage in an artistic, aesthetic and ethical reflection on the future of human beings, and of the body, in an age of digital technology, biomedical advances, and artificial intelligence.

distant from the online diabetes community. I call myself a "practical cyborg" because there is little utopian in any of this. Several times a day, my *Riley Link* needs to be woken up. My iPhone SE—as is the way of Apple phasing out its products in order to encourage you to buy more—is on its way out. My *Medtronic* insulin pump is five years old—it's out of warranty, bought second-hand from a member of the *Loop* community.

Yet it works better than anything I've ever experienced. When I woke up the first morning after having installed *Loop*, I saw the green circle glowing in the upper left hand corner of my phone. To the right of that, the number read 5.0 mmol/L, the diabetic's dream. I felt almost human. Left to itself, the *Loop* adjusts the blood glucose graph so the numbers fall easily into range. The objective evidence, what I call the diabetic's report card—the H-A1C—spoke to this truth. Last year I had the best results I've had in thirty-three years. I felt secure, knowing I can wake up with a near perfect number. The technology has lessened the burden.

3
***Loop*: a new paradigm for the self?**

Maurice Merleau-Ponty writes of the 'habitual body', the routine actions we perform expertly and efficiently that become habit (Carel 49). What happens when the *Loop* becomes habit? There is no question that the first weeks were a steep learning curve on *Loop*. There were alarms waking me in the middle of the night, and every time the Bluetooth crapped out I panicked. I had to learn to trust my machine, and myself with the machine. I had to remind myself that if the machine failed, I still knew how to survive. I would revert to the old system. I still needed to keep a close eye on both body and the world. I needed to work with *Loop*.

In time, I adjusted. The new became familiar, the strange became home (Svennæus 2000). I became—in ways that I am still ambivalent about—intimate with my technology. Haraway writes of modern medicine—thirty years before today's medical tech explosion —of "couplings between organism and machine… in an intimacy and with a power that were not generated in the history of sexuality" (4). She accurately foresaw and predicted a love, hatred and intimacy with our machines that have and will transform us.

In this sense Haraway is right: we're all cyborgs. We feel more "ourselves" with our phones than without. Through our Fitbits and Apple Watches, we measure how many steps we take in a day, monitor heart rates, remind ourselves to breathe, sit, stand. So these watches and phones become extensions of ourselves. Granted, the stakes are higher for the Practical Cyborg living on *Loop*. Realities do get confused, though, as I receive unexpected text messages from my mother while bolusing insulin for an evening meal. Messages and meanings overlap. Confused, the public and private realms blur. I do not know what this is doing to me, what I will become, if I am fusing toward some other, alternate being, or simply constantly distracted. In Isabelle Van Grimde's eye-inspiring *Eve 2050*, I have found both kinship and a mirror, a beautiful rendering and deep understanding. What many of us in 2019 feel and live, turned onto itself, and back again. ▼

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Ultimately, language's relation to the body is a relation of assignation, of confinement, of manifold limitations. Hence the positive ring **Dyscorpia** possesses in my ears. To think of the body in absentia of norms, to look at its external relations and internal configurations for the comprehension of which we have no syntax or grammar, doesn't have anything to do with science-fiction or weirdness or that sort of thing.

— Daniel Laforest, writer, researcher, translator, co-organizer of *Dyscorpia*

Solute | 2018

INTAGLIO ON PAPER

PHOEBE TODD-PARRISH

Solute revolves around the following questions: where does our body end and the "outer world" begin? How does our material body limit or enable our interaction not only with other people, but with our sense of self? As communication becomes increasingly digital and we rely on technological media for "contact," will we continue to privilege our sense of sight or will technology be better able to mimic the feeling or smell of a body? And how will that continue to alter our sense of being, and of being with?

Deep Inside | 2019

ETCHING AND CHINE COLLÉ

In Memory | 2019

ETCHING AND CHINE COLLÉ

NAHO IKETANI

To make her intense, rich, and detailed etchings, Iketani obsessively pierces her etching plates with thousands of pinpricks. The results are skeletal-like forms emerging from, or receding into, psychologically charged and highly active clouds of fur.

Far, but just as close | 2019

INKJET PRINT ON PAPER

NICHOLAS HERTZ

With *Far, but just as close*, Hertz explores the process of 3D rendering and scanning his body. By implicating technology into the way he represents himself, he is able to reflect on different modes of representation and objectification of his body.

Grab Your Headgear for the New Space Age

KERAM MALICKI-SANCHEZ

What does it mean to express oneself in space? We have architects and theatre set designers, interior decorators, sculptors, dancers and athletes, computer-based 3D modelers, Tai Chi masters, Zen gardeners and airplane pilots who may possess some answers to these questions. But how aware are those not devoted by vocation to the study of their relationship to space and its emotional and psychological effects? As we migrate from two-dimensional interfaces into embodied digital worlds, we will have to develop new languages and relationships to the idea of the Z-plane—depth and dimensionality. The new spatialized media that include virtual and augmented reality rely on a deep and complex understanding of how environment affects mood, productivity and behavior, how scale implies significance and power, how texture and light hold, evoke and restore memory and nostalgia, and how the traces of our passage through space write the truest form of our history and culture. How we interact with the virtual spaces we construct for each other will therefore allow us to better understand ourselves and the world around us, as we enter deeper into a technologically mediated space age.

There is an ongoing debate about the most pleasing and effective method of locomotion inside a virtual digital world: gliding or teleporting. If one were to base how people move about and experience the real world, then gliding might be more akin to perambulation. There is no real situation wherein humans point at a spot on the floor and then appear there instantaneously, or rotate 90 degrees like the clicking numbers on a combination lock. Yet for many, myself included, this latter sort of abstraction of movement feels far more pleasing and less likely to induce nausea; it overrides our evolutionary protection scheme. The reason for this is quite simple: humans have a vestibular system within the inner ear that serves as a mammalian gyroscope and accelerometer—providing balance and orientation within space. By algorithmically predicting the movement of the head, VR programs write the next frames of a scene just in time for the participant to believe that the floor or the horizon is, in fact, persistent in space. There is a sort of "drop-in" point where the participant suspends their belief and falls prey to the illusion being rendered before them. When there is a disconnect, however, between their real-world position being monitored by all these intuitive systems, and the perceived world, the body starts to become concerned. In the wild, such disconnect between the ground and the vestibular system signaled something was very wrong—some fruit or meat had gone bad or was poisoned, thus the brain signaled the body to purge the toxic matter immediately. In other words, it got sick. Will human bodies, or that of their progeny, ever evolve to overcome this physical self-defense mechanism? What other sensory hacks could be deployed to override our physiological restraints? How many hundreds or thousands of years of exposure to new spatialized media will it take for the autonomic nervous system to adapt?

Ten thousand years before this essay was written, humans lived as hunter-gatherers and the world was made of far horizons, tree lines, rivers and lakes, the curvature of the land. As civilization has developed through agriculture to the orthogonal, grid-based, right-angle world that has blanketed the planet, our relationship to space has been choked and diminished. Now we move towards the interior, seeking out broader landscapes and new experience without the need or ability to walk freely across a 'real' world. What is the intrinsic value of freedom of movement? Is virtual space expensive to traverse or is it cheap? Can we leap tall buildings in a single bound or does it cost something to move or build a mile? Does it mean more to own many virtual objects or should we instead approach ultimate minimalism, reducing the noise and clutter of the real world in this virtual reality, where we might find the most renewing power from within negative space? Our many disparate digital realms will be connected in hypergrids, and the tangible world will have a volumetric, multi-layered copy of itself. We will refine its resolution with every interaction we make.

Some fear the move towards an even more hyper-connected society, one in which we obliviate our connection to Earth and turn towards digital proxies, cubby holes and secret cabals. I, however, align myself with those who see this as an opportunity to explore what stuff we are indeed made of. We are remarkably adaptive when we take on new forms—not merely gender or shape, but new appendages and forms not related to bipeds. It is remarkable how quickly we adapt to tentacles, wings, tails, or abstract particle-emitting entities in virtual worlds. We are equally adaptive to visualizing data in new ways, shapes, dimensions, structures.

Virtual space affords us a powerful tool for exploring these faculties we have developed and evolved for hundreds of thousands of years in a safe learning environment. A tool we can use not only to dazzle, but to fascinate and extend ourselves and to communicate intimate and subjective experiences that extend our knowledge of each other and how we parse our encounter with the consensual reality. Theater, art, dance, cinematography, sculpture, game design, poetry and now spatialized media, are not here to deliver us some form of moral directive; they are here to enrapture us, to provoke us to challenge our assumptions about our position, our stance, and invigorate our curiosity for other perspectives and vantage points.

When we experience virtual and augmented reality we experience scale in a way unique to these media. Yet when we return to concrete objects in our consensual reality we can form a renewed spatial relationship with them. Some argue that spatialized media will never be as high resolution as the real world. Others counter that it is precisely this process that empowers us to look anew at the reality we have taken for granted.

Our purposes, our desired functions for these tools are to fascinate, beguile, challenge, confound, titillate, irritate, surprise, shock, console, relate. We are happiest at the intersection of the familiar and the outré. To understand our relationship to the physical, we can realign ourselves to its contours. By pushing art to the foreground, we can extend ourselves beyond our assumed limits, test our amorphousness and represent those concepts we did not previously have the tools to define. We can return to the places where we forgot how to dance and experience them anew, and in different ways. We can become more lyrical in our approach to territory, dimension, depth, and their design. It is time to not only learn the grammar but to find—as Alan Watts put it—the jazz in all of it. Cognitive and visual neuroscientists understand how our gaze stitches together our notion of spatiotemporal constancy. What the arts give us, then, are the scaffolding and equipment

to spelunk our way to the outer ring, to the inner crust, with VR and AR as our safety goggles and headlamps. ▼

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ACKNOWLEDGMENTS

Kevin MacLeod, Tim Carroll, Kevin Mack, Kent Bye, Marilène Oliver, Werner Herzog, David Han, Donald Hoffman, Kevin Kelly, Elizabeth McGrath inspired ideas incorporated herein. Thanks to Matthew Johnson and anon for additional ideas and notes.

Artistic Painting | 2003

OIL ON CANVAS

JESSE THOMAS

Artistic Painting employs aesthetic means to explore relationships between the body and technology. In it, figure is confused with ground and the body disappears into an unreadable field of visual information. As the 20TH century painting genres of abstraction and representation collide and collapse, linguistic confusion ensues: through abstraction we construct various representations—thoughts, statements, and pictures. It's through these acts of representation that we are able to consider how and if we know the world, or can verify our own subjective sense of reality or truth.

Filter | 2019

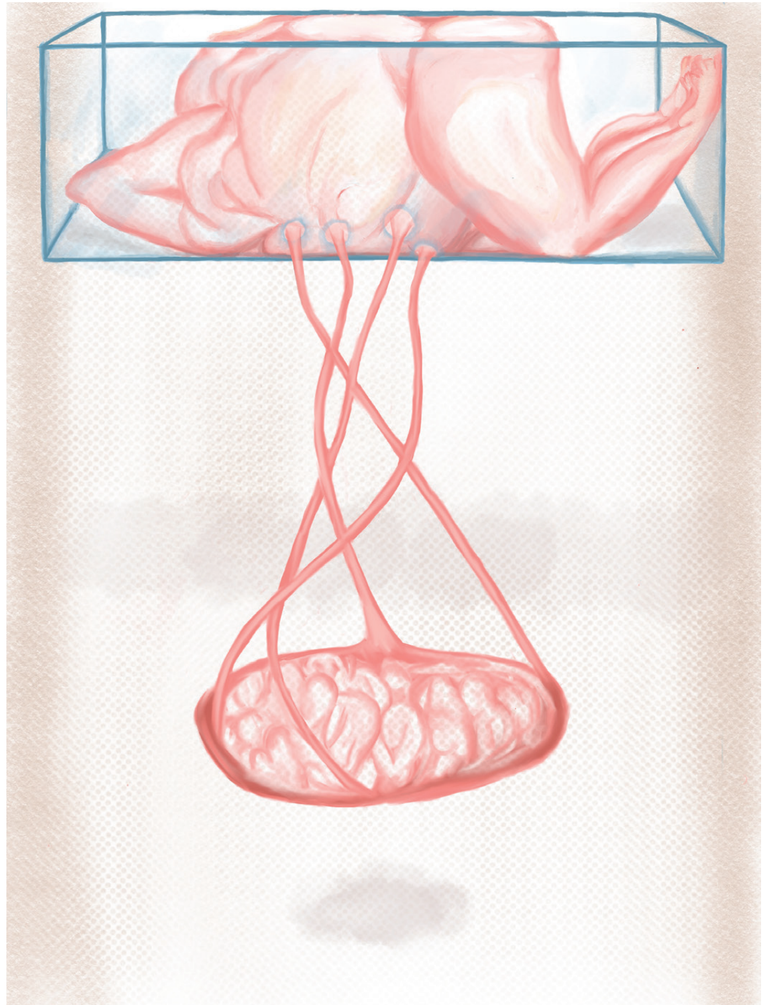
SCREENPRINT ON PAPER

JERAD BECH

Filter relates to a filter bubble, a virtual echo chamber produced by the current online landscape where we are surrounded exclusively by content and advertisements that cater to our interests. Algorithms are designed in such a way that they only show us things that we agree with.

Our bodies have become so irreversibly tied to technological prostheses (think of smartphone nomophobia, for example) that we have lost the ability to think of and connect to **our bodies** not as autonomous but as symbiotic elements and historical products of nature.

— Astrid Ensslin, curator of *Stories in Flesh and Bytes*, co-organizer of *Dyscorpia*



Embryonic Sway | 2019

ANIMATION

JAMIE-LEE GIRODAT

With the developments of *in vitro* fertilization, embryo selection, and genetic editing, the questions of if, when, and how to have children can be both liberating and constraining. Choosing to use genetic engineering has benefits, including the potential to prevent disease and prolong life expectancy, but it also generates the question of what it means to be a living organism. Through printmaking and animation, Girodat explores the evolution of both genetics and fertility, playing with the tensions of unease and intrigue that arise from changing biotechnological environments.

Yard Sale | 2019

DIGITAL PRINT AND ETCHED PLATE TONE

JASON ABMA

Hauntology suggests that our perception of the future is only conceivable by acting in retrospect on the past. Abma's work presents a hypothetical future in which reality and virtual reality haunt each other in one simultaneous space. The work starts digitally, as he creates fabricated, virtual scenes. Moving forward, he combines this digital imagery with traditional practices such as painting, copper plate etching, or collagraph. These techniques bring the digital images into a relatable context with regard to reality. The human touch creates memory about space, blurring the senses of reality and time.

Elite Bodies | 2019

SCREENPRINT ON PAPER

KEVIN LAING

With the use of CRISPR technologies, we have already achieved the ability of gene editing for the purpose of helping humans by eliminating entities at the molecular level to treat or prevent life-threatening diseases. However, there is the possibility of this technology developing into the realm of gene selection or gene editing for eugenic purposes. We must ask ourselves, who gets access to these technologies? Who gets to decide what traits are considered desirable or superior? Will natural human diversity be diminished over time?

Now to the Year 2000 | 2019

INSTALLATION WITH RELIEF AND LETTERPRESS PRINTS, LIGHT BULBS, LIGHT CART, PAPER EPHEMERA, AND FOUND MATERIALS

LUKE JOHNSON WITH
RUTHANN GODOLLEI, MYKEN MCDOWELL
& MORGAN WEDDERSPOON

Now to the Year 2000 was created through edited and reconstructed book covers and dust jackets, utilizing texts that have attempted to predict the future of humanity over the last century. Johnson and his collaborators approach these texts as sites of conflict between science and opinion, faith and skepticism, and the boundaries of performance and reality. How do we gauge these speculative fabulations, which are so often advocated by self-appointed experts in fields of their own creation?

I can't understand **technology** as separate from the self. It's a tool to complete us…this is the starting point, where we have to think about the ethical dimension, what we have to do and what we should do.

— **Yves Netzhammer,** *Soliloquies Apprach like a Shy Deer*

Touching Awe | 2019

ETCHING AND WOODCUT ON PAPER

BREANNA THOMPSON

In *Touching Awe*, Thompson draws postures of bodies interacting with technology. In the combination of these drawings with references to historical imagery used to represent awe, she proposes that how a body interacts with a device reflects how one might bow in prayer, or touch a pietà. Using woodcut and etching techniques to express contemporary devices, she physically bridges traditional and contemporary art making. Whether tributary of a religious paradigm or of one that is driven by information technology, our gestures can reflect power dynamics that are implicit to our interactions.

THEME 3

Stories in Flesh and Bytes

How can the human body come to life on a two-dimensional screen? Can it become a playable environment, a platform, a game world? How are technologies and bodies (inter)woven to evoke new meanings of em-body-ment? Can digital fictions and poems evoke memories and images of our bodies that make us reflect, revisit, and re(con)figure our gendered identities? What are the relationships between exterior appearances and internal body functions and organs? And how do works of electronic literature allow users to engage in new forms of literary experiences and critical gameplay?

In this part of *Dyscorpia*, artists innovate digital, interactive and multimedia forms of creative writing, fabricating stories in flesh and bytes. Google tracking data generate new weather patterns, bodies pass through genetically modified, chemically hyper-saturated, consumer worlds. Wafer-thin cross sections of our brains are held–delicate, fibrous, gossamer-like–in out-stretched hands.

ESSAY

Stories in Flesh and Bytes: "Telling" the Posthuman Body in Electronic Literature

ASTRID ENSSLIN

The body in and as code is a much debated concept in posthuman thought. Posthumanism deals with questions of nature, technology, and culture, and the ways in which humans are disembodied and/or re-embodied in digital culture. It explores how connected we are with our physical bodies when immersed in a virtual world, where we find ourselves re-embodied by one or more avatars on screen. Posthumanism is concerned with the blurring boundaries between physical, real, actual, and virtual and how what are generally understood to be disembodied, online interactions can have very real, visceral, and material effects on us. As digitalized humans, we are embedded in multiple cybernetic feedback loops, and this embeddedness shapes our social relationships as well as the images we form of ourselves and our bodies. If we are cyborgs in the sense of non-binary, hybrid creatures between human, animal, and machine, what does this mean for our responsibility and respect for one another, as well as for other forms of life and intelligence? And what does our "being-in-code" mean for the ways in which we understand and communicate our selves through imagery and storytelling?

The *Stories in Flesh and Bytes* section of the *Dyscorpia* exhibition approached questions revolving around the posthuman body through the lens of digital verbal art. It showcased how innovative digital, interactive and multimedia forms of creative writing may offer us new ways of "telling," "reading," and "playing" the body on screen. These experiments in verbal arts are generally known as digital-born (or digital) fictions and electronic poetry (e-poetry) and come under the generic term "electronic literature," or "e-lit." Works of electronic literature tend to be short, experimental, and thought-provoking. They range from text-only hypertext and interactive fiction to audiovisual, hypermedia Flash works, and, more recently, playable works in immersive 3D, AR and VR, as well as on touchscreens. They engage critically with digital media and technological developments of our time; they often deal with social justice and environmental issues, and they encourage reader-players to consider questions of (dis-)embodiment, privacy, and algorithmic control in our datafied world.

As curator of the *Stories in Flesh and Bytes* section of the *Dyscorpia* exhibition, my aim was to explore how the posthuman body may come to life on a 2D screen; how may it become a playable environment, a character, a platform, or a game world; how code is used to interweave technologies and bodies and to evoke new meanings and experiences of embodiment; how digital-born fictions and poems may evoke memories, dreams, anxieties, and images of our bodies that make us revisit and refigure our gendered identities; and how they make us reflect on the needs of our volatile and vulnerable bodies in a genetically modified, chemically hypersaturated, potentially toxic consumer environment.

The three award-winning digital artists whose body-themed e-lit works feature in this section approach the *Flesh and Bytes* theme in very different and idiosyncratic ways. American hypermedia poet and artist Jason Nelson is known for his abstract, surrealist e-poetry. His interactive, playable poem, *Acesulfame K* (2018; **fig. 1**), recreates the dangerously seductive and literally intoxicating world of the grocery store aisle. The title refers to the chemical name of an industrial sweetener that is over 100 times sweeter than sugar itself. The work offers a cynically playful critique of human subjection to the dictates of the capitalocene which simultaneously caters to our artificially created consumptive habits and destroys our bodies from the inside out.

At the core of Australian artist Mez Breeze's work lie the multiple creative and experimental intersections between bodies in 3D digital space and the ways in which they replicate, resonate with, and/or alienate us from our own physically and physiologically defined, phenomenological bodies. Dual embodiment through the cybernetic feedback loop can render the avatar body invisible yet narratively indispensable, or it may confront us with an alter ego that we explore through virtual touch yet that evokes acutely visceral sensations in our imagination. Breeze's 3D cyborgian sculpture, *The Thing Tableau* (2018; **fig. 2**) takes us on a journey along a cyborgian body imbued with personal memory and insomniac musings. Conceived and designed in VR, its story unfolds through a digital narrative that manifests by turning and tapping the sculpture. The story references insomnia and the thoughts that can creep and reoccur when in that twilight-ish state.

As we interact with *The Thing Tableau*, we become players of an emergent narrative that stems from our navigation of the cyborgian body on screen—a body that translates into our own as we find our own psychology enacted and performed in the experience.

Finally, Christine Wilks' digital body fictions focus on the cis-gendered female body across time and age, from the context of 19TH century coal mining to the fashion dictates of the 20TH century and contemporary appearance-based cyberbullying. They critique the gender biases in which women's bodies are entrenched as well as the constraints of their historical and social environments. Wilks is an award-winning feminist digital writer, media artist and game developer from Yorkshire, UK. She writes, designs, and programs so-called digital(-born) fictions, which are a form of electronic, nonlinear, multimodal literature, blended with elements of play and gaming.

Three of Wilks' digital fictions feature in the *Dyscorpia* exhibition. *Fitting the Pattern* (2008) is an early, autobiographical work of hers that takes us back to her childhood as

Figure 1 | Jason Nelson's *Acesulfame K* (ABOVE)

Figure 2 | Mez Breeze's *The Thing Tableau* (BELOW)

the daughter of a Yorkshire seamstress. Her mother had a strong, idealized image of the socially acceptable female body which she projected onto her adolescent daughters. Rather than measuring their bodies and making clothes accordingly, she made the clothes according to idealized body standards. The girls had to find ways of "fitting the Pattern," of approximating a symbolic order imposed on them by societal and parental norms. Wilks describes the reading experience as follows:

> Life's mysteries are rarely uncovered by a logical, linear process of deduction. You arrive at answers, ideas, suspicions, intuitions… haphazardly, in fragments. Over time you build the picture, piece by piece, shuffling and rearranging, until you start to see a pattern emerging.

The patterns are depicted as online sewing templates, which display chunks of text ("lexias") as the reader-player moves the stylized cursor over them (**fig. 3**).

In her Flash fiction *Underbelly* (2010), Wilks takes on the historical theme of women working in British coal mines. She juxtaposes their physical suffering with the physical work of a 21ST century Yorkshire sculptress (Wilks' sister), who has very different concerns about her body and the prospect of childbirth. They both share a concern with earth and stone, and both make their living by carving stone, for mining and artistic expression respectively. The sculptress' voiced-over meditations are overwritten by the voices of women working in Victorian collieries, whose static images are shown flitting across the screen as the reader-player clicks their way through the animated subterranean world on screen. The women's voices relate the dire conditions in healthcare and maternity support at the time, and their reports are accompanied by uterine and fetal images indicating affinities of exploitation between women's bodies and Mother Earth. In her artist's statement for *Dyscorpia*, Wilks explains that the remarkably uterine qualities of the 13TH century Hereford Mappa Mundi were the inspiration for this work (**fig. 4**).

Wilks' third work in the *Stories in Flesh and Bytes* section is the immersive 3D fiction *Inkubus* (2014), co-developed in Unity with British digital fiction developer Andy

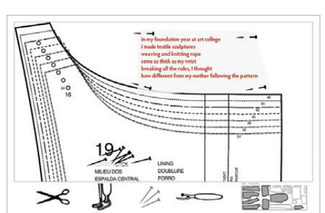


Figure 3 | Wilks reading from *Underbelly* at her artist talk, 10 May 2019 at the Enterprise Square Galleries in Edmonton (ABOVE)

Figure 4 | *Fitting the Pattern*, showing the cursor, stylized as sewing pins, opening an autobiographical lexia of text on screen (BELOW)

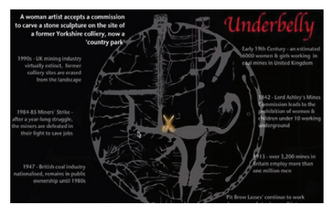
Campbell. The work thematizes and problematizes issues surrounding young women's body image and the social pressures emanating from contemporary ideals of beauty, power and belonging. It is a coming-of-age story about a teenage girl who has been grounded in her bedroom and experiences cyberbullying in an online chat with one of her best friends. In first-person player mode, we delve into a 3D world that evokes the interior of a blood vessel. In this "visceral labyrinth", we are bombarded with snippets of text asking us—the protagonist—to choose, in a binary fashion, between ideals of physical appearance and body image, and intellectual abilities (**fig. 5**).

In Wilks' own words:

> Some malevolent force peddles a destructive artificial feminine ideal. With creeping awareness, the girl (the player) struggles against the insidious gender stereotyping, wherein womanhood is rendered as malleable and polymorphic as a digital doll, which threatens to drain her of life.

At the end of the labyrinthine journey is a cluster of bubbles that depict the multiple faces of the protagonist's fragmented identity (**fig. 6**). Moving through the bubbles triggers audible cries of fear, pain or panic, and once all bubbles have been removed, the camera returns to the screen of the computer in the protagonist's bedroom, this time reflecting an image of a girl's face distorted in such a way that it explicitly references Edvard Munch's *The Scream* (1893). Overall, the navigation of and interaction with corporeal space as presented by *Inkubus*, paired with an open, neo-expressionist ending, offers an embodied experience that encourages reader-players to reflect on the realities of teenage cyberbullying and the psychological repercussions of social pressure and unhealthy body image among young women in particular.

In all three of Wilks' works exhibited in *Dyscorpia*, the cis-gendered female body comes to life through its absence: it eludes monolithic, deterministic depiction. Instead, it appears synecdochically, in fragments of temporal reading and spatial-visual design, and through motifs or traces of things that



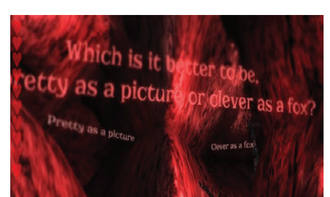


Figure 5 | *Underbelly*'s entry screen (ABOVE)

Figure 6 | Binary navigational choices in *Inkubus* (BELOW)

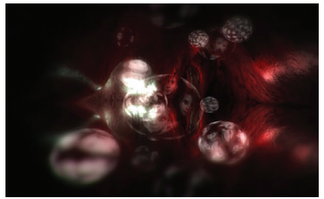


Figure 7 | Identity bubbles in *Inkubus*

may delineate or evoke the body. The body appears as voices, anatomic parts, abstractions or allegory, allowing us to read-play ourselves into these fragments and forge kinship relations with our own bodies and those of others. The parts stand for the whole, but the fragments also express a common experience of being a woman, where social pressures lead us to fixate on body parts at the expense of a more holistic sense of the mind-body relationship. These fragments can be seen in opposition to Jason Nelson's holistic yet anatomically and existentially un-fleshed skeleton avatar, which stands in a metonymic relationship to a potential post-anthropocenic humanity. In contrast, the holistic, walkable sculpture of Breeze's cyborg-narrator technologically dis- and re-embodies our posthuman subconscious via a narrative-allusive, byte-sized traversal. ×

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Acesulfame K | 2019

INTERACTIVE POEM

JASON NELSON

The work of American-Australian digital artist Jason Nelson confronts us with an abstract and puzzling array of avant-garde surrealist game art, where play becomes a paradoxical criticism of its own egocentrism, formulaicity, and obsession with stylized, hypersexualized bodies.

The Thing Tableau | 2019

3D/VR SCULPTURE

MEZ BREEZE

The Thing Tableau is a 3D/VR work conceived and designed in virtual reality. Its' story unfolds through a digital narrative that can only be viewed online. The story references insomnia and the thoughts that can creep in and recur when in that twilightish state. The project is designed for audience interaction through click-based annotations, and can be viewed in multiple ways: as a text-based narrative that unpacks when an audience member interacts with it, or as an automated playthrough, or with no text at all but simply as a 3D or virtual reality based sculpture.

Inkubus | 2013

UNITY GAME

CHRISTINE WILKS

As a feminist digital writer and game developer, Christine Wilks focuses on the female body across time and age. Her female bodies reflect the gender biases and constraints of their historical and social environments — from 19th century coal mining contexts to the fashion dictates of the 20TH century and contemporary, appearance-based cyberbullying.

ESSAY

Narrative World-building in Datafication and Bioethics

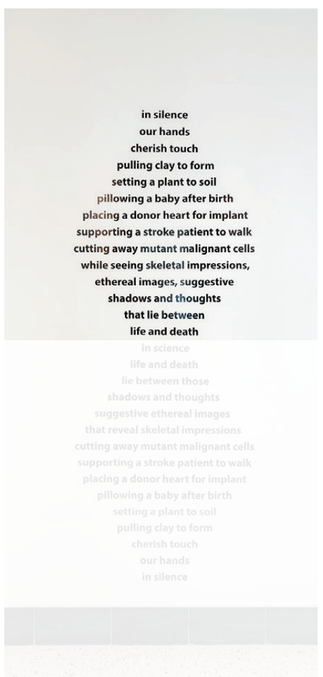
MEGAN PERRAM

How can the human body come to (de)materialize in the digital space? What kinds of worlds can be imagined when the boundaries of the human body are expanded into cyberspace? How are conceptualizations of the self, community, state governmentality, or bioethics distorted and reconfigured in the mass of digital datafication? These are the questions explored in *Stories in Flesh and Bytes*, where artworks incorporate varied technologies including digital fictions, interactive story games and world-building, open-world video games, and abstract composition of medical images.

Flesh and Bytes turns to multimedia to evoke critical responses to larger considerations and anxieties surrounding the human species' plunge into the digital (bio)sphere. These anxieties are particularly attuned to concerns of who is gaining access to these technologies, which groups are being denied entry, and recognizing emerging exploitations. There is enthusiasm in the potential of embracing digital embodiment, however there is rightfully apprehension over the loose surveillance boundaries of these developing technologies. As the works in this exhibit grapple with these fears, they all begin to converge at a single intersection: by igniting a conversation about what it means to preserve narrativity in a changing world. Having the opportunity to share our story is powerful. Storytelling in the digital sphere becomes akin to currency, and as the art in this exhibit shows, we must pay attention to authorship.

Walking beneath an enclosure of shear draping hanging from the ceiling, you become suddenly bound by illuminated, layered images of body parts: veins, skin, bones. You look up and see your distorted reflection bouncing from a mirrored, round surface. Your appearance is unrecognizable. Sheltered by all four sides, you stand at the heart of a tent upon which looms images of the body. You look at your feet and notice the glare of silver text printed on the floor, an echo of a poem displayed on the adjacent wall.

An excerpt which forms one end of the hourglass-shaped verse reads:



The poem subverts a tendency to hierarchize. With a nonlinear structure, multiple ways to read appear: beginning at the bottom and moving upwards or each line at random. However, in any order, a theme emerges around the nurturing, generative capacity of the human body to affectively shape the bodies and objects around us.

Liz Ingram and Bernd Hildebrandt's piece entitled *Light Touch* evokes Susan Sontag's metaphor of bodies passing between "the kingdom of the well and in the kingdom of the sick." By layering medical images of CT, MRI, and PET scans, Ingram and Hildebrandt open a vantage point to ourselves as fragmented. The artists build the images with layered iterations of the body using new computer-generated information. In my experiencing *Light Touch*, I began to question the privilege in medical voyeurism: how is it beautiful to see ourselves this way? How is it horrific? Our self as a cybernetic organism is knit together beneath the rendering of these medical image-taking devices. Our likeness passed around to various experts and physicians who point to ailments bubbling below our skin in dark spaces we cannot see. There is an incredible vulnerability and risk that accompanies medical admission into our flesh, particularly for people experiencing systemic subjugation. Despite all the ways in which various encounters with the healthcare system call on patients to forfeit the history of their bodies, *Light Touch* provokes a new assemblage of agency. Standing inside the tent of draping, my body in a sea of body parts, I cannot help but feel a sense of defiance. I hear a call for using these medical images as narrative empowerment, as a way to tell and retell our own story of the self.

Across the space in the corner of the exhibition room, a desolate, rocky landscape is projected faintly on a white screen. Below the projection, a narrowing collection of 3D-printed mountain peaks draws the viewer from the screen to a virtual reality visor at the end of the table. Entering into the simulated world of Daniel Evans' *Archipelago* proves to be a remarkable, posthuman experience. Evans incorporates the use of sculpture and interactive digital environments to design the terrain of *Archipelago*, produced wholly from data obtained by a single Google location tracking account. Inspired by open-world video games, Evans' work mirrors the speculative world-building of American science-fiction author Ursula Le Guin, as well as folktales of Scotland and the Faroe Islands which center on the hybrid aquatic-human creature known as *Selkie*. In the world of *Archipelago*, the reader/player assumes a subjectivity situated at the sensory threshold. Intersecting the notion of mythos with technology, readers/players traffic perception across bodies of water and land while Google's location tracking data falls like gentle rain from the sky. Moving from one island to the next triggers a digitized female voice treading different versions of the *Selkie* myth. *Archipelago* challenges us to consider the jurisdiction of data collection and analytics, that assume a neoliberal capitalist exploitation enacted on the body as a cybernetic traveler. Considering the astronomic amount of information corporations extract from our assemblages of flesh, as proven in the intricacies of the *Archipelago* world, this virtual space also becomes the backdrop of a new telling of a story. This story holds the cybernetic weaving of our bodies with the digital as a richly generative opportunity, if nurtured with liberation in mind.

Light Touch and *Archipelago* both evoke similar fears: a fear of meshing, a fear of amalgamation, and a fear of monstrosity. Indeed, there is a lot to lose. The works in *Flesh and Bytes* call on the viewer to consider the ways in which the subjugation of particular bodies may be heightened through the digitization of flesh. Once we become wholly fused with the digital, what will prevent the pure commodification of bodies in a bioethical or datafication sense? Our dystopia emerges when the virtual movements of our bodies in digital space and the biomedical cyborgian destiny of our ill bodies become monetized in neoliberalism. This raises important questions surrounding state or corporate ownership over digital body parts, or citizenship status as irrevocable consent to digital surveillance by corporations. In particular, we must consider who will profit from our body's kinship with the digital and who will be violated.

However, as we grow into the cybernetic organism it is likely we will confront potential for generative opportunities. Our next effort must be supporting strategies that program liberation into computer design software so that our forthcoming digital tools might intuitively challenge our human biases. When we frame the digital as an institution existing inside and participating in a socio-politically oppressive landscape, we can begin the conversation about Becoming-cyborg as a rhizomatic emancipation. Ultimately, *Light Touch* and *Archipelago* show that posthumanism is an ontological opportunity to change the foundations of our reality and something we should (cautiously) yearn for: to bend our flesh towards the bytes. ✖

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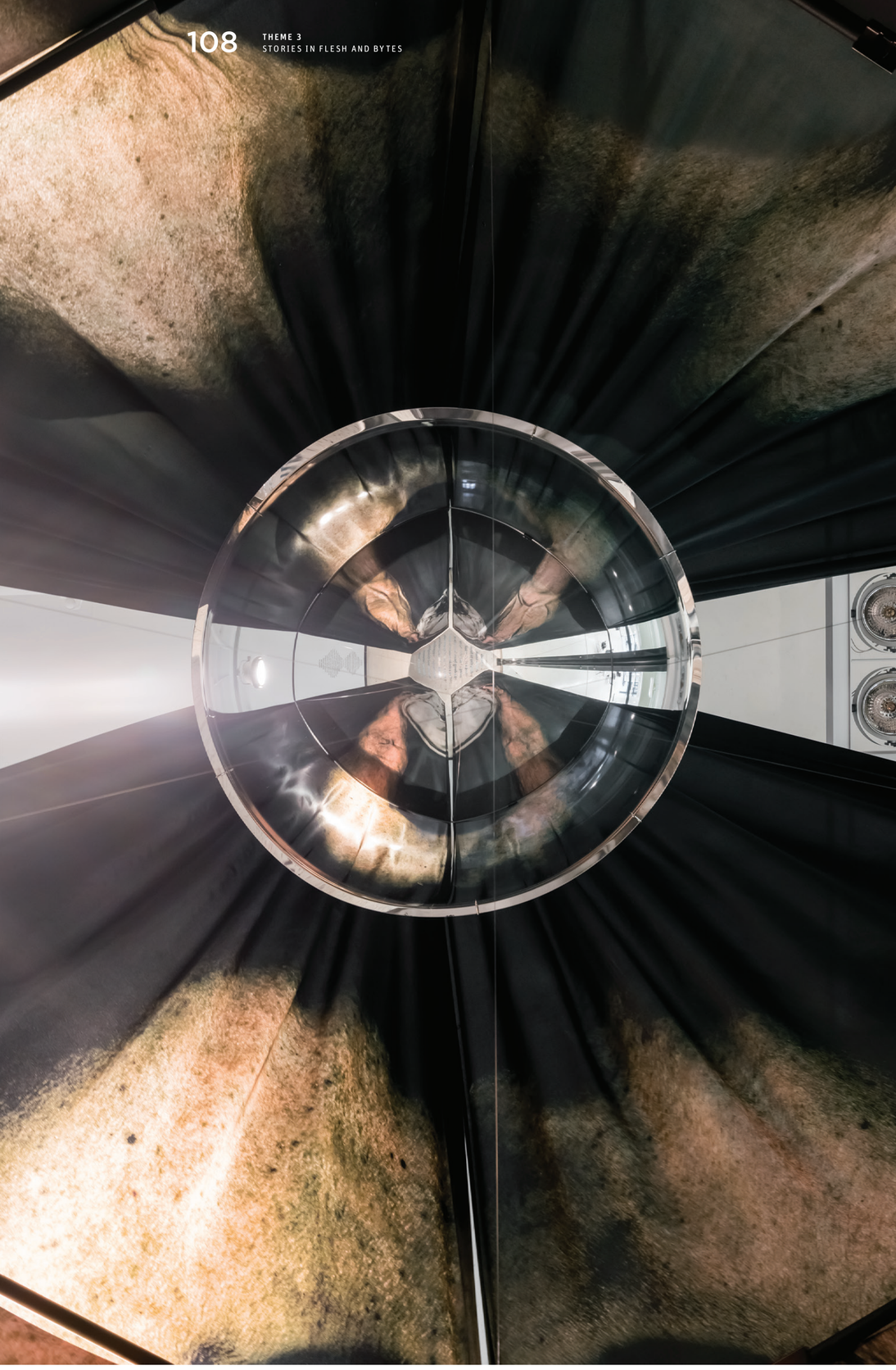
Light Touch | 2019

Light Touch: Self Portrait | 2019

DIGITAL INKJET TO SILK HABOTAI WITH REACTIVE DYE, ALUMINUM RODS, ROPE, PIANO WIRE, STEEL HOOP, STYROFOAM BALL, DRAPERY WEIGHTS, MIRROR VINYL FILM FLOOR GRAPHICS & VIDEO ANIMATION PROJECTION ON SILK FROM PERSONAL CT AND MRI SCANS

LIZ INGRAM & BERND HILDEBRANDT

Light Touch is an exploration of the human body as matter and as light. A hanging tent-like enclosure, made of silk fabric, invites the viewer into a quiet space to contemplate our changing visions of what it means to be human and how we understand the body differently today. Using combinations of printed photographic images of hands and arms gently supporting MRI scans of a head, combined with a poetic text, the work is at once caring and unsettling. The accompanying video projection on silk, *Light Touch: Self Portrait*, portrays diagnostic CT and MRI scans as an animation, reflecting on how it feels to view one's body as traces of light (disembodied) during a personal journey with lung cancer.



DYSCORPIA.

Archipelago | 2019

VIRTUAL REALITY, ACRYLIC, 3D PRINTED PLA

DANIEL EVANS

Daniel Evans' *Archipelago* is a multimodal creative project encompassing sculpture, print, and interactive digital environments. Inspired by the speculative world-building of Ursula Le Guin, Selkie folktales of Scotland and the Faroe Islands, and open-world videogames, *Archipelago* presents an environment generated entirely from the location tracking data of a single Google user account. In doing so, the project negotiates the double-bind of data collection and analytics, exploring both the generative possibilities afforded by these technologies and methods, and their potential abuses as tools of power and control.

Without Body = Within Becoming

JESSICA LACCETTI

Digital fictions have a way of bringing the body into the world of the creative work. What is fiction or art without a body, without the body? Thinking specifically of the digital works in *Dyscorpia*, they require, to some extent, interaction or at least the gaze of a body. However, the works themselves also want to eschew the body; to hide it, to appear only via the interaction that appears on the screen or through the installation.

How do we constitute experience without the body? Where is the body in relation to story; to story development? Readers and gallery visitors are not only required to make their way through physical exhibits or click a mouse to fabricate the narrative. Rather, there are narratives looking for the body. Thinking of his recent (March 2019) creation on Instagram, Liam Nikuro explains:

> I'm...a virtual human created using CG. I don't actually exist in real life but I'm hoping that the creative things I produce can entertain and give a little hope to real people all over the world. I want to be able to create something for the good of this world.[1]

Now we have a narrative in search of bodies to be entertained. And also, intertwined with the search for the body of others, is the search for a voice. As a computer graphics (CG) creation, Liam does not have a voice. There is a writer, a creator of Liam's Instagram and Twitter feed but no "real" voice. "We're currently searching for an attractive voice," says Liam's creator, Hirokuni Genie Miyaji, the CEO of 1sec Inc, (a "virtual human planning and production" company).[2]

The body intersects story; it is story. This is multi-mimetic reading in practice.[3] If transliteracy is a transformative perspective that supports the role of multiple literacies in a work, then multi-mimetic reading is these multiple modes, the meaning-making process itself, and all of it grounded in the becoming self. This is how these stories of *Flesh & Bytes* leave the reader changed; this is the transformational work of the body participating in the design/reading/making of each narrative. The body here is the meaning-maker; making herself within and outside of the digital and interactive narratives. The subjectivity that is threaded together is always new, always a representation, and always becoming. A new reading, a new instance of interaction allows the body and, therefore, subjectivity, to be remade and replayed. As noted by Bell et al., "digital fiction isn't just "read", or "watched", or "played" - it is "experienced," and these experiences have to be seen as all-encompassing phenomenological processes."[4]

These are not Michel Foucault's "subjugated knowledges,"[5] but rather, in Donna Haraway's words, "situated knowledge" where the "vision is better."[6] The intersections among the body, the work, the act of participating in the reading are not inadequate because of their unreliability but become disruptive and offer new ways of seeing narrative and its creation. Just as *Eve 2050*'s gold mask doesn't quite fit, the construction and interpretation of ourselves, our bodies, our works come into new ways of creation and revision. The multiple structures of these kinds of works encourage becoming identities and multiple subjectivities that seep into our lived experience. Through the tensions and contradictions in these reformations and representations, space is open to rail against a singular or static self/body. As one of my digital narrative students explained, the process of meaning making, of situating the body is "about becoming more aware of myself and of others and how they read the world." ✖

FOOTNOTES

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THEME 4

Out on Our Limbs

We are both witness to and removed from the Anthropocene era. We know of the looming disasters our earth has in store, but many of us do not experience it—yet. This psychological distance has profound and disturbing resonances in our bodies and interior landscapes. As we oscillate between hope and despair, we live in an epidemic of innovation and longing, forecasting – simultaneously—a golden age of utility and apocalypse. How do we navigate these contradictions? What can art reveal of our era's collective anxiety and individual angsts?

These artists express the turmoil and hope of our age. Mirrors of the imminent, maps of worlds, both familiar and uncanny, we yearn to make the un-homelike home again. For as the Anthropocene and its effects accelerate, so will our need to adapt, to innovate, to transcend.

DYSCORPIA.

ESSAY

Encounters in Futility and Hope

NATALIE LOVELESS

Wildfires blaze across Alberta, Canada. NASA reports these combined fires as part of an "extreme fire season" and publishes satellite images of our province blanketed in smoke, hotspots raging. Earth on fire. The vantage point of these satellite images, however, does not capture the acrid air that seems absent of oxygen and full of carcinogens, nestling in around the downtown skyline, sinking down into every eddy and crack, filling my lungs in much the same way. I trust that the sidewalk will be there to catch me as I put one foot in front of the other, in a world where I cannot see more than a few feet ahead of where I am. Not merely a metaphor for life in these uncertain times, but quite literally the state of being, as we muddle through the haze of our everyday.

This is the world that I step out of, as I walk into the 2019 *Dyscorpia* exhibition and encounter Yves Netzhammer's *Soliloquies Approach Like Shy Deer.* I enter a darkened room, surrounded by enigmatic line drawings on one side and a strange, unexpectedly compelling video triptych on the other. As I sit, I find myself contemplating a world of uncanny kin and unlikely connection.

The work speaks to me in unanticipated ways…

Tables animate…

Fingers sprout branches…

A great blue whale suddenly appears as a skeleton…

Palms hold an exsanguinating bird…

A rotating door, made of intersecting brick walls, turns, again…

My eyes dart back and forth across the three channels of the installation. Each video animation is nestled within a graphic wall-drawing reminiscent of Kara Walker's early cut-paper silhouettes, repurposed for the Anthro-Techno-Dystopio-Cene. Instead of the scenes of race and gender-based violence linked to U.S. American slavery and the Antebellum south with which Walker presents us, we are offered morphed figures invoking uneasy other-than-human alliances. Each nestled channel a speculative jaunt into a fantastical world that, upon reflection, is not so fantastical after all.

It is our world.

The looping channels are slow and rhythmic. The shifting length of each loop (five, eight, and nine minutes each, respectively) creates a series of seemingly endless, syncopated, enigmatic, and evocative juxtapositions. Humanoid figures, recalling those little wood figurines used by artists to model the human form (while, at the same time, looking like nothing so much as crash test dummies) mutate with each other, with non-human animal forms, and with animated objects. Unnatural intimacies abound intra-actively (to draw on Karen Barad's useful neologism). Here, agents are only ever constituted through their encounters: the human, non-human, and more-than-human emerging co-constitutively, and asymmetrically. In *Soliloquies Approach*, cyborgs meet interspecies chimera and, while it is not clear who is doing violence to whom and how, it is clear that slow violence abounds and that all actants or actors are doing their best to muddle along together, responsively.

Touches are both hopeful and awkward and sometimes cause death.

All are complicit and none are to blame. There is no villain, nor hero to save the day.

There is mutation, exchange, and flow.

There is scotch tape.

Futility in the ruins.

……

This year is the fourth year in a row that summer in Edmonton, Alberta—where I live and work—is marked by wildfires. I have a new summer-morning ritual: checking the air quality index. My son knows the difference between a "4" and an "8" and a "10+." He knows it in his bones. He knows that anything over a 4 means to stay inside at recess. He knows that his parents are researching air purifiers and masks. He knows that this is what marks summer, and marks it increasingly. His nighttime worries are whether we will be hit by fires or floods. Extreme weather has been a concern his whole life. He turned 9 this year. He has been expressing anxiety over deadly weather possibilities since he was 5.

This is his world.

It is our world.

And in a way that I can't quite put my finger on, this is the world Netzhammer's work pulls me into… climate disaster and climate denial… reproduction in compromised time… figures holding, hugging, breathing, mutating… ecosystems in confusion. At one point I see two figures standing on a platform over a fire. At another I watch the planet caged in not one, but two overlapping birdcages, strangely intertwined—as if they, too, are finding intimacy and solace, locked together in an embrace.

Soliloquies Approach Like Shy Deer is made up of chaotic, mutating, relational elements that refuse to resolve onto one side of the binary "good/bad." It challenges any desire in the viewer to know which way is up, to know which elements in this world are the protagonists and which are the antagonists. Unexpected consequences abound, and are not the exception, but, rather, the rule. In this, the installation recalls some of the central themes of Alexis Shotwell's insightful 2016 book *Against Purity: Living Ethically in Compromised Times*.

In *Against Purity*, Shotwell argues powerfully against the folly of what she terms "purity politics." At the core of purity politics is the belief that somewhere, somehow, there is a perspective from which one can guarantee right action; that right action can be assured—action that is not only knowable, but transferable across contexts and times. A purity politics claims that what works for here will work there, what works now will work later, and what is right action for me is right for you too: track carbon emissions, garden, recycle, go vegan, go local, vote and protest and work at both local and systemic levels. Any of these actions might be useful, but in none of these actions is there a guarantee. There are too many variables.

Importantly, the invitation in Shotwell's book is not, in the face of such compromised and compromising conditions, to do nothing. Rather, the invitation is to find ways to act while knowing that these actions may not save the day. Perhaps nothing will. And it is with this in mind that Shotwell asserts that "the ethical obligation becomes not 'How am I going to solve all these huge and enormous things,' but instead 'What can I work on? What's within my reach? What am I connected to?'" (Shotwell in Beck 2017).

Soliloquies Approach Like Shy Deer | 2016–19

VIDEO PROJECTION, WALL DRAWINGS, INKJET PRINTS

YVES NETZHAMMER

Netzhammer's *Soliloquies Approach Like Shy Deer* installation of projections into wall paintings and drawings features his iconic minimalist puppets that he animates to perform surreal tasks, conjuring a nostalgia for embodiment and physical vulnerability. A playful recombination of elements, which seemingly can, but should not be combined, leads to the threshold of our existence's dark side: pleasure interlocks with displeasure, the dead melts with unknown living creatures, and scenarios run from the microscopic to giant.

DETAIL ON OVERLEAF ▸

Indeed, these are the questions that—on my reading—undergird *Soliloquies Approach Like Shy Deer*. The work invites me into a world in which the alliances that I might have expected are replaced by those that are created responsively and creatively in the moment, with whoever—and whatever—is at hand. Sitting, watching and considering Netzhammer's triptych, I find myself experiencing a strange hope. Nothing uplifting, certainly. But a strange pull to acceptance of the complex, convoluted, and impossible terrain in which we have found ourselves. As fantastical as the poetic juxtapositions are, the world he represents seems somehow, nonetheless, accurate. Compelling, complex, and non-innocent. I am left with a desire to reach out: to mix and morph and muddle; to remain responsive to surprise encounter.

The work is more than reflection or meditation. It is provocation. A provocation not to save ourselves, but to think meaningfully about the world as it is, and as it is becoming, in its own syncopated asymmetrical, uneven rhythm. Soliloquies come together, and produce a chorus. A chorus of enigmatic encounters, unlikely alliances, and impossible-to-predict futures.

Futility and hope, intertwined. ■

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ESSAY

Those Proportions Which We Cannot See

DANIEL LAFOREST

Imagine walking in an ancient Greek or Roman garden. You would've been surrounded by life-size statues, most of them replicas of the human body attempting to capture the idea of its perfection. Now ask yourself: what is today's equivalent for this experience?

The first answer that comes to mind may very well be that the question is moot. Modern and contemporary art have long forsaken the desire to equate proportional perfection in the representation of bodies with aspirations for the transcendental. Art today, when it focuses on the body and embodiment, is often preoccupied by the arbitrary thresholds and borders allowing dominant discourses—or the logic of neoliberalism itself—to relegate bodies to places and identities where they're expected to remain. Thus, there is, undoubtedly, a mixture of anxiety and resistance permeating many works of our times. Knowing how aAron Munson draws inspiration from exposing himself to inhospitable environments conducive to intense and potentially devastating emotional experiences, I was dutifully prepared when approaching his *Under the Sun* installation in the *Dyscorpia* exhibition. But something else happened. What I experienced from beginning to end was peacefulness.

The feeling was unexpected; it was also peculiar given the overwhelming nature of the multimedia deployment therein: swathes of light moving across vast screens, images shifting in and out of focus, pulsating shapes that look like details of photographs blown up to the point of abstraction, music (from electronic artist Mark Pritchard whose song title gave its name to the installation) creating a sense of repetition and depth. For me, there were echoes of the most abstract experimental filmmaking such as Stan Brakhage's shorts *Mothlight* (1963) or *Stellar* (1993), or the montage of heavily deteriorated old film footage that constitutes Bill Morrison's feature-length *Decasia* (2002). That said, aAron Munson's work invites contemplation in a way that possesses no true equivalent. I thought of nebulas and mineral concretions, of spermatogenesis and solar flares, of snowflakes and rivers of lava. Everything about *Under the Sun* seemed stretched to its formal and sensory extreme, yet it never felt threatening. There was no direct reference to human presence or even the human body, yet the installation never gave the impression of being devoid of life. I soon realized Munson's work was tapping into something else than the anxieties tied to the fate of our bodies and the environment, something that occupies a blind spot at the intersection of biology, medicine, philosophy, media, and art. aAron Munson's work evokes the dizzying sense of *scale* which lies at the heart of every reflection on the body and nature.

We traditionally think that while the molecular world may seem chaotic, the macro—molar—level of our conscience and reflective actions constantly folds the squirming ensemble of our physical envelope upon itself so that we never truly doubt its organic coherence. A highly-regarded work of postwar philosophy, Hans Jonas's *The Phenomenon of Life* in 1966, did much to enforce such a belief with its argument for humankind—and specifically the human body—occupying a manner of sweet spot on the scale of all living things which made it alone capable of developing reflective thinking and moral discernment. But traditional perceptions of embodiment are falling on hard times nowadays. For instance, there's much noise being made around the science of the microbiome, the population of commensal non-human bacterial and microbial life inside our bodies that vastly outnumber human cells and proves essential to the functioning of the organism. The popular lesson drawn from microbiota science is that what largely *makes us* is foreign to what we call our self, and moreover is invisible to the naked eye. Thus, we are creatures whose conception of the integrity of their own existence applies only to a certain scale of the natural world. Such ascertainment is not necessarily cause for a sea change in anyone's perception of reality. William James was framing it as a rather stimulating idea at the turn of the 20th Century when asking

> why, after all, may not the world be so complex as to consist of many interpenetrating spheres of reality, which we can thus approach in alternation by using different conceptions and assuming different attitudes?[1]

As a matter of fact, one could say humankind's fledging integrity when considering the vertiginous proportional spectrum of living things constitutes the implicit bedrock on which biological knowledge has formed. It also underpins the ways in which most contemporary medical treatments are conceived, the inner workings of physical recovery and healing depending more often than not on the microscopic interaction of pharmaceutical molecules with invisible viruses or pathological processes inside the body. The respective apparitions of medicine and biology are tantamount to the age-old philosophical question of the relation between proportions and the self. We cling to the belief of a seamless correlation between the body and the "I". But the window through which we conceive of our body is that of normal, everyday visibility, and it is stupendously narrow. This is why variations of scale in the visualization and experience of embodiment tend to instill a blend of the strangeness of the unknowing and the absent-minded spell of contemplation.

aAron Munson's *Under the Sun* occupies a central place in the *Dyscorpia* exhibition because it is the one piece that wants us to realize how potentially damaging our ignorance of the microscopic and of the macroscopic levels of life can be when it comes to our bodies. Conversely, it points to the creative and philosophical promises in taking them into account. Being pushed to the brink of exhaustion or loneliness by the inhospitable nature of certain extreme environments is a way to experience the sense of the unfathomable proportions of the material world. Deserts and glaciers, the natural elements as well as the chemical ones that are being transformed, manufactured, and spread by humankind, all affect our conscience through the small window of visibility it's been provided with. But as the saying goes, what our conscience has access to is but a minuscule fraction of everything under the sun. Our bodies on the other hand are much more affected by what lies beyond what we can see with the naked eye. This suggests another way of looking at the works of the *Dyscorpia* exhibition. It could be that each of them falls under the categories of the microscopic or the macroscopic, and that nothing in the exhibition is really at our scale. Such a reveal could just as well stem from today's conditions of material life and the constant, ever-increasing onslaught of information being produced and circulated about them. It is the reveal that begins at the level of our body only to immediately expand outward or dissolve inward: we are individually and collectively

Under the Sun | 2019

DIGITAL VIDEO, GLASS, REFLECTED LIGHT, FILM

aARON MUNSON AND MARK PRITCHARD

aAron Munson's *Under the Sun* is a macro exploration of the expanding and contracting nature of the universe underpinned by the belief that the path to a sustainable and healthy future lies in our ability to change minds through shifts in the perspectives that connect us. Through multimedia explorations of extreme environments, mental illness, memory, and the conscious mind, Munson aims to encourage mindfulness and play a role in constructing that path.

Under the sun, there is a remedy
Under the sun, for every evil
Under the sun, there is a remedy
Under the sun, for every evil
Under the sun, there is a remedy
Under the sun, for every evil
Under the sun, there is a remedy
Under the sun, or there is none*

*from the album *Under the Sun* by Mark Pritchard

experiencing scales of experiences previously unheard of in history.[2] It is no wonder we have such a hard time defining what a body is, and what it can become today.

aAron Munson explicitly wishes for his work to "encourage mindfulness." And indeed, we are made, physically, literally, of different bodies and of different times. Their assemblage pulses, undulates, vibrates, oscillates endlessly. What we call sadness, or despair, is when we lose sight of this. What we call joy or serenity is when we embrace it. And what we call self-care, or self-respect, may be what holds these various bodies and times together for others to see, and eventually to love. ■

FOOTNOTES

[1] James, William. "The Varieties of Religious Experience." *Writings 1902–1910*, Library of America, 1988, p. 116.

[2] For an original development of this with regard to ecology and the ongoing climate crisis, see Morton, Timothy. *Hyperobjects: Philosophy and Ecology after the End of the World*. University of Minnesota Press, 2013.

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Beyond Intelligence Uncertainty | 2019

MIXED MEDIA INSTALLATION, WOOD, STEEL, FABRIC, GEARS

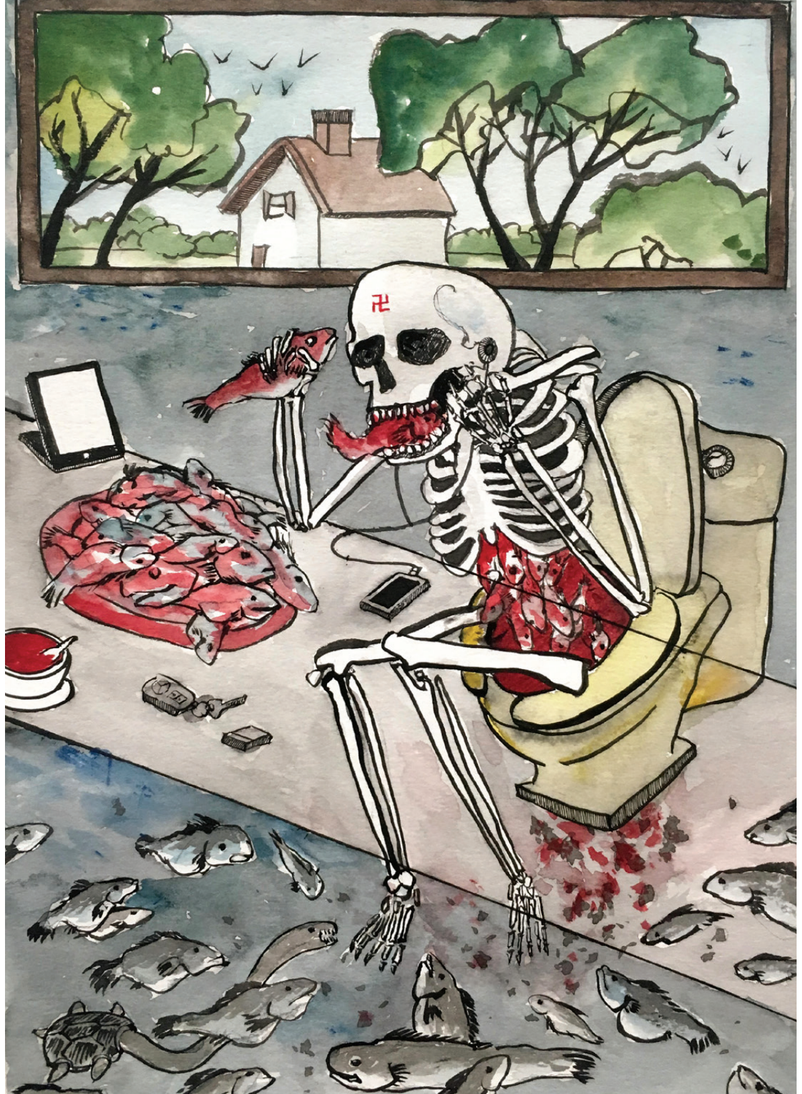
ROYDEN MILLS

Royden Mill's *Beyond Intelligence Uncertainty* serves as a comment on our era being heavily weighted towards a dependency, or even a faith, in control. It expresses the hope that certain experiences will always remain out of the reach of words and language.

DETAIL THIS PAGE ▸

All Buddhist philosophical traditions agree that no robust **sense of self** answers to anything real; all agree that we are, in some sense, nothing but streams of causality connected psychophysical events and processes. But all also agree that there is a robust, persuasive and well-entrenched illusion that we are more than that.

— **Sean Caulfield,** ***Evoluving Anatomies, co-organizer of Dyscorpia***



Midnight Appetite | 2019

MIXED MEDIA ON PAPER

JINGYU ZHANG

By depicting and exaggerating the comedic aspects attached to life in our contemporary era, Zhang's satirical drawings and paintings explore themes of impermanence. Zhang invites audiences to question the knowledge systems and worldviews they hail from, to acknowledge their changing perceptions of desire, happiness, pain, fear, confusion, and freedom, to reflect on the connections between the visible and the invisible, to think about the concrete causes, effects, and values of thoughts and actions, and, more importantly, to experience the feeling of impermanence.

Contenders | 2012

OIL ON CANVAS ▸ LEFT

Sunday Best | 2018

OIL ON CANVAS ▸ RIGHT

TAMMY SALZL

Tammy Salzl's paintings *Contenders* and *Sunday Best* are envisioned as layered narratives linking the collective turmoil of our interior lives to the changing global realities of our current times. Within them, endearing yet alienated characters attempt to navigate an ever-shifting world. Salzl treats the body as a metaphorical site, a place where the human condition is simultaneously staged and performed. The tales Salzl creates, blending whimsy and melancholy, embody her contemplations on what it means to be connected in our Anthropocene age. They give voice to the beauty and folly of being human.

Four Pillars | 2019

SCREENPRINT ON PAPER

ANDREA LARSEN

There are five pillars of what it means to be human: the physical, mental, emotional, intellectual, and spiritual pillars. Larsen's screenprint displays a disconnect in the representation of the boy's body. His stomach has a distorted image on it, and a ghostly image behind it. The boy can feel there is something wrong, and he is consumed by it, but he is unable to help himself.

…one question/concern I have about the body of the future is this **rising tension** between science and pseudo-science. Will 'noise' from popular culture and social media continue to create confusion around how individuals view the body?

— **Sean Caulfield,** *Evolving Anatomies, co-organizer of Dyscorpia*

Problem Solved | 2019

SCREENPRINT ON PAPER

RUTH WILMS

In her work *Problem Solved*, Ruth Wilms wanted to 'band-aid fix' the global climate change problem. A mask is an old technology and it can only keep out so much polluted air. We need more advanced technology to fix the global climate change problem. The human body will soon find the globe totally inhospitable.

Scriviner | 2019

ACRYLIC ON CANVAS

THOMAS WEIR

In *Scriviner* Weir conceives of the various elements of the work's composition as speaking to concerns related to existence, mortality, and the precarious nature of contemporary life.

China Doll | 2019

LINOCUT ON PAPER

CHRISTINA ZHU

China Doll deals with the stereotype of the submissive, docile, exotic Asian woman. Set against colonial *chinoiserie* ornaments, the artwork plays with reality. Is it the figure of a porcelain doll or a real human? With the permeating influence of modern media and technology, one wonders how old colonial ideals will continue to shape bodies in the future.

As humans, we are very much concerned with gaining things toward our own advantage…too much energy and resources for our way of life. **The body**, the mortal corpus, is the center of this paradox.

— **Yves Netzhammer**
Solliloquies Approach Like Shy Deer

Brad | 2019
OIL ON CANVAS
JASRIN DHATT

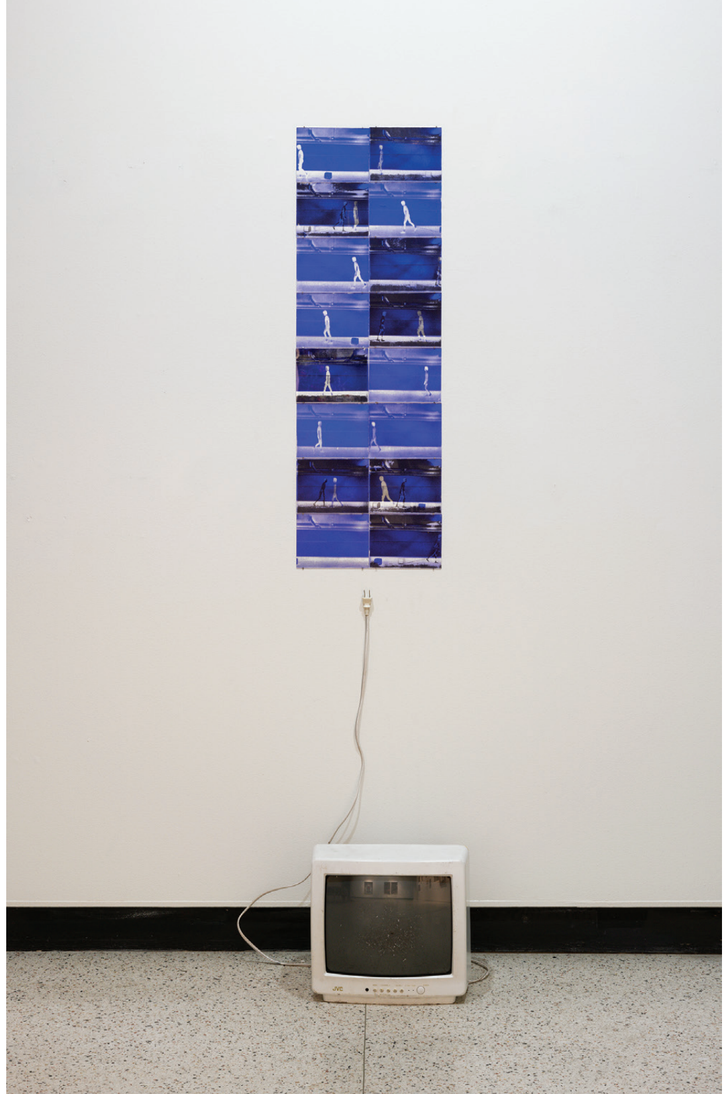
Dhatt's paintings begin as a staged scene, captured and digitized by a camera, distorted by a printer, and distorted further, deliberately, by the painting process. *Brad* becomes a thing disconnected like the disconnected parts of the body occupying the canvas.

Sorry to Bother You | 2019

IMAGE-ON ON ACRYLIC, DIGITAL PRINTS
AND BROKEN TELEVISION

JONDREI ALCAIN

Sorry to Bother You, documents a performance where Alcain dragged a television backwards and forwards in a basement parking lot for eight and a half hours—the average time young people spend on screens every day. The documentation takes the form of photographic images and also the actual scratched and damaged television.



If we are **cyborgs** in the sense of non-binary, hybrid creatures between human, animal, and machine, what does this mean for our responsibility and respect for one another, as well as for other forms of life and intelligence?

— Astrid Ensslin, curator of *Stories in Flesh and Bytes*, co-organizer of *Dyscorpia*

Twin Flames | 2019

WOODEN DOWEL, COPPER AND STEEL FIXTURES, MIRRORS, PROJECTION, SOUND, LIVE PERFORMANCE (SOUND BY ERIC FRASER)

STEPHANIE PATSULA

Relying on her own embodiment as a recurring site of exploration, Patsula seeks to move through, and with, selected environments. In her work for *Dyscorpia*, she invites her body into a site-specific installation she has designed. In doing so she introduces a strong kinæsthetic element that changes the work as she interacts with it. Patsula considers technology, time, and the body by physically high-lighting an exploration of the ephemerality of light, of shadows, of reflections, and projections. Her movement through this built environment hides and reveals new compositional arrangements. Ultimately, the slow confluences of body and objects act as a revelation of anthropocentric rituals and their relation to the passage of time.

ESSAY

Solastalgia: Body, Psyche, Anthropocene

DANIEL HARVEY AND BRAD NECYK

> [Solastalgia] is the 'lived experience' of the loss of the present as manifest in a feeling of dislocation; of being undermined by forces that destroy the potential for solace to be derived from the present. In short, solastalgia is a form of homesickness one gets when one is still at 'home'.
> (G.Albrecht, 2005, p.45)[1]

What psychological effects will a rapidly changing climate have on those who live within it? While discussions of the more immediate physical and economic impacts are easy to find, the psychological and psychosocial impacts are less often addressed. In the first few decades of the 21ST century, the pressures of the Anthropocene are only just beginning to be felt, in recurring droughts, floods, extreme weather events, and other climate disasters. The potentially apocalyptic nature of the environment in coming decades remains at a distance for many of us, its impacts not necessarily apparent, especially for those of us lucky enough to live in places relatively insulated from its more deadly effects. Even for those of us with that distance, however, the knowledge of coming environmental disaster can have psychological and psychosocial impacts. These include stress response from our endocrine systems, the rise of psychiatric disorders such as PTSD, depression, anxiety, and suicidality, and psychologically difficult sensations such as loss and grief. The specifics of this are explored in a recently updated report from the American Psychological Association[3] and a 2019 study from researchers at the University of Alberta.[4] What psychological effects, then, will climate change and attendant eco-anxieties have on those living in 2050? This question shaped our thinking as we developed the work in *Solastalgia*.

Solastalgia names the melancholy experienced when home itself becomes unfamiliar, coined by the philosopher Glenn Albrecht as a neologism based on nostalgia. It identifies the feelings of loss and anxiety felt when our sense of place and identity are challenged by events like floods or forest fires, new risks of contagious diseases like Lyme or Zika, or unfamiliar experiences like smoke-filled summer skies and too-early bird calls. As we moved forward with the project, we tried to imagine what kind of experiences a child would have growing up in the Anthropocene, thinking about our own young children and relatives; what would it be like to live through radical climate change? How would global warming, increasing severe weather events, mass extinctions, the rise of sea levels, forced environmental migration, and the other horsemen of the Anthropocene apocalypse impact someone over a lifetime? *Solastalgia* came out of these concerns, as we tried to generate a structure of affect that might compel the viewer to consider, and perhaps experience, some of the anxious and disorienting affects we imagine are soon to come for too many of us now living, and certainly for those generations that follow.

The exhibition's acoustics could be heard before you entered the room: a cello drone, the cracking of branches, and a wavering synthetic modulation. Occupying each sidewall of the room were two wall-sized projections; one a video of a lone tree slowly bowing in the strength of a rising wind, and another depicting a slow climb up a never-ending hill of trees as the sun rises and falls. Simple enough, but as you spend time with them and the sound a sense of anxiety slowly builds. Where is the top? How much force can this wind gain? The natural world and the surreal blur together. Large television screens lean against the other two walls, similarly depicting recognizable yet slightly disturbing landscapes, both still and moving. Many of these seem to take place after some catastrophic event; something has happened, yet there are still people moving around under the armor of radiation suits. Handheld cameras record these people as they move out, bearing witness to their strange new world. We grieve for them as they become disoriented, fall in flux, become fatigued or combative, or simply get lost in contemplating their surroundings. Are these the children of the Anthropocene? Are they searching for something or simply bearing witness? If they are, then we should witness with them, try to feel their loss and sense of solastalgia.

Children born in the 2010s will come of age in the Anthropocene. In their early lives they are relatively plastic in their biology, neurology, and sociocultural expectations, so that their bodies and brains will change along with the world around them. Stressors will trigger endocrine responses and neurophysiological and neurochemical changes to better mediate the external world.

As these children grow, so will the acceleration of Anthropocene effects. Natural disaster occurrences previously considered once in a lifetime events will increase in severity and regularity. Incidences of bacterial diseases such as salmonella and cholera will increase, and zoonotic diseases like Lyme and malaria will likely become more common as the range of their carriers (ticks and mosquitos) grows.[5] And with these changes, the potential effects on children, no matter how privileged, will increase. They will likely face at least one natural disaster: flood, forest fire, hurricane, drought, dangerous temperature extremes. Should they somehow avoid this, it will remain impossible to avoid the signs of disasters happening in other places, through the connections of a globalized mediascape. Even beyond specific disasters, the Anthropocene heralds a period of uncertainty and lack of control over the world, conditions potentially leading to greater likelihoods of individual depression and anxiety, along with a broader cultural malaise: fatalism, helplessness, fear.[6]

In the 2030s, these children will be in their 20s, an age when the brain goes through its final stages of development and episodic or life-long mental illnesses often emerge. Exposure to adverse childhood experiences will increase the likelihood of developing physical and mental illnesses. While bodies will adapt to the environment, adaptation is not always positive; there are serious potential side effects to eco-adaptation. Climate change holds social and familial implications, and could lead to varying degrees of attachment disorders in children. As we know, relationships, especially with a primary caregiver, play a crucial role in the stable development of a child's emotional capabilities. Caregivers help mediate the experience between child and environment, creating stable spaces in which to thrive.[7] But children also experience feelings of attachment to their environment itself, and this relationship will likely be unstable, if not traumatic, for children of the Anthropocene. These unstable relationships will write themselves on neuroendocrine systems, limbic systems, and areas of the frontal cortex. These psychological and physical effects will require new coping mechanisms, and may lead to new psychic and psychosocial disorders; they also hold out the potential for increased resiliency.

By 2040, such children will have entered their thirties, and may have children of their own. By this point their neurodevelopment, for good or ill, will be complete, and most forms of mental illness that they might face will have manifested. They will likely have undergone some form of medical intervention. They will certainly have experienced or witnessed a natural disaster, along with a string of ever-increasing average yearly temperatures (which will have risen between 1–3 degrees celsius from those in the first decade of the 21ST century[8]), and have seen between 15–37 percent of species becoming extinct or "committed to extinction."[9] Such changes will leave their marks on neurobiology, psychology, and even genes. Environmental stressors, such as an increased risk of exposure to toxins, may cause inheritable epigenetic shifts, activating some gene expressions while silencing others, with potential outcomes both adaptive and maladaptive.[10]

We, and our descendants, will face any number of physical, psychological, and social challenges in the Anthropocene because humans developed to thrive in the relatively stable Holocene, not the more extreme Anthropocene environment. What factors will allow us to survive the coming changes? Certainly technological developments may offer some hope. But perhaps more importantly for our psychosocial flourishing will be the individual and communal capacity for resilience: the ability to positively adapt to the challenges of extreme adversity. Resilience can be bolstered by a variety of intrinsic and extrinsic factors, including openness to change/adaptation; self-regulation and active coping strategies; social support networks and community engagement; and preparation for potential disasters and other forms of adversity.[3] This resilience should not, however, be understood as a kind of lifestyle choice or facile optimism; rather, it is something that can be developed, nurtured, and strengthened over time. It will require a work of mourning, of accepting and moving past the losses we face in the Anthropocene. If we prove unable to mourn, if we remain trapped in a melancholic refusal to accept the changing world, we doom ourselves to an unceasing experience of solastalgia. ■

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Solastalgia | 2019

VIDEO PROJECTION, ANIMATION, VIRTUAL REALITY, DIGITAL PRINT

DANIEL HARVEY AND BRAD NECYK

Solastalgia engages with the problems of imagining, and hence of representing, the Anthropocene. Because of its double scalar shift—at once two big and too small, spatially, and too slow, temporally, to be easily grasped—the problems heralded by the term can too easily elude the human scale. In *Solastalgia*, Harvey and Necyk seek to represent some of the psychic and affective dimensions—feelings of anxiety, of being out-of-place or out-of-time, and so on—that our generation and those that follow us cannot avoid. Through large-scale photography, digitally altered video and sound installation, they hope to create a space that compels the viewer to imagine the coming estrangement of climate dyscorpia.

Interviews

BY JONATHAN GARFINKEL

Question 1:

What does the word *dyscorpia* mean to you?

Dyscorpia, a play on dyscopia with an added 'r' for *corpus* ('body' in latin) or *corps* ('body' in French, not corpse).

It could suggest a world that cannot cope, or getting out of the body (*discorpia* as in disrobing…) or dissecting, deconstructing the notion of "bodies"…

— **Isabelle Van Grimde,** *Eve 2050*

For me *Dyscorpia* is a poetic play with the word corporeal. How is technology shifting our perceptions of our body and our sense of self?

— **Sean Caufield,** *Evolving Anatomies*, co-organizer of *Dyscorpia*

Well, it is more of an atmosphere, this word. In German, I would say it's a *Lebensgefühl*, a sense of life…

During our time on earth, we should not only care about ourselves: We do have to care about the environment too because our needs and lives depend on this…

As humans, we are very much concerned with gaining things toward our own advantage, and though we try to be good and fair, we can't always be this way because of the evolution of individualism. We need too much energy and resources for our way of life. The body, the mortal corpus, is the center of this paradox.

— **Yves Netzhammer,** *Soliloquies Approach Like Shy Deer*

Ultimately, language's relation to the body is a relation of assignation, of confinement, of manifold limitations. Hence the positive ring *Dyscorpia* possesses in my ears. To think of the body in absentia of norms, to look at its external relations and internal configurations for the comprehension of which we have no syntax or grammar, doesn't have anything to do with science-fiction or weirdness or that sort of thing. On the contrary, to me it means looking at the body for what it really is. That's what I believe *Dyscorpia* does.

— **Daniel Laforest,** writer, researcher, and translator, co-organizer of *Dyscorpia*

To me it means anthropocenic and -centric post-cyborgianism. By that, I mean we have gone beyond the idealistic image of the cyborg as a potentially feminist and liberating concept. Humans today are confronted with the puzzling co-existence of old-fashioned, phallocentric-modernist navel-gazing (see the results of the recent provincial elections), of teleological, technological determinism, and of the realization that humanity is finite and quite possibly doomed for extinction, if we continue "business as usual." Our bodies have become so irreversibly tied to technological prostheses (think of smartphone nomophobia, for example) that we have lost the ability to think of and connect to our bodies not as autonomous, but as symbiotic elements and historical products of nature.

— **Astrid Ensslin,** curator of *Stories in Flesh and Bytes*, co-organizer of *Dyscorpia*

Dyscorpia felt like the opportunity to lean into a limitless body, to look inside the self and examine what it means to be human in the present and future. In my practice, I'm constantly looking at how the body acts as a member of the global ecology—this membership has constantly been changing and evolving with time, for good or ill. *Dyscorpia* offers the space to dream a little and present metaphorical, dynamic takes on 'body' that question human perceptions of self at this moment in time.

— **Holly de Moissac,** MFA student *Lingering on the Surface*

It speaks to both a dissolution and de-materialization of the body—becoming both less physical and less cleanly circumscribed. It opens up a space to explore how conventional notions of the boundaries that define the body are constructed and policed, and how they may be challenged.

— **Daniel Evans,** MFA student *Archipelago*

Dyscorpia is a word our research team came up with to name the feeling of unease and discomfort you feel when you are confronted with a new piece of 'smart' technology that requires you to re-learn or re-know your body. An example of this is when you get into a rental car, try and put the key in the ignition and realise that there is no key, but a 'start' button. Next you try to release the handbrake, but there is no handbrake. Momentarily your body is frozen, not knowing what to do with itself and its superfluousness. This is *Dyscorpia*: nausea in the face of technology.

The actual world was created thinking of the etymology of similar words so *dyscorpia*: *dys* = bad, difficulty with; *corp* = body; *ia* = used in forming plurals of nouns.

— **Marilène Oliver,** *Evolving Anatomies*, *Human in the Loop*, *Deep Connection* and *Space Invaders*, organizer and lead curator of *Dyscorpia*

Question 2:

What do you believe are the limits of the body in 2019? Can you envision how it will be different in 50 years from now? 100?

Disease, injury, aging and mortality are still our limits today… According to the historian Yuval Noah Harari, as individuals we also have a much more limited intelligence today than we did in pre-historic times because we are so specialized… It is always interesting to look into the past while we look at the future…

In trying to imagine the future of the body I think what is most vital is the realization that we need to conceptualize it in a completely new way, not as a separate entity, but as an ecosystem, which in turn is part of other ecosystems. We already know thanks to increasing research on the microbiome that our bodies are ecosystems, that through our microbiomes we, in turn, form ecosystems with our partners, families, pets…We also know that our health depends on how we interact with our environment, that we can't improve the health of one without the other in any sustainable way…

Whole new artificial ecosystems are being developed through AI, robotics, biotechnologies etc...We will have to integrate them into our world, our space and our bodies, at best they will become extensions of our minds, bodies and consciousness, new forms of 'life' to interact with or perhaps they will replace us...

Perhaps in ancient times all life replaced and outlived whoever or whatever created it...

— **Isabelle Van Grimde,** *Eve 2050*

A concern I have about the body of the future is a rising tension between science and pseudo-science. Will 'noise' from popular culture and social media continue to create confusion around how individuals view the body? The current controversy and confusion around vaccines, probably one of the most important medical advancements in history, is a good (and troubling) example of this.

Alongside of this, I am also concerned about the ways advancements in medical and digital technology might divide humanity. What will unfold when certain groups can afford to augment (improve?) their bodies, while others cannot?

— **Sean Caufield,** *Evolving Anatomies,* co-organizer of *Dyscorpia*

There are still so many limitations. On the other hand, we are strong enough to change and destroy a lot, because of our needs and wishes. I guess, our only way is to enter through a new gate—a new way - concerning empathy and ontology—especially in terms of our future relation to resources.

— **Yves Netzhammer,** *Soliloquies Approach Like Shy Deer*

The limits of the body are its mortality—and by that I don't only mean the mortality of the individual specimen, but rather the mortality of our species as a whole. Recent environmental and geological research suggests that, if we continue with business as usual, i.e. if we don't significantly curb carbon dioxide emissions around the globe in the next decade, we may well see the end of humanity as we know it by the end of this century. This is due to increasing food/resource shortages and migration around the world, all in relation to the planetary effects of climate change. What adds to this irreversible trend in considerable and yet unforeseeable measure is the fact that the permafrost in the Arctic is melting at breath-taking speed, releasing massive additional quantities of naturally stored carbon dioxide and, what is worse, methane into the atmosphere. I'm aware of how bleak and gloomy all this sounds, but the way most of us (and our politicians) act and behave at the moment, this scenario will likely happen in some way. Humanity is mortal; the earth isn't. It'll probably renew itself at some point, long after the demise of our bodies. It'll forever preserve the physical traces of the anthropocene—think of the plastic particles sedimenting in the oceans that have begun to form an additional geological layer. The limits of the body in the decades to come will have to be self-imposed, in trying to mitigate and reduce our normalized consumption habits and expectations, and in finding new ways of cooperating with Gaia

in supporting its self-renewal so as to facilitate human survival.

— **Astrid Ensslin,** curator of *Stories in Flesh and Bytes*, co-organizer of *Dyscorpia*

I believe the boundaries of the body are all about perception. Is the skin a barrier or a gateway? The physical limits of the body are so different from the philosophical limits of the body. If we see our bodies as integrated within larger systems instead of isolated individual units, this affects our behavior towards those broader systems. I imagine that the future will be determined by our self-perception. If we see our bodies as impermeable, isolated, and marketable, this will affect the next hundred years in a very different way than if we see our bodies as fallible, interconnected members of a global ecology. Developments in culture will therefore determine future limits of body.

— **Holly de Moissac,** MFA student
Lingering on the Surface

When I think about the limits of the body, I find myself thinking of limits as the products of social forces—that is to say, how social forces determine what bodies are permitted to exist and be seen in public space, and under what constraints (Mbembe's notion of Necropolitics). Our current social climate is characterized by an increasing investment in revealing how certain bodies (abled, cis, male, white) have far fewer limitations placed on their ability to be present and visible. At the same time, there is extensive backlash (and punitive legislation) being deployed in an attempt to restrict the movement and visibility of marginalized bodies advocating for their right to exist and be seen. I have to hold out hope that the revealing of these inequalities translates into meaningful action to address them, as the next 50 to 100 years compounds this tension with increasing displacement and scarcity under forces of global climate change.

— **Daniel Evans,** MFA student
Archipelago

GALLERY OF

Augmented Reality

The *Dyscorpia* exhibition featured a range of artistic media including interactive installation, sculpture, video projection, and virtual reality. Daniel Evans and Marilène Oliver developed an augmented reality app to provide dynamic 3D and 4D representations of these works. Augmented reality allows for sound, video, and three-dimensional models to be overlaid onto printed imagery via a smart device that is enabled with a camera (such as a phone or tablet). In order to enjoy the augmented reality gallery on the following pages, please download the app onto your device from the *Dyscorpia* website.

www.dyscorpia.com/catalogue

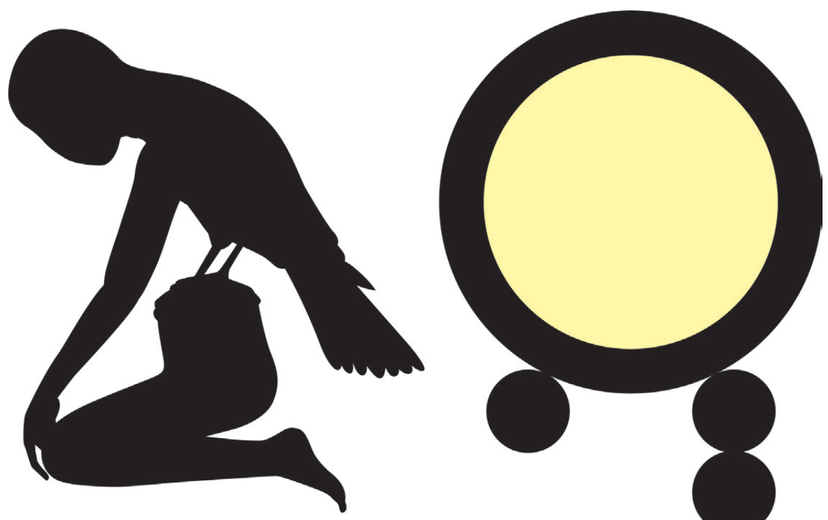
Thanks to Preet Giri for augmented reality programming advice and aAron Munson for filming both *Anticipated Alliterations (Body Talk)* by 34DD and *Beyond Intelligence Uncertainty* by Roydon Mills

DYSCORPIA.

Soliloquies Approach Like Shy Deer | 2019

VIDEO PROJECTION, WALL DRAWINGS, INKJET PRINTS

YVES NETZHAMMER



Under the Sun | 2019

DIGITAL VIDEO, GLASS, REFLECTED LIGHT, FILM

aARON MUNSON & MARK PRITCHARD

D Evolving Anatomies | 2019

WOODCUT MAPLE BOARDS, SCREEN PRINTED POLY-
CARBONATE, LASER CUT ACRYLIC, VIDEO PROJECTION,
WAX, ACRYLIC VARNISH, LASER CUT AND SCREEN PRINTED
PLYWOOD, MULTICHANNEL AUDIO

SEAN CAULFIELD, MARILÈNE OLIVER & SCOTT SMALLWOOD

Archipelago | 2019

VIRTUAL REALITY, ACRYLIC, 3D PRINTED PLA

DANIEL EVANS

Twin Flames | 2019

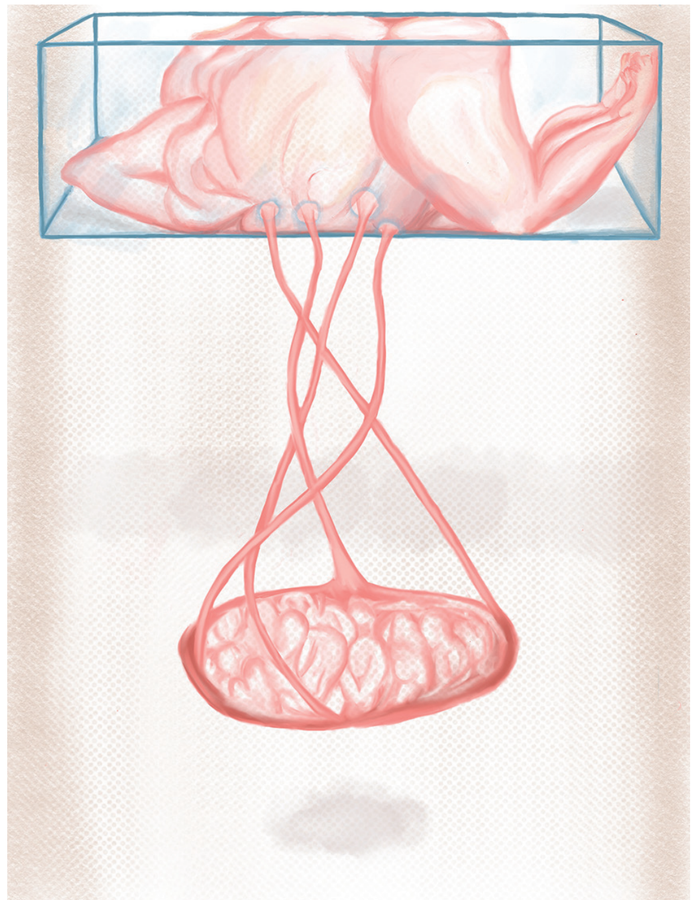
WOODEN DOWEL, COPPER AND STEEL FIXTURES,
MIRRORS, PROJECTION, SOUND, LIVE PERFORMANCE
(SOUND BY ERIC FRASER)

STEPHANIE PATSULA

Embryonic Sway | 2019

ANIMATION

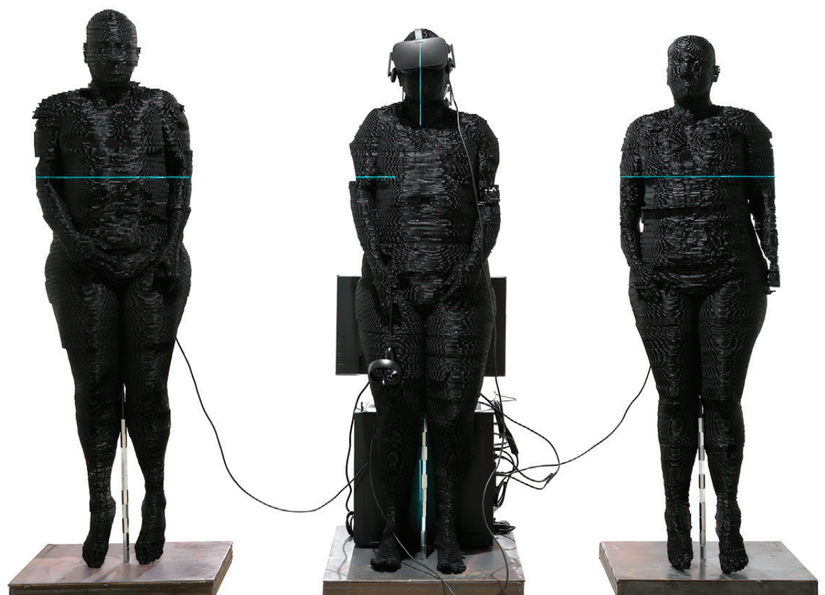
JAMIE-LEE GIRODAT



Deep Connection | 2019

LASER-CUT COROPLAST SCULPTURE AND VIRTUAL REALITY

MARILÈNE OLIVER & GARY JAMES JOYNES



D Human in the Loop | 2019

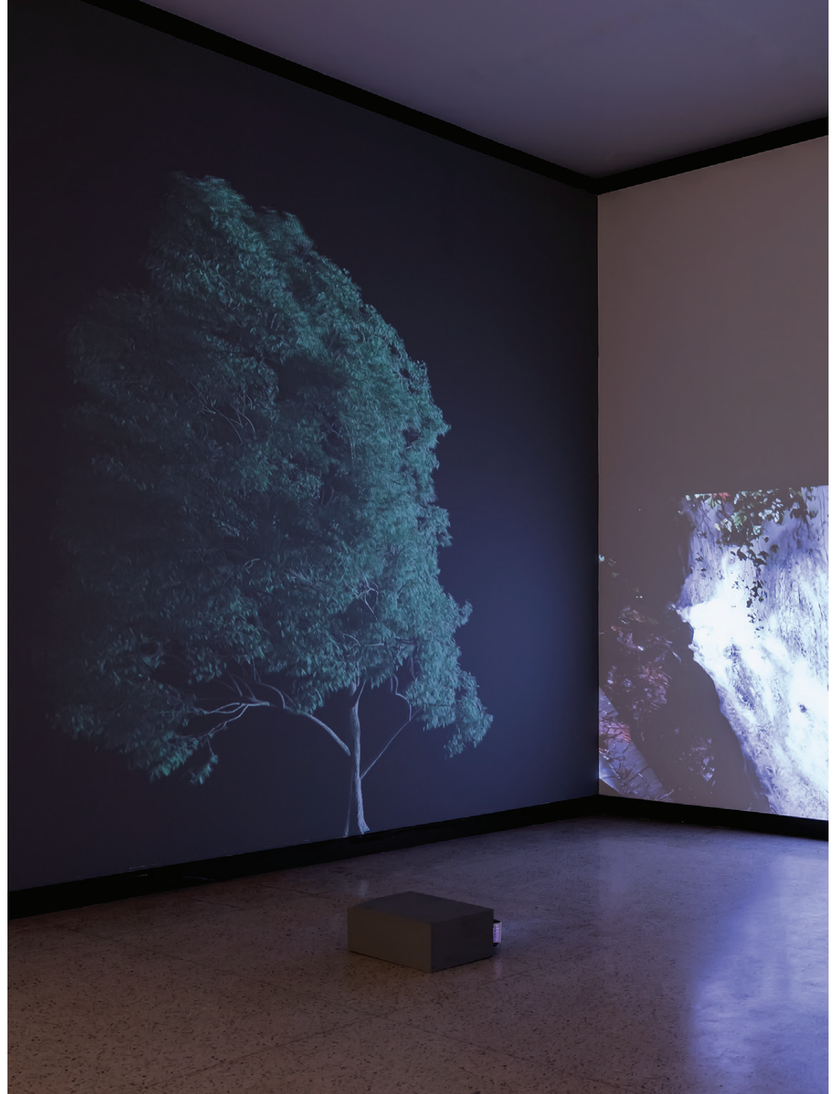
WEBCAMS, A-LIFE SIMULATION, PROJECTION,
AND INKJET ON PAPER

A-LIFE TEAM

Solastalgia | 2019

VIDEO PROJECTION, ANIMATION, VIRTUAL REALITY, DIGITAL PRINT

DANIEL HARVEY & BRAD NECYK



D Anticipated Alliterations | 2019

FABRIC, FISHING LINE, COTTON BATTING, WOOD, HARDWARE, RECYCLED GUITAR STRINGS, AUDIO SPEAKERS, BUTTONS, WIRE, AMPLIFIERS, EPOXY RESIN, GLUE, CRIMPING BEADS, SOLDER, AUDIO CABLING AND CONNECTORS. SOUND SOURCE: PROGRAMMED MODULAR SYNTHESIZER VOICES WITH COMPUTER MULTI-CHANNEL AUDIO PLAYBACK

34DD: GARY JAMES JOYNES & KASIE CAMPBELL

Beyond Intelligence Uncertainty | 2019

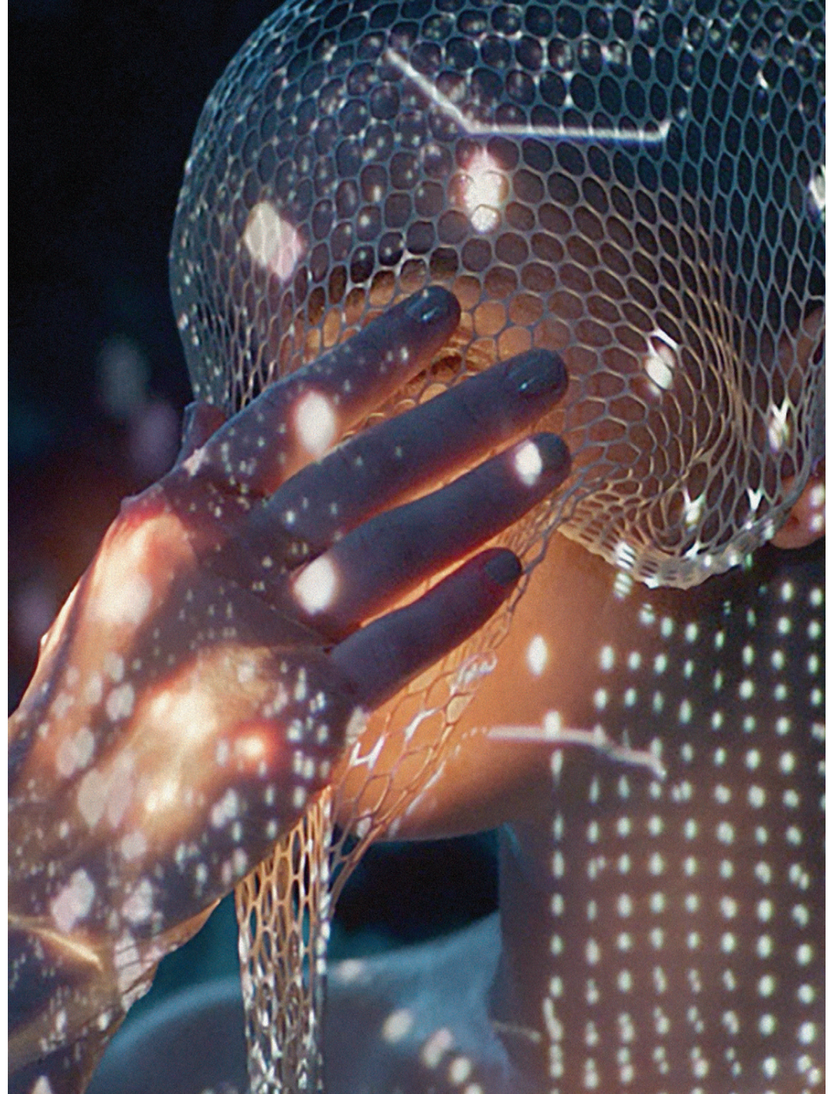
MIXED MEDIA INSTALLATION, WOOD, STEEL, FABRIC, GEARS

ROYDEN MILLS

Eve 2050 | 2019

18 MINUTE FILM

ISABELLE VAN GRIMDE & DAVAI



List of Works

THEME 1:

ELECTRIFIED ANATOMIES

Blair Brennan
There's Something Inside Me, 2013–2019
MIXED MEDIA ON PAPER

My Medicine, 2018
MIXED MEDIA ON PAPER

PRN, 2000–Current
MIXED MEDIA ON PAPER

Sean Caulfield, Marilène Oliver & Scott Smallwood
Evolving Anatomies, 2019
CARVED MAPLE, SILKSCREEN ON POLYCARBONATE, LASER CUT ACRYLIC, VIDEO PROJECTION, WAX AND MULTICHANNEL AUDIO

Holly de Moissac
Lingering on the Surface, 2019
PLASTER, PAINT, ALL-NATURAL-ARTIFICIAL-GREENERY, INTRAVENOUS BAGS, FISH HOOKS, ALUMINUM, SALT

Nathanial Fair
The Patient, 2019
MIXED MEDIA SCULPTURE

Paul Harrison
EpiGeneScapes, 2015
MIXED MEDIA (DIGITAL AND SCREENPRINT)

Drawn for Thought, 2017
MIXED MEDIA (DIGITAL AND SCREENPRINT)

Selene Huff
Untitled 12, 2019
STEEL, SPRAY PAINT, CHALK PAINT

Xi Jin
Barrier, 2019
VACUUM FORMED SCREEN PRINTED PLASTIC

Tamires Para
The Flesh That Carries Me, 2019
OIL ON CANVAS

Unphased, Unchanged, 2019
OIL ON CANVAS

Infernal Touch, 2019
OIL ON CANVAS

The Stark Semblance of Transmuted Beauty, 2019
OIL ON CANVAS

Subtle Gaze, 2019
OIL ON CANVAS

Emotional Agency, 2019
OIL ON CANVAS

Chantal Schultz
Permeable Bodies, 2019
WAX AND SCOBY
(SYMBIOTIC CULTURES OF BACTERIA AND YEAST)

34DD | Kasie Campbell & Gary James Joynes
Anticipated Alliterations (Body Talk), 2019
FABRIC, FISHING LINE, COTTON BATTING, WOOD, HARDWARE, RECYCLED GUITAR STRINGS, AUDIO SPEAKERS, BUTTONS, WIRE, AMPLIFIERS, EPOXY RESIN, GLUE, CRIMPING BEADS, SOLDER, AUDIO CABLING AND CONNECTORS. SOUND SOURCE: PROGRAMMED MODULAR SYNTHESIZER VOICES WITH COMPUTER MULTI-CHANNEL AUDIO PLAYBACK SYSTEM PLAYING 50 MINUTE EVOLVING LOOP

THEME 2:

VIRTUAL INTELLIGENCES & ARTIFICIAL BODIES

A-Life Team
Human in the Loop, 2019
WEBCAMS, A-LIFE SIMULATION, PROJECTION AND INKJET ON PAPER

Jerad Bech
Filter, 2019
SCREENPRINT ON PAPER

Jamie-Lee Girodat
Embryonic Sway, 2019
ANIMATION

Playground Tears, 2019
ANIMATION

Needle Fight, 2019
ANIMATION

Nicholas Hertz
Close, but never touching, 2019
INKJET PRINT ON PAPER

Far, but just as close, 2019
INKJET PRINT ON PAPER

Naho Iketani
Deep Inside, 2019
ETCHING AND CHINE COLLÉ

In Memory, 2019
ETCHING AND CHINE COLLÉ

Luke Johnson with Ruthann Godollei, Myken McDowell, and Morgan Wedderspoon
Now to the Year 2000, 2019
INSTALLATION WITH RELIEF AND LETTERPRESS PRINTS, LIGHT BULBS, LIGHT CART, PAPER EPHEMERA AND FOUND MATERIALS

Kev Laing
Elite Bodies, 2019
SCREENPRINT ON PAPER

Yves Netzhammer
Soliloquies Approach Like Shy Deer, 2019
VIDEO PROJECTION, WALL DRAWINGS AND INKJET PRINTS

Marilène Oliver & Gary James Joynes
Deep Connection, 2019
LASER CUT COROPLAST SCULPTURE AND VIRTUAL REALITY

Space Invaders 2019, 2019
LASER CUT COROPLAST SCULPTURE AND VIRTUAL REALITY

Jesse Thomas
Artistic Painting, 2003
OIL ON CANVAS

Breanna Thompson
Touching Awe, 2019
ETCHING AND WOODCUT ON PAPER

Phoebe Todd-Parrish
Solute, 2018
INTAGLIO ON PAPER

Isabelle Van Grimde & DAVAI
Eve 2050, 2019
18 MINUTE FILM

▼
Jingyu Zhang
Reincarnation, 2019
MIXED MEDIA ON PAPER

Midnight Appetite, 2019
MIXED MEDIA ON PAPER

Loading, 2019
MIXED MEDIA ON PAPER

THEME 3:
STORIES IN FLESH & BYTES

×
Mez Breeze
The Thing Tableau, 2019
3D/VR SCULPTURE

×
Daniel Evans
Archipelago, 2019
VIRTUAL REALITY, ACRYLIC, 3D PRINTED PLA AND VIDEO PROJECTION

×
Liz Ingram & Bernd Hildebrandt
Light Touch, 2019
DIGITAL INKJET TO SILK HABOTAI WITH REACTIVE DYE, ALUMINUM RODS, ROPE, PIANO WIRE, STEEL HOOP AND STYROFOAM BALL, DRAPERY WEIGHTS, MIRROR VINYL FILM FLOOR GRAPHICS

Light Touch, 2019
VIDEO LOOP

×
Jason Nelson
Acesulfame K, 2019
INTERACTIVE POEM

×
Christine Wilks
Fitting the Pattern, 2008
FLASH DIGITAL MEMOIR

Underbelly, 2010
FLASH DIGITAL MEMOIR

with Andy Campbell
Inkubus, 2013
UNITY GAME

THEME 4:
OUT ON OUR LIMBS

■
Jason Abma
Scratched Record III, 2019
DIGITAL PRINT AND ETCHED PLATE TONE

Black Friday, 2019
DIGITAL PRINT AND ETCHED PLATE TONE

60 Days, 2019
DIGITAL PRINT AND ETCHED PLATE TONE

■
Jondrei Alcain
Sorry to Bother You, 2019
IMAGE-ON ON ACRYLIC, DIGITAL PRINTS AND BROKEN TELEVISION

■
Jasrin Dhatt
Brad, 2019
OIL ON BOARD

■
Andrea Larsen
Four Pillars, 2019
SCREENPRINT ON PAPER

■
Royden Mills
Beyond Intelligence Uncertainty, 2019
MIXED MEDIA INSTALLATION

■
aAron Munson & Mark Pritchard
Under The Sun, 2019
DIGITAL VIDEO, GLASS AND REFLECTED LIGHT

■
Brad Necyk & Dan Harvey
Solastalgia, 2019
VIDEO PROJECTION, ANIMATION, VIRTUAL REALITY AND DIGITAL PRINT

■
Yves Netzhammer
Soliloquies Approach Like Shy Deer, 2019
VIDEO PROJECTION, WALL DRAWINGS AND INKJET PRINTS

■
Stephanie Patsula
Twin Flames, 2019
WOODEN DOWEL, COPPER AND STEEL FIXTURES MIRRORS, PROJECTION, SOUND AND LIVE PERFORMANCE. SOUND BY ERIC FRASER

■
Tammy Salzl
Contenders, 2012
OIL ON CANVAS

Sunday Best, 2018
OIL ON CANVAS

■
Thomas Weir
Scriviner, 2019
ACRYLIC ON CANVAS

■
Ruth Wilms
Problem Solved, 2019
SCREENPRINT ON PAPER

■
Christina Zhu
China Doll, 2019
LINOCUT ON PAPER

Self Presentation and Expectation, 2019
SCREENPRINT ON PAPER

188 **DYSCORPIA EXHIBITION**
INSTALLATION VIEW

Biographies

CORE TEAM, INVITED ARTISTS, STUDENTS & CONTRIBUTORS

CORE TEAM

▸ **Vadim Bulitko** is Professor of Computing Science at the University of Alberta in Edmonton. He received his PhD from the University of Illinois at Urbana-Champaign. His work focuses on building strong experimental models of artificial intelligence in order to assess their heuristic value in the field. He ultimately strives to enhance our understanding of the nature of intelligence and cognition in human and animals through such computing modelization and experiments. He specializes in the application of artificial intelligence in computer games in which narrative and cognitive processes and models play a central role, especially through advanced simulations of population behavior.

▸ **Sean Caulfield** is Centennial Professor of Fine Arts at the University of Alberta in Edmonton. His visual work focuses of the ancestrality and possible futures of bodies and organisms in regards to the transformations of our living environments. He has exhibited in Canada, the US, Europe, and Japan. Recent exhibitions include: *Perceptions of Promise* (Chelsea Art Museum, NYC), *The New World* (The Centre for Modern and Contemporary Art, Debrecen, Hungary), and *Imagining Science* (Art Gallery of Alberta, Edmonton). His work is in various important collections including the Harvard University Houghton Library, the Fitzwilliam Museum in Cambridge, UK, and the Blanton Museum of the University of Texas in Austin.

▸ **Astrid Ensslin** is Professor of Digital Humanities and Game Studies at the University of Alberta in Edmonton. Her work, funded by the Social Sciences and Humanities Research Council of Canada (SSHRC), focuses on innovative models of digital fiction as well as on bodily representations with regard to the latest advancements in narrative theory. She has published extensively in her field, notably *Literary Gaming* (MIT Press, 2014), *Analyzing Digital Fiction* (with Alice Bell & Hans Kristian Rustad, Routledge, 2013), and *The Language of Gaming* (Palgrave 2011). In 2017 she joined the Board of Directors of the Electronic Literature Organization (ELO).

▸ **Daniel Evans** is a graduate student in Art & Design at the University of Alberta in Edmonton who seeks to adapt the languages of folklore and mythology to explore our evolving relationship with technology. His work focuses on the various forms of our relationship with data and analytics, on how technology impacts our perceptions of the body and the self, and on how these relationships shape and are shaped by various belief and value systems. Bringing traditional printmaking and drawing into an expanded field through the incorporation of augmented and virtual reality, 3D modelling, and rapid prototyping, he draws upon hybrid mythological figures and shapeshifters to reflect on the intrinsically connected nature of our physical and digital worlds.

▸ **Gillian Harvey** is Assistant Professor of Design Studies at the University of Alberta in Edmonton. Her work focuses on evidence-based information design principles and practices. Her priorities include simplifying complex information in order to make it understandable for a variety of audiences, the importance of audience-based social studies, as well as the development of user-centered design. Currently she is working on the development of communication materials that assist with health research, with special emphasis on how information design theories and practices can be applied to healthcare for underrepresented populations in view of enhancing social good and justice.

▸ **Daniel Laforest** is Professor of Cultural Studies and French at the University of Alberta in Edmonton. His work, funded by the Social Sciences and Humanities Research Council of Canada (SSHRC), focuses on the role of literature in Medical Humanities. He examines how medical visualization at the microscopic level of cells and tissues and at the macroscopic level of health data mining and distribution impacts individual life-stories and the sense of self. He has published extensively in Canada, France, the US, and the UK, and has done artist residencies at the Banff Centre Leighton Colony. He was Visiting Scholar at the Stanford University Center for Biomedical Ethics, and is alumnus of the Fulbright Foundation.

▸ **Brad Necyk** is a visual and digital artist based in Edmonton. His work aims to foster the co-creativity of art projects with people living with illness in communities across Canada. He has worked with recent transplant patients, head and neck cancer patients, suicide survivors in the Arctic, and psychiatric patients at the Centre for Addiction and Mental Health in Toronto, embedding the resulting pieces in artworks made using 3D video rendering and virtual reality. He also draws on his own illness experiences, weaving and knotting them with the co-created works he produces across the country. He aims to tell stories of illness with the hope to increase our confidence and capacity in expressing and discussing these meaningful events in our lives.

▸ **Marilène Oliver** is Assistant Professor of Fine Arts at the University of Alberta in Edmonton. Her work is at the crossroads of new digital technologies, traditional print, and sculpture. It focuses on producing objects that bridge the virtual and the real worlds. She uses medical scanning technologies such as MRI, CT, and PET in works that allow us to materially contemplate our digitized selves. She has exhibited internationally, at the Royal Academy in the UK, the MASSMOCA in the US, and the Copernicus Museum in Poland. Her work is also held in a number of private and public collections around the world. She leads LASERUalberta, a series of Arts-Science public talks affiliated with Leonardo ISAST.

▸ **Aidan Rowe** is Associate Professor of Design Studies at the University of Alberta in Edmonton. He is also a curator who has designed exhibitions in Canada, Korea, Germany, and England. His work focuses on the development of opportunities for design and technologies to impact society and the world at large. He has worked with a variety of designers, artists, and academics to help realize their vision for public display. His recent curation projects have interrogated Marshall McLuhan's contemporary influence (*Spaces + Places: McLuhan @ 100*, 2011), the relationships between health, design, and art (*InSight: Visualizing Health Humanities*, 2012), and the intersection of the North and design (*Design Latitudes*, 2015).

▸ **Scott Smallwood** is Associate Professor of music composition at the University of Alberta in Edmonton. He is also a sound artist, composer, and performer whose work spans from acoustic concert music to

interactive installations. As performer and improviser, he is one-half of the laptop/electronic duo *Evidence* (with Stephen Moore) and has performed with many others, including Yanira Castro, Seth Cluett, Curtis Bahn, Mark Dresser, Cor Fuhler, John Butcher, and Pauline Oliveros. He has written acoustic and electro-acoustic works for a variety of performers and ensembles such as the *New York Virtuoso Singers* and the *Nash Ensemble of London*. His sound installation work has been shown worldwide.

▸ **Isabelle Van Grimde,** a Montreal choreographer, approaches the dancing body in a transdisciplinary manner. Her research and creative work is enriched by various disciplines, offering a pluralistic and resolutely contemporary vision of the body. Concepts from cutting-edge research in science and humanities are interwoven with ideas from theatre, music and literature to create a dynamic dialogue through dance. This approach leads Isabelle Van Grimde to collaborate with artists and researchers from various disciplines incorporating digital technologies into the creation, production and presentation of her works, forming a wide array of artistic gestures aimed at rethinking and reconfiguring dance. Stage productions, choreographic concerts, installations, performances, publications and interactive web-based works are all part of her company *Van Grimde Corps Secrets*'s repertoire.

INVITED ARTISTS

▸ **A-Life Team** was formed specially to create *Human in the Loop* for *Dyscorpia*. The A-Life team is comprised of professors, graduate, and undergraduate students from computer science, fine arts and philosophy as well as experts from the gaming industry; Dr. Vadim Bulitko, Head of A-Life and Player-modeling Development; Marilène Oliver, Head of Visual Art and exhibition presentation; Dr. Scott Smallwood, Head of Sound Design; Mac Walters (Creative Director of Bioware), Executive Producer and Consulting; Kacy Doucet, A-Life Developer (Netlogo); Daniel Evans, Visual Artist and Unity Developer; Hope Docking, Producer; Philosophical Research Team; Shelby Carleton, Natali Kendal-Freedman, Emad Mousavi, and Julian Chow.

▸ **Blair Brennan** holds a BFA from the University of Alberta. His sculpture, installation work, drawings and other works on paper have been exhibited nationally, in group and solo exhibitions, in Alberta, Ontario, Vancouver, Montreal, and Athens, Greece. Brennan's practice has included regular presentations of solo and collaborative performance projects, most notably with Edmonton-based dancer and choreographer Brian Webb. His work was featured in both the 1996 and 1998/99 Alberta Biennial of Contemporary Art and is represented in numerous private and public collections including the Alberta Foundation for the Arts and Glenbow Museum.

▸ **Mez Breeze** crafts virtual reality sculptures/paintings, virtual reality and augmented reality experiences, games, experimental storytelling, virtual reality literature, and other genre-defying output. Current and past tinkerings include the virtual reality adventure *Perpetual Nomads*, exhibiting with the Third Faction Collective at World of Warcraft: Emergent Media Phenomenon, and creating *A Place Called Ormalcy*, a dystopian Sketchfab-based virtual reality literature work. She currently serves as an advisor to the Mixed Augmented Reality Art Research Organisation, an editorial board member of the digital journal *Thresholds*, a co-founder of the XR Artists Collective, and is a senior research affiliate of the Humanities and Critical Code Studies Lab.

▸ **Kasie Campbell** is a visual artist working in Edmonton and a recent graduate from the University of Alberta's Bachelor of Fine Arts Program. Her work integrates a variety of media, including large-scale, hand-sewn textile sculpture, photography, and performative installations. Through provocative sculptural work, along with performative means of transcending the sense of purpose that material components may first elicit, she aims to confuse appeal with revolt, as well as pleasure with disgust. Her overall wish is to magnify the psychological charge that exists when one is in a moment of suspended awareness about what appears undecidedly beautiful or grotesque.

▸ **Paul Harrison** is an artist with a background in print, printmaking and publishing. His practice combines the use of traditional print methods and materials with new and emerging technologies. His research interests include an ongoing investigation into the relationships between art and science—particularly the interrelations of visual arts and biological sciences. He is currently appointed as a lecturer/researcher in Contemporary Arts Practice at the University of Dundee, in the Visual Research Centre (VRC) Print Publishing facility where he completed his PHD, and also serves as resident artist with EpiGeneSys: European Network of Excellence based at the Institut Curie in Paris.

▸ **Bernd Hildebrandt** has a background in industrial and graphic design, and in sculpture. Working independently and for institutions, he plans exhibit spaces, designs display furniture and contributes to the layout design of object-based museums and art exhibitions. His interest in writing poetry sparked numerous collaborations with Liz Ingram, in which his poems and digital work have been integrated into the fabric of her large-scale installations and prints. Such collaborative endeavours have proven to be very productive and have resulted in numerous large-scale installations utilizing fabric, paper and various designed structures, shown at the national and international levels.

▸ **Liz Ingram** was born in Argentina and grew up in New Delhi, Mumbai, and Toronto. For over forty years she taught at the University of Alberta in, and is currently Distinguished University Professor Emerita. She works in various media including etching, lithography, digital print, and installation. Her artworks have been exhibited in numerous solo and duo exhibitions, and over 300 group exhibitions internationally. She has received awards for her prints at juried exhibitions in Canada, Slovenia, Poland, Korea, Brazil, Estonia, India and Finland. In 1998 she was elected into the Royal Canadian Academy of Arts. She has been inducted into the City of Edmonton Hall of Fame, the Royal Society of Canada, and the Order of Canada.

▸ **Gary James Joynes** (aka *Clinker*) is a sound artist, and a visual artist, who has been active in the international live audio-visual and experimental music performance community for many years. He works in Edmonton and is a prominent figure of its local art scene, having had successful exhibitions at dc3 and

as part of *Nuit Blanche*. He blends the beauty and physicality of sounds auditory and visual elements in Live Cinema AV performance and in emotional photo and video installation works. His work is focused on the active process of listening to, looking at, and feeling art; slowing down time and linking sensoria to allow for immersion in a whole body experience.

▸ **Royden Mills** teaches in the Department of Art & Design at the University of Alberta. He has done many large-scale commissions, installations, and collaborative performances, nationally and internationally, and his work has been shown extensively internationally. He has served on the Board of Directors at The Edmonton Art Gallery and is a Past President of the Edmonton Contemporary Art Society. His 2017 Edmonton Terwillegar Park Installation won recognition from the group *Americans for Art*, as "one of the most exemplary, innovative public art works."

▸ **aAron Munson** is a Canadian filmmaker, cinematographer and multimedia artist. His work has taken him from his personal studio to war zones, high-Arctic weather stations, reindeer nomad camps in Siberia, and the Arabian Desert. His art projects focus on extreme human experiences, both far from and close to home. They utilize film, video, photography, and sound to create visual explorations relating to mental illness, memory, and the nature of consciousness. His major 2018 work, *Isachsen*, which was shown at dc3ArtsProjects in Edmonton, stems from a daring expedition he undertook to a dilapidated weather station in Nunavut in order to explore the ties between isolation, the harshness of the far North, and depression.

▸ **Jason Nelson** is a digital and hypermedia poet and artist. He is a lecturer on cyberstudies, digital writing and creative practice at Griffith University in Queensland, Australia. He is best known for his artistic flash games/essays such as *Game, Game, Game and Again Game* and *I made this. You play this*. We are Enemies. He has worked on the Australia Council of the Arts and Literature Board, and on the Board of the Electronic Literature Organization based at MIT. Nelson's style of web art merges various genres and technologies, focusing on collages of poetry, image, sound, movement and interaction. He currently lives in Brisbane, Australia. He was a Fulbright Fellow at the University of Bergen from 2016–17.

▸ **Yves Netzhammer** is a Swiss visual and video artist who lives and works in Zurich. He has a background in architecture and is alumnus of the Zurich *Hochschule für Gestaltung und Kunst.* He has been working with video installations, slide projections, drawings, and various material objects since 1997. Since 2006, he writes and publishes online in the blog Journal for *Art, Sex and Mathematics*. He represented Switzerland at the Venice Biennale in 2007. His works have been showcased extensively in major exhibitions and museums around the world, such as the FOSUN Foundation in Shanghai, the Arnolfini Center for Contemporary Arts in Bristol, and the SFMOMA in San Francisco.

▸ **Tammy Salzl** is an interdisciplinary artist who completed her MFA at Montreal's Concordia University in 2014. Her work focuses on storytelling and the connections between the human psyche and humankind's relationship with the natural world. Salzl has presented her work across Canada, as well as in Germany, Mexico, and the US. She is a Tedeschi Scholarship recipient, a 2018 OALA/Ground Award recipient, a 2011 Honourable Award Winner in The Kingston Prize, and has received several prestigious grants and residencies.

▸ **Jesse Thomas** is Associate Professor of Fine Arts at the University of Alberta. He received an MFA in painting from Washington University in Saint Louis in 2003 and a BFA in painting and drawing from the School of the Art Institute of Chicago in 1993. Recent exhibitions include *Entourer*, an immersive installation at the New Orleans Jazz Museum, and a 2016 solo exhibition at the Zhengzhou University of Light Industry in China consisted of 50 works representing the past five years of his studio production. Previous solo exhibitions of his work have been held in Edmonton, St Louis, Chicago, San Francisco, New Orleans, and Berlin.

▸ **Christine Wilks** is a digital writer, artist, and developer whose work focuses on interactive narratives and playable media. Her digital fiction *Underbelly* won the New Media Writing Prize 2010 and the MAMSIE Digital Media Competition 2011. Her work is published in online journals, exhibitions, and anthologies, including the *Electronic Literature Collection Vol. 2*, and the *ELMCIP Anthology of European Electronic Literature*. From 2007 to 2013, she was a core member of the digital arts remixing collective R3M1XWORX. She is currently creating an interactive digital narrative in the form of a psychological thriller for mobile devices, as part of her practice-based PHD in Digital Writing at Bath Spa University.

GRADUATE STUDENTS

▸ **Jamie-Lee Girodat** is originally from Medicine Hat, but moved to the windy city of Lethbridge, Alberta as a teenager. She grew up waddling about, poking things, squinting and counting days, wondering what it would be like to be a cat. She collects stories, but despises birthdays, searching for a way to slow the inevitable. Now, pursuing an MFA in printmaking, she looks at her bunions with curiosity and questions how many generations they'll survive.

▸ **Selene Huff** Selene Huff is pursuing an MFA in sculpture at the University of Alberta. Her work focuses on a visual conversation between physical bodies in space. She creates and manipulates the crumpled, twisted forms of discarded objects in order to draw upon collective memories of how the human body navigates the world. Huff's formal compositions of juxtaposed textures, tonal pallets and thicknesses of material evoke tactility, movement and sound as the eye moves across them. She views her sculptures as a means of reflecting, distorting and simplifying experiences of human reality in order to forge a connection between artist and viewer.

▸ **Naho Iketani** was a visiting artist to the printmaking graduate studio at the University of Alberta in 2018–2019. She uses labour intensive etching techniques to create psychologically charged imagery.

▸ **Xi Jin** studied two years in printmaking and art history, then obtained a BFA from the Nova Scotia College of Art & Design in 2017, all of which led to an interdisciplinary art practice not only generated by particular interest in linguistics, semiotics and the humanities, but also focused on the materiality in processes of becoming.

▸ **Luke Johnson** is a visual artist based in Edmonton working across print, installation, and durational engagements. He received his BFA from the University of Wisconsin-Madison with a focus in print media, and is currently working toward his MFA at the University of Alberta. His artwork deals with hierarchies of knowledge and the way in which 'truth' and value are delineated from the subjective and often considered discardable. Through processes of collecting, reconfiguring, and reordering materials, his work challenges the belief that documents and artifacts are intrinsically bastions of singular truth, and suggests instead that they complicate efforts to categorize and objectify, to define and to know.

▸ **Holly de Moissac** is a Canadian visual artist whose work explores the idea of vulnerability in bodies from the personal and the ecological standpoints. In her various explorations of the processes of fragmentation and reduction, she imagines bodies and natural environments as emotional objects that contain and reflect the notions of injury, complexity, and history. As such they present themselves as inseparable from the natural cycles of growth and decay. De Moissac is currently working towards her MFA at the University of Alberta. She is a lead printmaker at the Nina Haggerty Centre for the Arts in Edmonton, where she works with developmentally disabled artists.

▸ **Stephanie Patsula** is an interdisciplinary artist and MFA candidate at the University of Alberta. In her ongoing art practice she works to produce soundscapes, installations, sculptures, durational performances and photography. Across these media Patsula pursues a phenomenological analysis of the object/subject relationships within her environment, drawing on contemplative aspects of Eastern philosophical traditions.

▸ **Tamires Para** is a Brazilian contemporary painter based in Edmonton who is in the last year of the MFA program in painting at the University of Alberta. She is passionate about the human figure and she is interested in researching the scars that traumatic memories inflict on our bodies, as well as how we can use our local community as a tool for cultural healing.

▸ **Phoebe Todd-Parrish** recently graduated with an MFA in printmaking from the University of Alberta. Her creative research practice explores the intersections and overlaps of communication and miscommunication, real and imagined spaces, as well as texts and images through various figurative works involving the techniques of bookmaking, of animation, of installation and of print media.

▸ **Jingyu Zhang** is a first-year MFA international student, specializing in drawing and painting. His work addresses questions about materialism and over-consumption in modern society. He uses exaggeration and metaphor to depict our daily lives in order to express a reflection on humanity and meaning of living.

UNDERGRADUATE STUDENTS

▸ **Jason Abma** is a fifth-year BFA student at the University of Alberta with a focus on painting and printmaking.

▸ **Jerad Bech** is an aspiring designer and printmaker currently attending the University of Alberta.

▸ **Jasrin Dhatt** is currently in her fourth year of Fine Arts program with a focus on painting and printmaking.

▸ **Nathanial Fair** is a second-year undergraduate student in industrial design and sculpture at the University of Alberta.

▸ **Nicholas Hertz** is an emerging artist from Edmonton, Alberta, finishing the fourth year of the Bachelor of Fine Arts at the University of Alberta. His current studio practice is focused on an exploration of personal storytelling relating to his body and queer identities. He explores this through performance, printmaking, 3D rendering and scanning.

▸ **Kev Lang** is an undergraduate student at the University of Alberta currently focused on printmaking and visual communication design, with a keen interest on intermedia practices, photography, as well as photo-based art, video, installation, and performance.

▸ **Andrea Larsen** is a second-year BFA student at the University of Alberta with a focus on figurative art and is currently taking classes in printmaking, sculpture and painting.

▸ **Chantel Schultz** is a visual artist based in Edmonton with a studio focus in sculpture. She graduated from the Medicine Hat College in 2017 with a degree in visual communications before transferring to the Fine Arts program at the University of Alberta where she is in her final term.

▸ **Breanna Thompson** is an artist in her final year of the Bachelor of Fine Arts program at the University of Alberta. She focuses on intermedia, printmaking, and painting.

▸ **Thomas Weir** is an artist from Edmonton, where he is enrolled in the BFA program at the University of Alberta. He is currently focusing on painting, sculpture, and installation. Thomas recently exhibited his work in the *Material* exhibition at Edmonton's Latitude 53, and *a show, a book, a happening* curated by Pidgin Collective at Calgary's The New Gallery, both in 2018.

▸ **Ruth Willms** is currently a third-year student in the Bachelor of Fine Arts program. She is focusing mainly on painting and printmaking.

▸ **Christina S. Zhu** is a design student and artist from Germany. She has a background in illustration and currently pursues her BA at Münster School of Design.

CONTRIBUTORS

▸ **Susan Colberg** is Associate Professor of Design Studies at the University of Alberta and a Fellow of the Society of Graphic Designers of Canada. Her work, which focuses on typography and publication design, has won national and international awards and has been exhibited across Canada and the US, Europe, Asia, and the Middle East. Examples are in the collections of the Fitzwilliam Museum (Cambridge), the Houghton Library (Harvard), the German Book & Type Museum (Leipzig), the Smithsonian Institution (Washington, DC), the E.H. Norman Library of the Canadian Embassy (Tokyo), the Thomas Fisher Rare Book Library (University of Toronto), the Alberta Foundation for the Arts and the Banff Centre. She has served on the juries of the Stiftung Buchkunst Leipzig's

Best Book Design from All Over the World, the Association of American University Presses, the Alcuin Society for Excellence in Book Design in Canada and the Graphic Designers of Canada among others.

▸ **Jonathan Garfinkel's** written works have been translated into twelve languages, and his plays have been produced throughout Canada, Germany, Russia and Ukraine. He is the author of the books of poems *Glass Psalms* (Turnstone Press) and *Bociany/Storks* (KFB, 2017). He has written numerous plays including *The Trials of John Demjanjuk: A Holocaust Cabaret* and the Governor-General shortlisted *House of Many Tongues*. His memoir *Ambivalence: Crossing the Israel/Palestine Divide* was published in five countries to critical acclaim (Penguin Canada and Norton & Norton US). Named by the Toronto Star as "one to watch", he is currently doing a PHD in MLCS at University of Alberta with a focus on Health Humanities under the supervision of Daniel Laforest.

▸ **Dan Harvey** is a researcher and instructor in the Departments of English and Writing Studies at the University of Alberta. His research examines representation of business and finance, as well as ways of imagining the affective and libidinal dimensions of living in and through the Anthropocene.

▸ **Tess Heinricks** is an interdisciplinary designer who enjoys creating engaging experiences through visual communication design. Primarily working within print and digital media, she enjoy designing in a way that mediates information with intrigue. She loves creating, executing, and pushing the limits of design as a dynamic practice, exploring the intersections between different disciplines and providing unconventional, fun solutions to complex problems.

▸ **Lianne McTavish** is a Professor in the History of Art, Design, and Visual Culture at the University of Alberta. Her interdisciplinary research focuses on early modern French medical imagery, which she has published in *Social History of Medicine* (2001), *Medical History* (2006), and a monograph titled "Childbirth and the Display of Authority in Early Modern France" (Routledge, 2005). She is currently completing her fourth book, *Illness as Opportunity in Early Modern France*. Dr. McTavish has curated several art and science exhibitions, including *Perceptions of Promise* in 2010 and *Flux* in 2017.

▸ **Geoffrey Rockwell** is a Professor of Philosophy and Humanities Computing at the University of Alberta. He has published and presented papers in the area of philosophical dialogue, textual visualization and analysis, humanities computing, instructional technology, computer games and multimedia. He is the project leader for the CFI (Canada Foundation for Innovation) funded project TAPOR, a Text Analysis Portal for Research, which has developed a text tool portal for researchers who work with electronic texts. He is the author of *Defining Dialogue: From Socrates to the Internet*, published with Humanity Books.

▸ **Keram Malicki-Sanchez** founded the VRTO Virtual & Augmented Reality World Conference and FIVARS Festival of International Virtual and Augmented Reality Stories. He is also the editor-in-chief of IndieGameReviewer.com since 2008. A graduate of UCLA's certification programs in Cinematography, Producing and Digital Media, respectively, Malicki-Sanchez is also an alumnus of Werner Herzog's Rogue Film School—Los Angeles chapter—and has 30 years of experience as an actor in over 65 films and television shows including *American History X, John Q,* and *True Blood*. He is also a music composer and recording artist. He is invited regularly to speak about the intersection of arts, culture and technology across North America.

▸ **Darian Goldin Stahl** is a printmaker and interdisciplinary research-creation scholar in the health humanities. She currently holds a Vanier Scholarship for her Humanities PHD research at Concordia University in Montreal. Darian received her MFA in printmaking from the University of Alberta in 2015, and her BFA in printmaking at Indiana University Bloomington in 2011. Her research focuses on how a fine art re-contextualization of internal medical scans can positively impact a chronically ill patient's sense of identity and well-being.

▸ **Dr Silvia Casini** is a lecturer in Film and Visual Culture at the University of Aberdeen. Her work is situated at the crossroad of visual culture and science and technology studies. She is the author of several articles on the aesthetic, epistemological and societal implications of scientific visualisation. She has been recently awarded a Leverhulme Research Fellowship to complete her second book project *Bodies of Data. Image-makers, Data and Reinvention in Magnetic Resonance Technology*, which is under contract with MIT Press Leonardo book series.

▸ **Jessica Laccetti's** professional experience intertwines theory and practice. She holds a PHD in Creative Technologies and is an active entrepreneur, educator, and practitioner. Jessica is an Adjunct Professor with the University of Alberta's Master of Arts in Communications and Technology while running Jessica Laccetti Communications where she crafts ROI-worthy content and websites for busy entrepreneurs and government.

▸ **Megan Perram** is a PHD student in the Department of Modern Languages and Cultural Studies at the University of Alberta. Her research centres digital hyperlink technology as a tool for writing illness narratives for women and individuals with hyperandrogenism. Megan's professional experience includes interning in the office of the Provincial Minister of the Status of Women, working as a Gender and Sexuality Historical Researcher for Fort Edmonton Park, and the role of Editorial Assistant for *Transplantation Journal*. Her latest publication, an illness narrative entitled C*onversations with Buer*, can be found in the *Journal of Families, Systems and Health.*

▸ **Natalie S. Loveless** is an Associate Professor of contemporary art history and theory in the Department of Art and Design at the University of Alberta. Loveless specializes in feminist and performance art history, art as social practice, and artistic research methodologies (research-creation). She recently completed a book, *How to Make Art at the End of the World: A Manifesto for Research-Creation* and her new project, *Sensing the Anthropocene: Attunement in an Age of Urgency*, asks how various performance-based modalities—such as deep listening, soundwalking, or durational performance—might attune us differently within what is contestedly called the Anthropocene today. D

DYSCORPIA EXHIBITION
INSTALLATION VIEW

Glossary of Terms

A

AI (Artificial Intelligence)
computational systems that perform tasks normally requiring human intelligence

A-Life (Artificial Life)
a field of research that examines systems related to natural life, its processes, and its evolution, through the use of simulations with computer models

AR (Augmented Reality)
technologies and visualization systems that allow virtual information (such as video and three-dimensional graphics) to be overlaid on to physical reality

Algorithm
a finite set of instructions for a calculation or process

Anthropocene
the current geological age where human activity has dominated and affected the climate and environment

Automation
the use of self-governing machines for automatic manufacturing, distribution and other processes

B

Black-box
technologies whose internal workings are unknown

C

CRISPR
segment of DNA containing short repetitions of base sequences, used in gene editing

Cyberbullying
bullying via social media and mobile communication technologies

Cybernetics
the study of communications systems and system control in animals and machines

Cyborg
a hybrid biological-machinic entity or organism whose physical attributes are blended with technological elements

D

Datafication
the process of converting human life into computerized data

Digital born
media produced in digital form, rather than having been converted from physical objects or analogue texts

E

Echo Chamber
an ideological effect where beliefs are reinforced through continual circulation amongst like-minded people

Epigenetics
the study of changes in organisms caused by the environmental modification of gene expression rather than alteration of the genetic code itself

H

Hauntology
the notion that the present is haunted by a nostalgia for lost futures

Humanoid
having an appearance or character resembling that of a human

Hypertext
a textual network made from nodes and links that allows cross-referencing and navigation between interconnected files and documents

Hypermedia
an extension to hypertext providing multimedia facilities, such as sound and video

I

Interactivity
the ability of a computational machine or device to respond to a user's input

M

Microbiome
the microorganisms in a particular environment (such as the body)

N

Neoliberalism
a political approach that favours free-market capitalism, deregulation, and reduction in government spending

Nomophobia
the irrational fear of being without a mobile phone

Nonbinary
a gender or sexual identity that is not defined in terms of traditional binary oppositions (such as male and female)

P

Palimpsest
objects or media reused and altered that still bear visible traces of their earlier forms

Posthumanism
the belief that humankind can transcend the limitations of the physical human form using technology

Pseudo-science
a collection of beliefs or practices mistakenly regarded as being based on scientific method

S

Solastalgia
a neologism that describes mental or existential anxiety related to climate change

Subjugation
bringing someone or something under control

T

Technophile
a person enthusiastic about technology

V

VR (Virtual Reality)
a technology that enables a person to perceive fully embodied, 360-degree presence in a computer-simulated three-dimensional environment via a head mounted display

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INSTALLATION VIEW


Look around you
F+


colr, radius, points,
colr.darken(1.0
for i in
stroke(grad[i])
a = 0.75 - 0.25 * float(i) / count
colors.shadow(dx = 5, dy = 8, alpha
path = oval(x - radius + 1 * 0.5, y
radius * 2 - 1, radius * 2 - 1,