

GARDEN OF HOPE
INTERSPECIES COMMUNICATION, ECOLOGICAL RESILIENCE
AND RADICAL HOPE

VLADIMIR KANIC

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ABSTRACT

Garden of Hope is a network of entangled beings, materials and processes, all engaged in interspecies collaborations that create intertwined frameworks for ecological repair through multidimensional research-creation praxis. This thesis explores breathing as both a conceptual and material method for artmaking, rooted in my lived war experiences and informed by ecofeminism, posthumanism and material sciences, intending to cultivate and disseminate radical hope to spectators and communities. My collaboration with living algae creates biomedia artworks and transdisciplinary textiles that actively capture carbon and propose new ecologies of care while offering speculative blueprints for the future. The thesis exhibition operates across media and reframes the exhibition site as a living ecosystem where human and non-human agencies co-create through the exchange of breath. Drawing on ancestral Croatian textile traditions and oral histories, *Garden of Hope* questions planetary survival, intergenerational memory, and the role of art in creating socioecological resilience amidst our fragmented zeitgeist.

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Chapter One: Introduction to Radical Hope

Section A: Preface

I first encountered genuine hope in the bomb shelters of Croatia, during persistent blackouts enforced to avoid the aim of falling shells. My childhood spent in a war in the Balkans seems surreal and distant, more a fragmented story than a lived reality; however, some memories are impossible to discard. Genocide and ethnic cleansing were not abstract concepts; they lived in the way I was not allowed to watch the news, the way my father, a freedom fighter, once disappeared for a year, and the way four of my neighbours' sons never returned from the battlefield. However, there was hope in the hands of my mom, who cooked us food, my grandmother, who patched our clothes and the humanitarian convoys my father drove, in their stubborn belief that survival was worth imagining. Their courage was my first significant encounter with hope activated by compassion and selfless activism.

Although Croatia emerged as a victor of the five-year-long conflict (if there is such a thing as a victor of a war), it seemed like the war had never left the country, being replaced by endless years of post-war generational trauma. News, election propaganda, and art continually retraumatized us, turning the war into a commodity with political, social, and commercial value. There was no space for healing, and what was once hope for a better future embodied in my father's stories turned into a constant nationwide stream of anger, apathy, violence, and societal corruption. I moved to Canada in search of a more meaningful and hopeful life.

Section B: Art as an Instrument of Hope

Once I situated my art practice in Toronto, I began exploring hope as an ideology in the arts that would imply reframing traumatizing events to allow for healing. In *A Flor de Piel* (2018), Doris Salcedo creates a canvas from hundreds of sutured rose petals that "linger between

life and death and are so vulnerable that they tear if touched."¹ She evokes a sense of (be)longing for the victims of the Columbian civil war by creating organic fabric that resembles human skin, as a sensory attunement to sensibility, fragility, and care as aesthetic choices that propagate hope through a sense of healing. Salcedo states that "violence destroys everything"² and utilizes her practice to absorb these violent forces by creating artworks that take the power away from violence and its perpetrators and offer healing to both the war victims and spectators, an approach that I utilize in my practice. By collaborating with algae in capturing carbon and cleaning the air from pollution, my practice aims to disrupt the power structures of extractivist capitalism, with the intent of distributing that power amongst communities, especially the ones who have suffered the most due to destruction of their habitats and adjacent ecosystems, establishing clean air and the right to breathe as modes of healing and resistance.

My collaboration with algae opposes the extractivist ideologies that utilize these microorganisms as tools for further capitalist enrichment by transforming them into commodities such as food, fuel, or medicine. Instead, algae are active and equal participants in artmaking processes, who add seemingly random real-time performative aspects to my sculptural work with their growth and production of clean air. Jens Hauser, a media studies scholar, defines these concepts as "biomediality", describing integration of biological and molecular processes into contemporary art, and "microperformativity", situating non-human entities in art as agencies that "do not just serve to represent, control, transmit, store or process something with regard to which they are supposed to be indifferent (information, text or images, sound and so forth), but that

¹ Lauren Hinkson, "Doris Salcedo: *A Flor de Piel*," Guggenheim Museum, accessed November 15, 2024, <https://www.guggenheim.org/artwork/31379>.

² Ibid.

they actually produce what they pretend to merely mediate.”³ My biomedial artworks do not merely represent the ideas of clean air but actively produce that clean air *in situ*, offering it to spectators *ad gratuitum*.

The algae grow and capture carbon exponentially, capable of nearly doubling in size daily.⁴ Under ideal conditions, my *Spirulina Platensis* algal culture can capture 0.92 grams of carbon per liter of the culture per day⁵ and could theoretically sequester 2.094×10^{54} gigatons of carbon annually due to its exponential growth, dwarfing annual carbon emissions (37.04 Gt in 2024).⁶ On a larger scale, multiple algal biomedial artworks can clean sufficient amounts of air to make spectators and citizens healthier and in less need of pharmaceutical and commercial products while slowly taking the power away from the violence and oppression of extractivist structures. The mentioned calculus is a speculative projection, an ideal to strive for—a biological nucleus of hope.

Section C: The Concept of Radical Hope

Non-human agents, specifically algae, are often regarded as replaceable and irrelevant in a war or an ecological crisis, where human life is the most important to survive, although non-humans bear a significant toll in any conflict or disaster. Algae persist in acidified oceans and polluted rivers, among toxic remnants of battlefields and industrial disposal sites, and their ability to endure through devastation is similar to the resilience of displaced communities,

³ Jens Hauser, "Microperformativity and Biomediality," *Performance Research* 25, no. 3 (2020): 12–24, <https://doi.org/10.1080/13528165.2020.1807745>.

⁴ W. Y. Cheah et al., "Biosequestration of Atmospheric CO₂ and Flue Gas-Containing CO₂ by Microalgae," *Bioresource Technology* 184 (2015): 190–201, <https://doi.org/10.1016/j.biortech.2014.11.026>.

⁵ M. G. De Moraes and J. A. Costa, "Biofixation of Carbon Dioxide by *Spirulina* sp. and *Scenedesmus obliquus* Cultivated in a Three-Stage Serial Tubular Photobioreactor," *Journal of Biotechnology* 129, no. 3 (2007): 439–445, <https://doi.org/10.1016/j.jbiotec.2007.01.009>.

⁶ Statista, "Annual global CO₂ emissions 1940–2023," accessed March 10, 2025, <https://www.statista.com/statistics/276629/global-co2-emissions/>.

cultures forced into erasure and landscapes altered beyond recognition. My art practice, marked by fractures and repairs, utilizes biomediality to heal ecological damage and offers a tangible blueprint for resilience. As algae continue producing oxygen despite being exterminated and decimated, they still sustain planetary life during ongoing environmental collapse. There are similar life forms that can persist and even thrive in the harshest environments, such as the glasswort plant indigenous to my ancestral island of Pag, and the matsutake mushroom, which thrives in the ruins of ecological destruction, as described by Anna Tsing in her book *The Mushroom at the End of the World*.⁷ Algae, glasswort and matsutake offer a radical proposition: that survival is not a return to a previous state but an ongoing adaptation process, perpetuating hope and optimism to its extremes.

The concept of *radical hope* was first introduced by Jonathan Lear, a philosophy scholar,⁸ who describes it as a belief in the beneficial outcome of crisis situations that offer no means to reach that outcome. He recounts the story of a Crow Nation chief who, after the collapse of his nation's way of life,⁹ had to imagine new ways of surviving through radical hope, without the possibility of retrieving what was lost. His story resonates with my experience witnessing cultural erasure in post-war Croatia, where 45 years of communism were systemically erased, including its vivid culture and simple moments from everyday life, all but traumatic events perpetuated in an endless loop of negativity, leaving multiple neighbouring nations on the constant brink of another conflict. *Garden of Hope* builds on that experience and utilizes biomediality to reimagine new ways life could continue instead of focusing on what was lost,

⁷ Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton, NJ: Princeton University Press, 2015).

⁸ Jonathan Lear, *Radical Hope: Ethics in the Face of Cultural Devastation* (Cambridge, MA: Harvard University Press, 2006), 103.

⁹ Ibid., 1-10.

reflecting my main inquiry that resonates throughout our fragmented *zeitgeist*: “How could we transform exhibition sites into spaces of communal healing that cultivate radical hope?”

Chapter Two: Research-Creation Beyond the Human

Section A: Theoretical Foundations

My transdisciplinary research-creation practice collaborates with non-humans to create art that aims to disseminate radical hope to spectators and communities. This exploration is instigated by the principal methodology of breathing, which utilizes innovative methods that do not fit the existing canons of art by introducing science and technology as equal contributors to artwork creation. In addition to breathing, my practice utilizes caring, repairing and storytelling as additional methodologies that interoperate throughout diverse cross-disciplinary frameworks such as ecofeminism and posthumanism. While accentuating the aesthetics of hope as the desired outcome of the overall praxis, these methodologies contribute to the academic discourse and knowledge creation through a post-positivistic research framework.

Section B: Post-Positivistic Praxis and De-Anthropocentrification of Research

My praxis is founded on a post-positivistic epistemology and research methods, defined at an intersection of positivism and interpretivism. This approach disregards rigid scientific positivistic methods that focus on gathering empirical data, formulation of hypothesis prior to observation and disregarding subjective experiences, and inflexibility of interpretivism attentive only to subjective knowledge and open-ended projects that require extensive funding and resources.¹⁰ Post-positivism advocates for subjective meaning in the pursuit of objective truth, and pragmatism that suggests research is “valid if it works.”¹¹ This approach acknowledges both the scientific empirical observation of algal biological processes and the subjective interpretation

¹⁰ Karla A. Henderson, "Post-Positivism and the Pragmatics of Leisure Research," *Leisure Sciences: An Interdisciplinary Journal* 33, no. 4 (2011): 341-346, <https://doi.org/10.1080/01490400.2011.583166>.

¹¹ Ibid.

of the emotional, ethical, and aesthetic dimensions of interspecies art resulting from these processes.

I utilize a post-positivist research framework, starting by formulating a speculative hypothesis that algal biomedica is capable of capturing carbon at an urban scale, followed by extensive practical research-creation periods, generating a vast spectrum of data and biomaterials deriving from the observation and interaction with living algae. If this data aligns with the speculative hypothesis, as it is the case with my algal research, I start a more data-driven scientific research, tracking sensory data changes through time by using verified scientific monitoring equipment, such as the Aranet4 CO₂ sensor.¹² This aims to verify the initial speculative hypothesis and confirm that the levels of CO₂ in the proximity of algal biomedica are significantly lower than in the atmosphere.

Additionally, I investigate peer-reviewed journal articles which examine new algal carbon-capture technologies, containing relevant data I cannot collect myself without proper scientific facilities and funding. I utilize secondary research to either dismiss or strengthen parts of my hypothesis and proceed to establish an informed paradigm that includes journal data, with a premise that this data can be applied to my research to a certain extent, as both the articles and my research involve the same species of algae, *Spirulina platensis*. I am constantly aware of my research limitations; this paradigm is not yet a verified scientific model.

However, my limitations also strengthen my research. In absence of proper equipment, I often have to improvise by using techniques and materials that would not be utilized in a proper scientific environment, leading to a series of accidental discoveries outside of traditional disciplines, such as discovering that algae also dissolve carbon in water, which can be solidified

¹² Aranet, “Aranet4,” accessed March 10, 2025, <https://pro.aranet.com/products/aranet4/>.

through low-voltage electrolysis, a biotechnology for which I received a patent in June 2024.¹³ Additionally, the electrolysis produces agar-agar gelatine powder as a residue material, which can be further mixed with water and dried to produce sculptures and algal canvases. I recently discovered that large canvases made from algal gelatine (such as the film projection screen included in the exhibition) can passively capture carbon while complementing living algae cultures in lowering CO₂ levels in closed environments. All the processes are performed on the remaining residue water after the algae have been moved into new habitats.

My latest data collection records below-average levels of CO₂ in my studio, gathered in the absence of humans and in the presence of algal biohabitats, containing two hundred liters of living algae cultures and a large dry algal canvas (80x60 inch). The CO₂ levels, measured by parts of carbon dioxide present in million units of air (ppm), have been registered at 393 ppm in January 2025 (see Fig. 1A), as opposed to 427.09 ppm present in the Earth's atmosphere registered by the National Oceanic and Atmospheric Administration (NOAA) in February 2025.¹⁴ During the Open Studio event at York University, more than seventy people visited my studio on January 31, 2025, where the peak CO₂ was registered at 674 ppm (see Fig. 1A). In comparison, similar CO₂ measuring device was used to register 4900 ppm at the History club in Toronto in 2024.¹⁵

¹³ Vladimir Kanic, "Methods and Systems of Forming a Bioconcrete," U.S. Provisional Patent No. P76223US00 (2024).

¹⁴ National Oceanic and Atmospheric Administration (NOAA), "Trends in Atmospheric Carbon Dioxide," NOAA Global Monitoring Laboratory, accessed March 10, 2025, <https://gml.noaa.gov/ccgg/trends/#:~:text=This%20is%20manifest%20in%20the,observations%20resumed%20in%20July%202023>.

¹⁵ RavenApp, "History 305-6170," accessed March 15, 2025, <https://www.ravenapp.org/a/history-305-6170>.

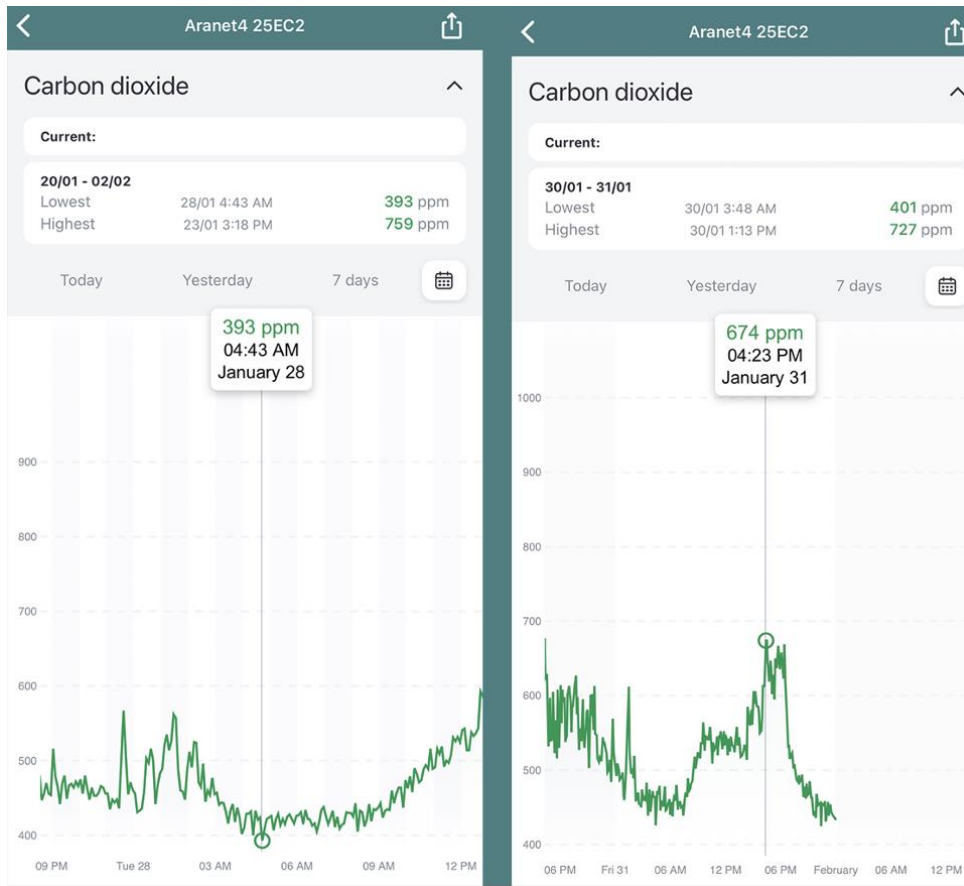


Figure 1A. *CO₂ Data Monitoring in My York Studio*, Vladimir Kanic, 2025.



Figure 1B. *Algal Canvas (Left) and Living Algae Biohabitats (Right)*, Vladimir Kanic, 2025.

My practice applies post-positivistic paradigms to posthumanist theory and decenters the human in relation to the research objects, subjects, and results. Including non-humans as collaborative research-creators encourages new knowledge production, improving our understanding of humanity and providing new ways for knowing the self and non-human self as interbeings.¹⁶ It also allows for the emergence of new materials that bring "close attention to what things do with us, not merely what they mean,"¹⁷ as is the case with my algal canvases that have passive carbon-capture capabilities and living algae biomedias that actively capture carbon.

¹⁶ Tom Anderson and Anniina Suominen Guyas, "Earth Education, Interbeing and Deep Ecology," *Studies in Art Education* 53, no. 3 (2012): 223–245, published November 25, 2015, <https://doi.org/10.1080/00393541.2012.11518865>.

¹⁷ Emily Jean Hood and Amelia M. Kraehe, "Creative Matter: New Materialism in Art Education Research, Teaching, and Learning," *Art Education* 70, no. 2 (February 23, 2017): 33, <https://doi.org/10.1080/00043125.2017.1274196>.

Chapter Three: Breathing as a Methodology of Hope

Section A: Interspecies Collaboration Through Breath

Creating sculptural work from/with living algae is defined by collaboration with non-human organisms, decentering human perspectives and “recognizing that non-human beings, including plants, animals, and ecosystems, possess inherent value and agency.”¹⁸ Jane Bennet, a philosophy scholar, writes about non-human agency in her book *Vibrant Matter: A Political Ecology of Things*.¹⁹ *Garden of Hope* is rooted in Bennett’s notion of “thing-power”,²⁰ instigating that non-living entities and objects possess vitality and force that exists outside human experiences.²¹ “Thing-power” can be seen as an effect produced by algal microorganisms emanating from molecules of water, particles of light, oxygen and carbon dioxide as they are all entangled “vibrant matters”, a biological assemblage of “thing-powers” distributed across ecosystems.²² As a human-independent force capable of affecting both individuals and their political systems,²³ “vibrant matter” constitutes radical hope on a molecular level, suggesting the possibility of positive, transformative action on life’s fundamental levels, where agency and resilience are co-created by humans, non-humans and non-living entities.

Agency is commonly defined as the capacity for intentional action, typically attributed to human beings.²⁴ However, according to Bennett, agency is more than just human capability; it involves non-humans, technologies, and other materialities that work together in “an agentic assemblage” to produce effects and outcomes.²⁵ My algal sculptures transform the exhibition site

¹⁸ Jane Tingley, “More-than-human Exhibition Guide,” Onsite Gallery, 2023, <https://www.ocadu.ca/event/more-than-human>. Accessed November 20, 2024.

¹⁹ Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).

²⁰ *Ibid.*, XVI.

²¹ *Ibid.*, XVI.

²² *Ibid.*, 24.

²³ *Ibid.*, 94-109.

²⁴ *Ibid.*, 29.

²⁵ *Ibid.*, 9.

into a living ecosystem through an entangled form of agency that extends to non-living entities such as oxygen, carbon dioxide, and water molecules. As spectators exhale carbon dioxide, this gas becomes an active participant in sustaining the life processes of the algae living in my sculptures. The algae convert carbon dioxide into oxygen in return, which re-enters the spectators' bodies through inhalation, sustaining human life. Carbon sequestered by algae further becomes a biomaterial for creating sculptures through a shared process across species, technologies and non-living materials. Additionally, while breathing, algae and humans exhale water vapor, which condensates on both sides of the world, human and non-human, materializing this interconnected agency into visible structures that integrate the biological and material processes into the artwork.

Section B: Breathing as a Methodology for Artmaking

My research proposes breathing as a methodological framework for exploring interconnected agencies and more-than-human entanglements in interspecies art practices. It conceptualizes respiration as a fundamental process that surpasses its biological function as an ethical and aesthetic practice that outlines theoretical approaches for creating interspecies art by examining how humans and non-humans utilize respiration to demonstrate interspecies relationality. The methodology offers a new collaborative and participatory art-making paradigm that responds to urgent socioecological concerns.

This framework emerged through the creation of *Garden of Hope*, where artistic, scientific, and technological approaches converge to grow living algal artworks. In practice, breathing becomes an interactive method of art creation that involves material processes (inhale/exhale, CO₂/O₂ exchange, carbon sequestration), environmental factors (breathing as a conduit for humidity, acidity, temperature, microbiome), soundscapes (breathing as rhythm,

language, music), all converging as a medium that connects humans, algae, non-living matter, and spectators within the shared ecosystem of the exhibition space, additionally attuning all interspecies bodies to the atmospheres of more-than-human worlds.

Section C: Attunement to Non-Human Worlds

“An atmosphere”²⁶ of a place pertains to a liminal space that exists at the intersection of human, non-human, and non-living worlds. In these places, “things matter not because of how they are represented but because they have qualities, rhythms, forces, relations, and movements.”²⁷ To enter the space of an atmosphere, one needs to attune, and reach outside themselves, through a process that German philosopher Martin Heidegger calls *worlding* – an intimate existence among gestures, senses, sounds, movements of air, temperature, lights and expectations of a moment (or the moment) that is not yet realized, but becoming.²⁸ In these spaces, breath is the gatekeeper, a universal force that opens, connects and creates new worlds.

Breathing is a movement of air that allows us to attune our bodies to an atmosphere and enter more-than-human worlds on a microscopic level. Breath maps the unseen and unknown, a negative space of living, existing in a permanent state of potentiality and flux. It disseminates the knowledge of our inner bodies through air currents and droplets of respired water. Furthermore, it shares our intimate microbiological histories with non-humans, who share in return –attunement by breathing is a symbiosis in waiting, a continuous act of becoming,²⁹ a direct sensory experience that situates humans on the threshold of communicating with more-than-human worlds. In more-than-human worlds, breathing becomes *breathing-with*, an

²⁶ Kathleen Stewart, "Atmospheric Attunements," *Environment and Planning D: Society and Space* 29, no. 3 (2011): 445-453, doi:10.1068/d10610.

²⁷ Ibid.

²⁸ Ibid.

²⁹ Jean-Thomas Tremblay, *Breathing Aesthetics* (Durham: Duke University Press, 2022), 96.

atmospheric attunement that embodies intersecting interspecies breaths into maps and portals to more-than-human worlds (see Fig. 2).



Figure 2. *Photograph of an Atmosphere Inside Algal Biohabitats*, Vladimir Kanic, 2025.

Section D: Breath as a Visual Archive of Presence

In cold spaces, breaths can be seen at once, and photographing multiple frozen breaths over a long period could trace the shape of breathing in a particular space. Accordingly, my biosculptures can be seen as a materialization of the negative space of breathing, a site of intermediality "where nothing joins and where a thing is neither this nor that nor even fully itself."³⁰

Breathing as a methodology for growing art dissolves the boundaries between the viewer and the viewed, the subject and object, and the body and its environment, as they are all interconnected, equal participants in the artmaking and art-viewing processes. This creates an immersive and haptic aesthetic that engages human viewers in an experience beyond the audiovisual, as organic, somatic, hope-bearing, reciprocal and proprioceptive. The accumulation

³⁰ Jean-Thomas Tremblay, *Breathing Aesthetics* (Durham: Duke University Press, 2022), 42.

of breaths becomes a way of sensing and knowing the world, embodied in biosculptures as archives of attunement, containing intuited memories of shared breathing spaces.³¹

Section E: Breathing as a Collective and Community-Based Practice

I invited numerous guests to my art studio at York University, where they participated in spontaneous breathing performances with the algae living in my sculptures and adjacent algal biohousing units. The visitors were aware of the scope of my practice, knowing that they would contribute to the project by breathing. These performances were embodied into new algal growth that translated their breath into new landscapes of breathing emerging on a community level as a form of collective creation. The spectators' breaths were recorded over six months in a long algal exposure that inscribed new topographies into the biomedical sculptural work.

The guests shared their breaths in various ways (breathing into the sculptures, talking to the algae, whistling, singing and similar), which created a sense of community, solidarity, and collective thinking in the studio. The act of breathing-with non-humans opened a space for rethinking human-non-human relationships while emerging as a methodological stance that propagates interspecies collaboration and radical hope.

³¹ Vladimir Kanic, "About the Artists," in *Entangled Dimensions: Art in the Age of Neural Media*, 2024, <https://www.torontomu.ca/creative-enterprise-hub/partners/future-makers/about-artists/#!accordion-1727875042450-vladimir-kanic--living-sculptures>.

Chapter Four: Aesthetics of Hope and Ecological Ethics

Section A: The Artist as Caretaker

Agnes Denes is a groundbreaking eco-artist whose interdisciplinary work resonates with my practice. She is best known for planting a two-acre wheatfield in downtown Manhattan as a part of her *Wheatfield: A Confrontation* (1982) artwork, which resulted in growing and harvesting a thousand pounds of wheat. Through her collaboration with wheat as a non-human entity, Denes positions the arts as “the integrator of disciplines” while redefining the role of an artist as a caretaker, tasked with “developing new visions for humanity” as a “scientific and technological seer.”³²

Denes’s *Wheatfield* imagines the aesthetics of hope, and they emerge from four months of wheat’s growth that contributed to the creation of unexpected urban communities. Residents of New York have developed an affection for Wheatfield’s wellbeing and were emotionally affected during its harvest as “many cried” and “stood around in sad silence”. Denes planted wheatberries as seeds of hope at the foot of the Wall Street, in response to vast global dilemmas, such as extreme air pollution crisis in New York and worldwide food crisis,³³ that ultimately saw one million people die from starvation in Ethiopia in 1983-85.

Denes extended the *Wheatfield* project by planning to plant three wheatfields in Moscow, Beijing and Washington, DC, as symbols of peace to counter the danger of the global thermonuclear war that loomed throughout the 1980s. Additionally, she suggested the creation of the most resilient strain of wheat that could grow in any soil, offering a global metaphor for hope and resilience. A new model of an artist emerged from Denes’ project, one who assumes

³² Agnes Denes and Klaus Ottmann, *The Human Argument: The Writings of Agnes Denes* (Putnam, CT: Spring Publications, 2008), 219.

³³ Theodore M. Vestal, “Famine in Ethiopia: Crisis of Many Dimensions,” *Africa Today* 32, no. 4 (1985): 7–28, <http://www.jstor.org/stable/4186321>.

responsibility for humanity by providing safeguards for all living systems, a caretaker that “enhances the present but also shapes the future.” Denes’ work resonates with my practice as it offers pragmatic solutions to complex global problems by creating eco-artworks that “plant hope and harvest peace” during critical times,³⁴ aligning with contemporary fears of a possible global apocalypse.³⁵ As a war survivor and caretaker of algae, I strive to add my contribution towards world peace, based on Denes’ experiences.

Section B: Interspecies Ethics in Biomedia

My collaborative work with algae is deeply rooted in the ethical development of algal cultures, where I act as an artist-collaborator and a caretaker for non-human organisms. I grow and farm algae microorganisms in my studio at York University and provide care they need for survival – salt for their habitats that prevents mold from destroying the cultures, light for their photosynthetic process that enhances their growth, periodical darkness that allows them to ‘sleep’ and restore their energy, carbon dioxide from my breath as their food, and heating during the wintertime, as they cannot survive sub-zero temperatures.

Algae periodically develop an organic carbon film made from sequestered carbon on the surface of their biohabitats. I remove the film to prevent the cultures from dying as it blocks the influx of light to their communities. The care is reciprocal in effect, and healthy algae develop vivid green hues and produce indefinite supplies of clean air and oxygen, benefiting my well-being in return. Our relationship goes beyond caretaking into collaborative artmaking, as I use the collected gelatinous algal film as a base material for my biosculptures. Furthermore, living

³⁴ Agnes Denes and Klaus Ottmann, *The Human Argument: The Writings of Agnes Denes* (Putnam, CT: Spring Publications, 2008), 165–195.

³⁵ Agnes Denes, *Another Confrontation*, CIRCA 20:22, last modified May 2022, <https://circa.art/exhibition/agnes-denes/>.

algae are an integral part of my exhibitions, and I introduce them to various human beings, hoping they are learning and attuning their electromagnetic senses to a possibility of future communication.

Once the algal film dries, it forms a solid structure that displays properties at the intersection of paper and glass, offering lightweightness, translucency and moderate strength as its material qualities. During the drying process, I begin wrapping the film into three-dimensional sculptural work, where the density of the material holds its shape once dried, without any armature or additional support. I usually use only one aluminum pole, set in the middle of a sculpture as the conduit for electrical wires that will power the artificial light, held in place by the algal biomaterial. All the algal sculptures have been made in this way, except the LACE hanging sculpture, which has three metal poles in its tentacles. Indented only as a temporary support while the material dries, they were left there because the biofilm dried too rapidly and integrated into the poles, making further separation of the two materials impossible.

By integrating care, my practice utilizes ecological ethics as a methodology that supports the inclusion of non-human entities into the ethical frameworks of research.³⁶ This approach is theorized by María Puig de la Bellacasa, an environmental humanities scholar, who situates thoughtful care as a speculative method of posthumanist research, extending agency beyond anthropocentric perspectives, aiming to include both human and non-human communities into "the living web of care."³⁷ Furthermore, the thoughtfulness of care I am disseminating is related to Bellacasa's "thinking with care" concept,³⁸ a mode of mindfulness toward more-than-human

³⁶ María, Puig de la Bellacasa. *Matters of Care: Speculative Ethics in More than Human Worlds*. University of Minnesota Press, 2017, 1-5, 217-220.

³⁷ Ibid., 120-122.

³⁸ Ibid., 210.

worlds, and a research method that gives a voice to agencies who cannot easily express their concerns, such as algae microorganisms.

Section C: Breathing-With as Ethics of Engagement

Social action can be inspired through thinking with care, a method complementary to breathing-with. As algae grow, they consume atmospheric carbon dioxide and dissolve it into oxygen and carbon, which is sequestered within their bodies as algal biomass³⁹. As spectators exhale carbon dioxide, they actively participate in acts of carbon capture and contribute to mitigating climate change. I ask audiences to be aware of the algal breath and to think with care while breathing, initiating empathy for non-humans, which has the potential of activating communities towards creating better futures in collaboration with algae.

The possibility of change is embedded within the rapid algal growth; sometimes, they nearly double in size daily,⁴⁰ and spectators can see that change happening in front of them. This becomes important once a spectator realizes they could be a part of a solution for the climate emergency, but only when working with other non-human and human actors, developing an awareness that creates ephemeral communities of breath. Most importantly, fresh oxygen produced by the sculptures reduces climate anxiety and opens a pathway to hope that could eventually lead to environmental action and create stronger and healthier communities. In this way, thoughtful breathing-with creates entangled webs of care across living species and is being extended into *breathing-with-care*.

³⁹ R.L. Chapman, “Algae: The World’s Most Important ‘Plants’—An Introduction,” *Mitigation and Adaptation Strategies for Global Change* 18 (2013): 11, <https://doi.org/10.1007/s11027-010-9255-9>.

⁴⁰ M. G. De Morais and J. A. Costa, “Biofixation of Carbon Dioxide by *Spirulina* sp. and *Scenedesmus obliquus* Cultivated in a Three-Stage Serial Tubular Photobioreactor,” *Journal of Biotechnology* 129, no. 3 (2007): 439–445, <https://doi.org/10.1016/j.jbiotec.2007.01.009>.

As an additional research-creation experiment, I have deployed breathing-with-care methodology in practice. As a part of my climate action talks, such as Ted X,⁴¹ I often ask the audience to take a deep breath before the talk as a method of attunement to themselves as individuals. Following the initial breath, I engage the audience in breathing and thinking-with-care by asking them to think about non-humans in the room who are also breathing, taking their breaths and converting them into oxygen. This guided breath-sharing practice develops an in-situ network of care, where the audience becomes aware and connected to more-than-human worlds. Interspecies collaboration and growth are the embodiment of the aesthetics of hope, in addition to the vividly green colour of the living algae, the smell of fresh oxygen, and the attunement of spectators to positive change emerging from algal biomedica, capable of solving real-world issues such as mitigation of carbon pollution.

⁴¹ Vladimir Kanic, “Unmasking The Art Of Breathing | Vladimir Kanic | TEDxSFU,” YouTube video, 14:03, March 4, 2024, https://www.youtube.com/watch?v=_0LD71L59_M.

Chapter Five: Garden of Hope: Exhibition as a Living Ecosystem

Section A: The Exhibition

This paper supports my thesis exhibition, *Garden of Hope*, which takes place at Abbozzo Gallery, located on the main floor of the 401 Richmond building in Toronto, from February 28 to March 29, 2025. Upon entering the gallery, spectators can see the space divided into multiple gallery rooms, each displaying a series of visually and conceptually related artworks (see Fig. 3A, Fig. 3B). The main gallery is a long room divided into two parts, hosting two series of artworks (see Fig. 3C). The portion of the main gallery to the right from the entrance hosts LACE interactive sculptural installation (see Fig. 3D), which includes a suspended sculpture, algae culture living in the tank below, an interactive video projection, a series of six photographs titled *Photosynthetic Archives I* (2025) (see Fig. 3E), and a series of five fine art prints titled *Photosynthetic Archives II* (2025) (see Fig. 3F), both displayed on the walls facing the central suspended sculpture. The portion of the gallery to the left displays *Everything That is Broken Can be Fixed (With a Needle and Thread* series (2025), comprising of six backlit wall pieces made from algal fibers and one freestanding carbon-capturing sculpture, *Book of Waves Pt200* (2023), which also incorporates living algae cultures (see Fig. 3G).



Figure 3A. *View from the Entrance to Abbozzo Gallery*, Natalie Logan, 2025.

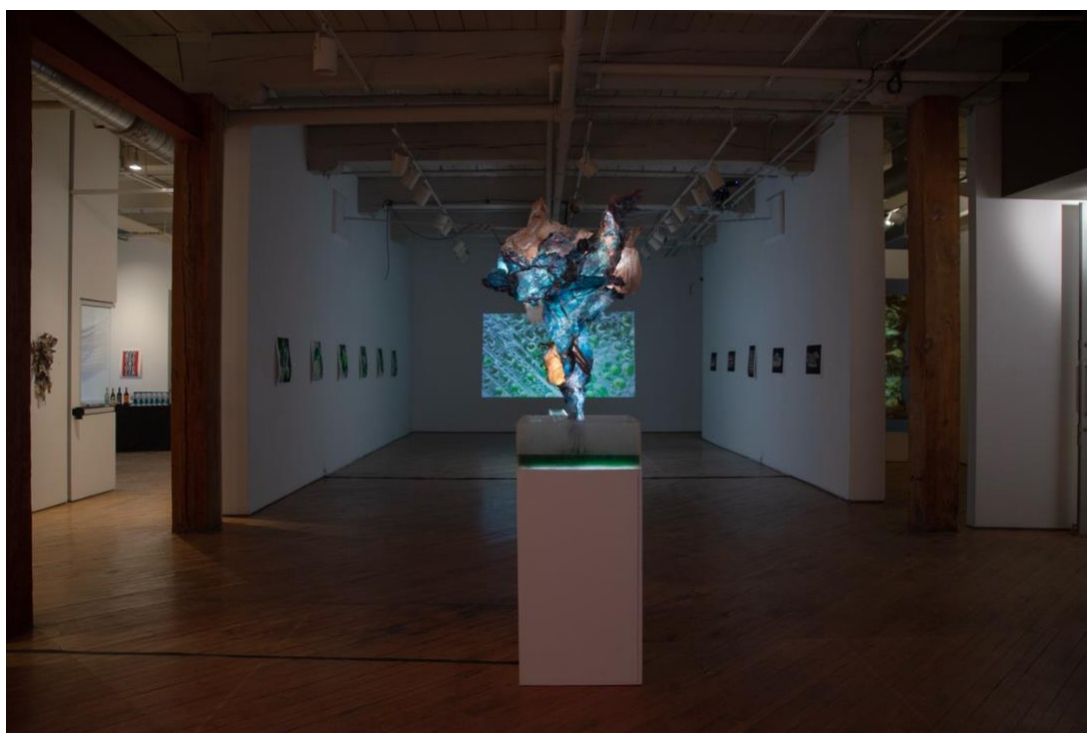


Figure 3B. *Multiple Rooms in the Gallery, Viewing Room, Part of the Main Floor and Projection Room Behind the Wooden Column (from Left to Right)*, Natalie Logan, 2025.

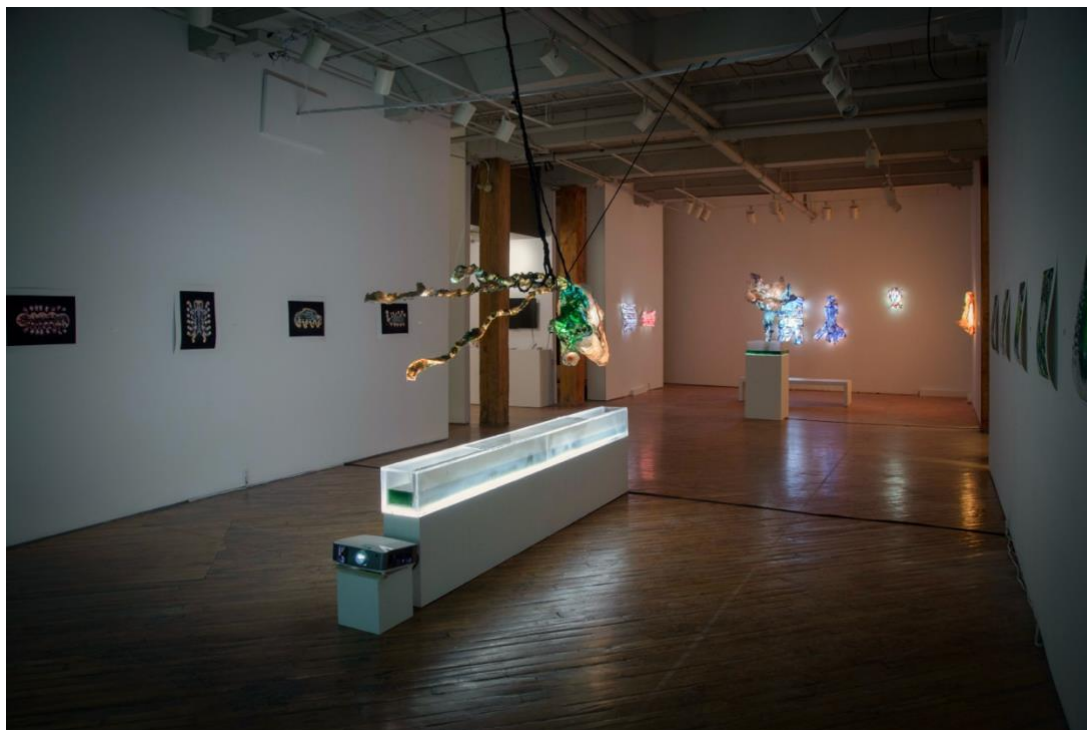


Figure 3C. *LACE Installation (Front) and Everything That is Broken Can be Fixed (With a Needle and Thread) Series (Back)*, Natalie Logan, 2025.



Figure 3D. *LACE Installation and Video Projection*, Natalie Logan, 2025.

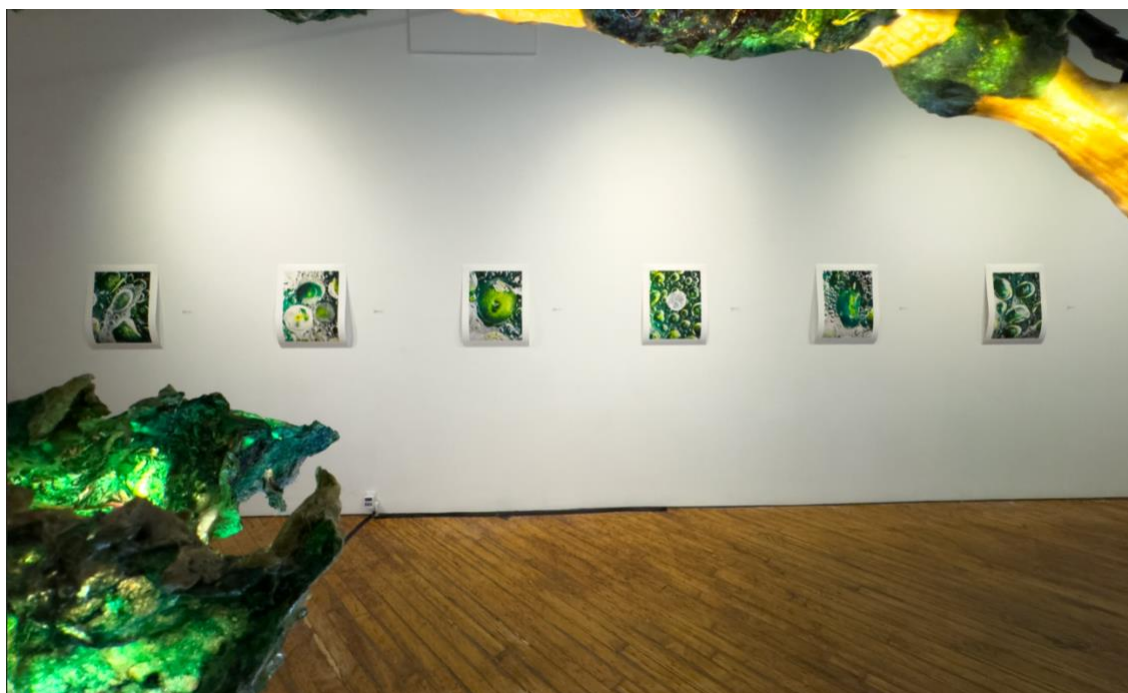


Figure 3E. *Photosynthetic Archives I*, Vladimir Kanic, 2025.



Figure 3F. *Photosynthetic Archives II*, Vladimir Kanic, 2025.



Figure 3G. *Everything That is Broken Can be Fixed (With a Needle and Thread) Series*, Natalie Logan, 2025.

The projection room is a portion of the gallery separated by a wall from the main gallery, located to the right of the LACE installation, featuring two entrances located at the ends of the separating wall. I divided this room in two halves with an artificial wall (see Fig. 3H), in order to be able to host two distinct series, *Future Tales of Long Ago* (2025) (see Fig. 3I, 3J), a series of nine fine art prints, and *Atmospheric Attunements* (2025), a photographic and cinematographic installation that includes nine original archival photos, eight derivative photos, a projection screen made from algal fibers, and an experimental film projection (see Fig. 3K).

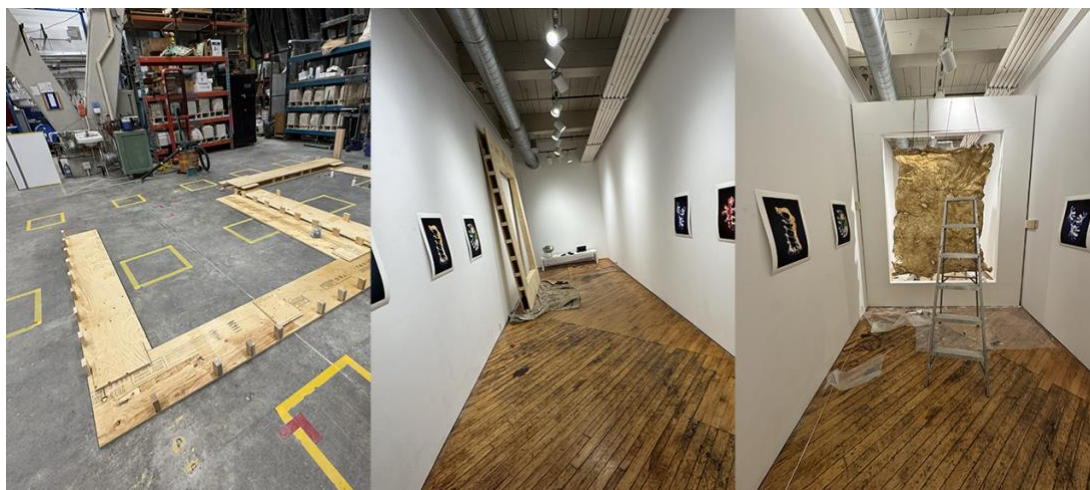


Figure 3H. *The Projection Room – Dividing the Room in Half*, Vladimir Kanic, 2025.

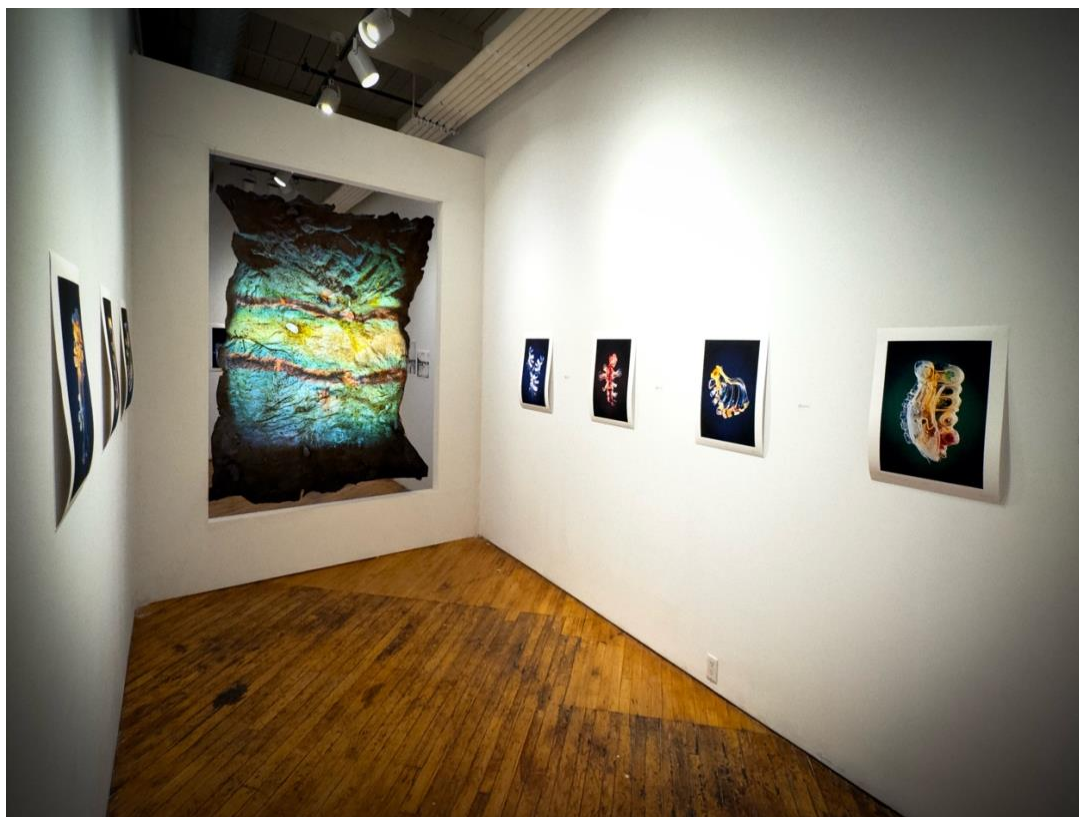


Figure 3I. *The Projection Room – Future Tales of Long Ago Series with the Algal Projection Screen Depicted as it Appears in the Dark*, Vladimir Kanic, 2025.

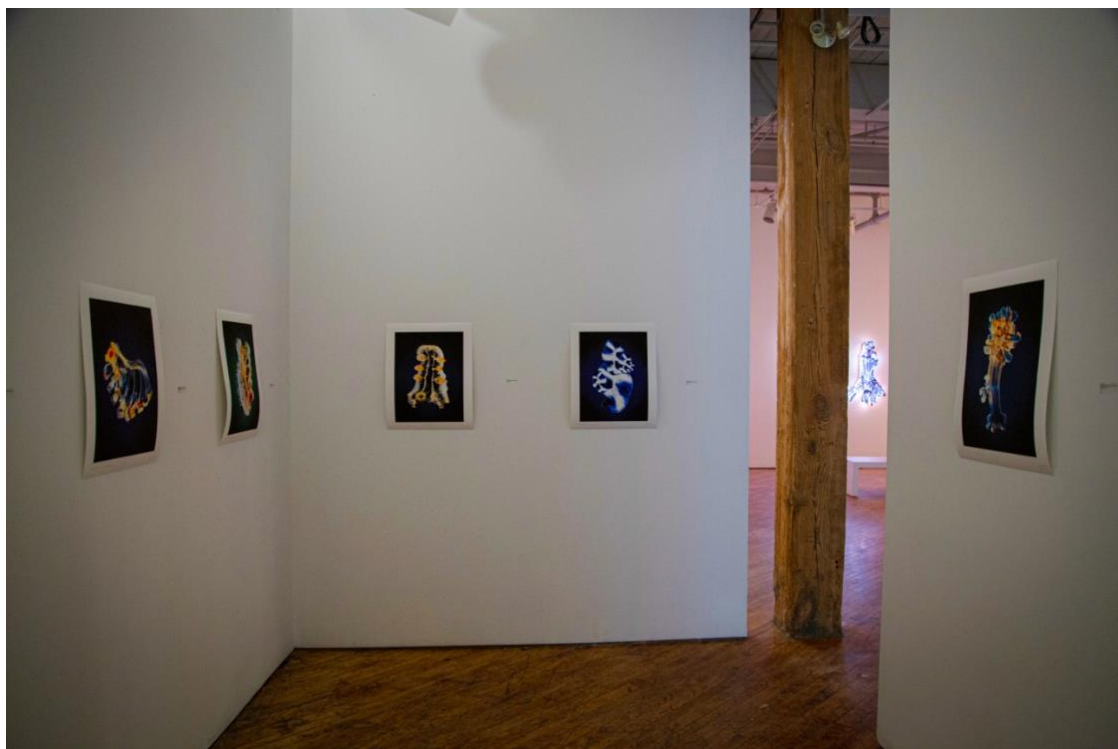


Figure 3J. *The Projection Room – Future Tales of Long Ago Series Overlooking the Main Gallery*, Natalie Logan, 2025.



Figure 3K. *The Projection Room – Atmospheric Attunements I*, Natalie Logan, 2025.

The viewing room is a located in the back of the gallery and hosts *There are Two/Dvi Su* quilt, made by my grandmother in 1946 (see Fig. 3L), and *Becoming Glasswort* (2025) series of seven fine art prints depicting derivative iterations of traditional Croatian textile patterns (see Fig. 3M). Older works titled *Book of Waves Part 10* (2022) and *Book of Waves Part 11* (2023) are also included, and these two smaller carbon-capturing sculptures accompany the textile works (see fig 3N). Finally, two wall sculptures are placed around the main desk area, a large *Garden of Hope* (2025) sculpture (see Fig. 3O) and *Everything That is Broken Can be Fixed (With a Needle and Thread) VII* sculpture (see Fig. 3P). These two sculptures are not yet backlit due to a lack of funding but will be in the foreseeable future.



Figure 3L. *The Viewing Room - There are Two/Dvi Su Quilt*, Natalie Logan, 2025.

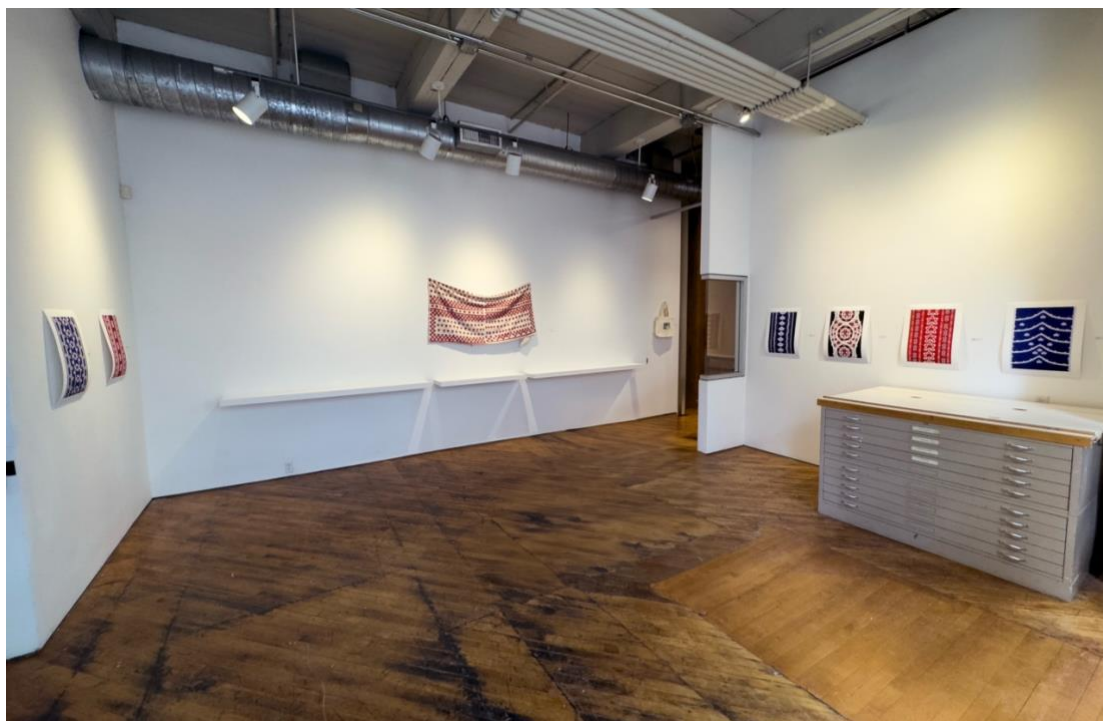


Figure 3M. *The Viewing Room – Becoming Glasswort and the Quilt*, Vladimir Kanic, 2025.

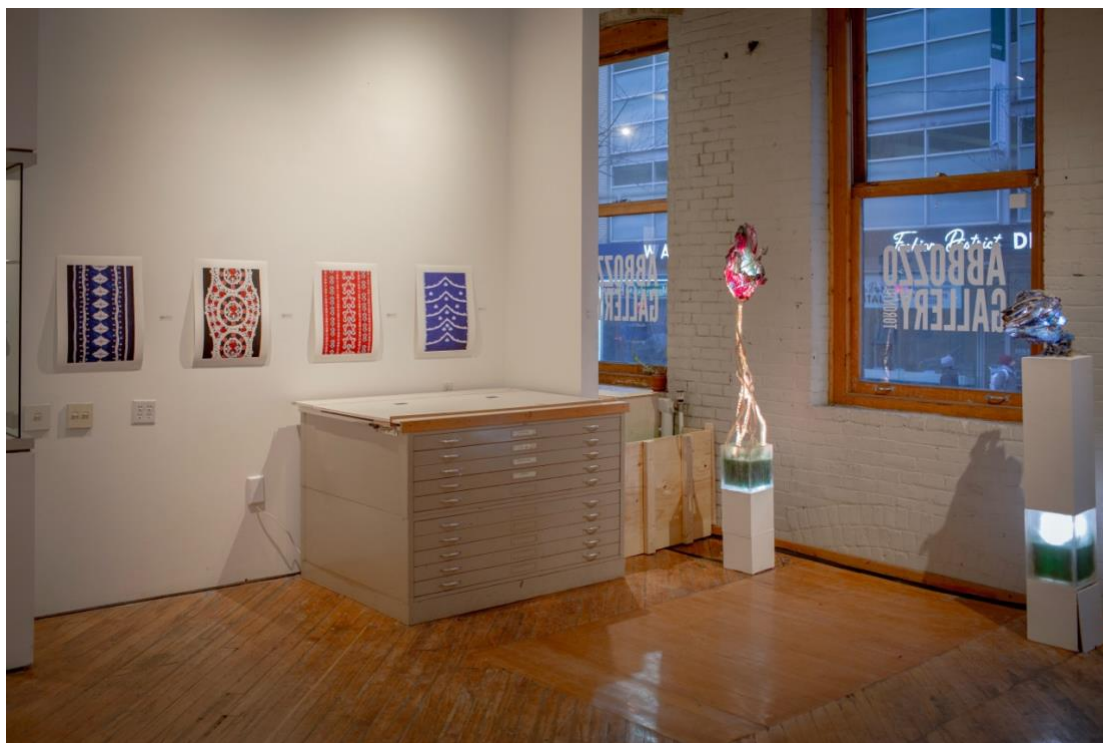


Figure 3N. *The Viewing Room – Becoming Glasswort and Living Algae Sculptures*, Natalie Logan, 2025.



Figure 3O. *The Main Desk Area – Garden of Hope Sculpture*, Natalie Logan, 2025.

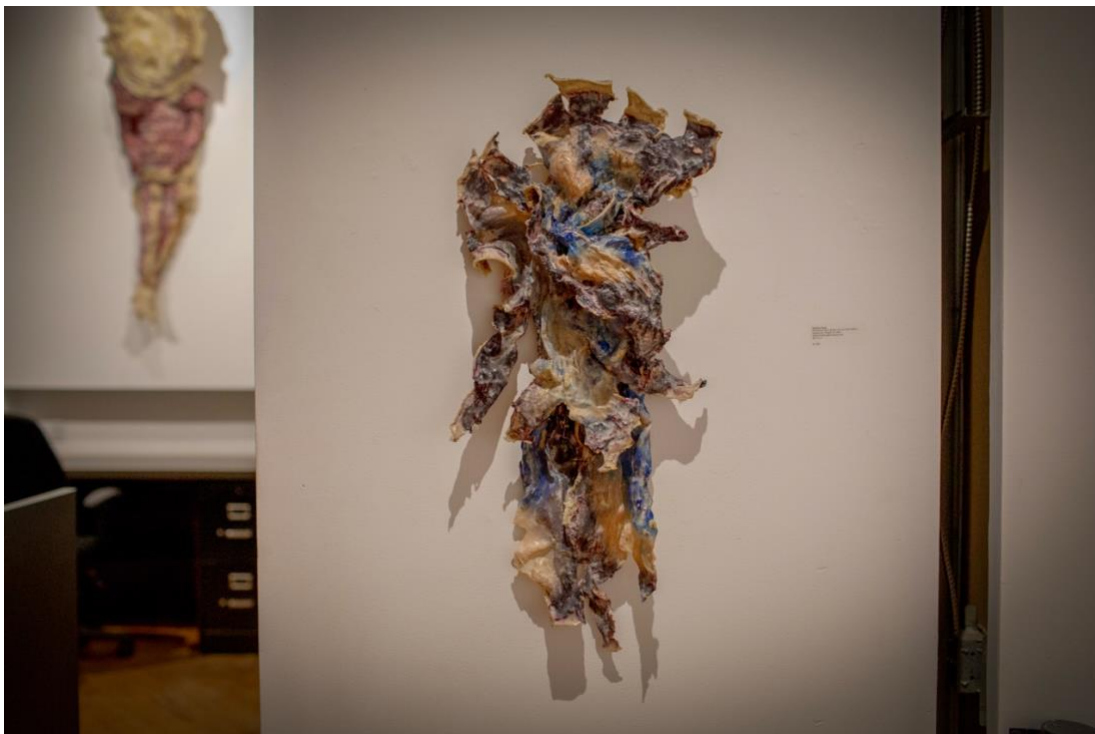


Figure 3P. *The Main Desk Area - Everything That is Broken Can be Fixed (With a Needle and Thread) VII*, Natalie Logan, 2025.

Section B: LACE (Living Algae Cyborg Ecosystem)

Inspired by the UNESCO-protected lacework of Pag, my ancestral island, and my grandmother's textile work, LACE (Living Algae Cyborg Ecosystem) (2025) extends beyond a carbon-capturing sculptural installation into an ecosystem that includes gallery space, living algae, spectators, suspended sculpture, interactive algal housing and water vapour, along with an interactive video projection and fine art prints that depict different modes of human to non-human communication. It embodies a philosophy of rhizomatic interconnectedness as a dynamic system of interrelated elements, where “any point of a rhizome can be connected to anything other,”⁴² allowing LACE to modify the ecosystem for and by itself while making original aesthetic reconfigurations to the artworks displayed in the system (see Fig. 4A, 4B).



Figure 4A. *LACE Carbon-Capturing Installation I*, Vladimir Kanic, 2025.

⁴² Gilles Deleuze and Felix Guattari, *A Thousand Plateaus* (London: Bloomsbury Academic, 2013), 4–7.

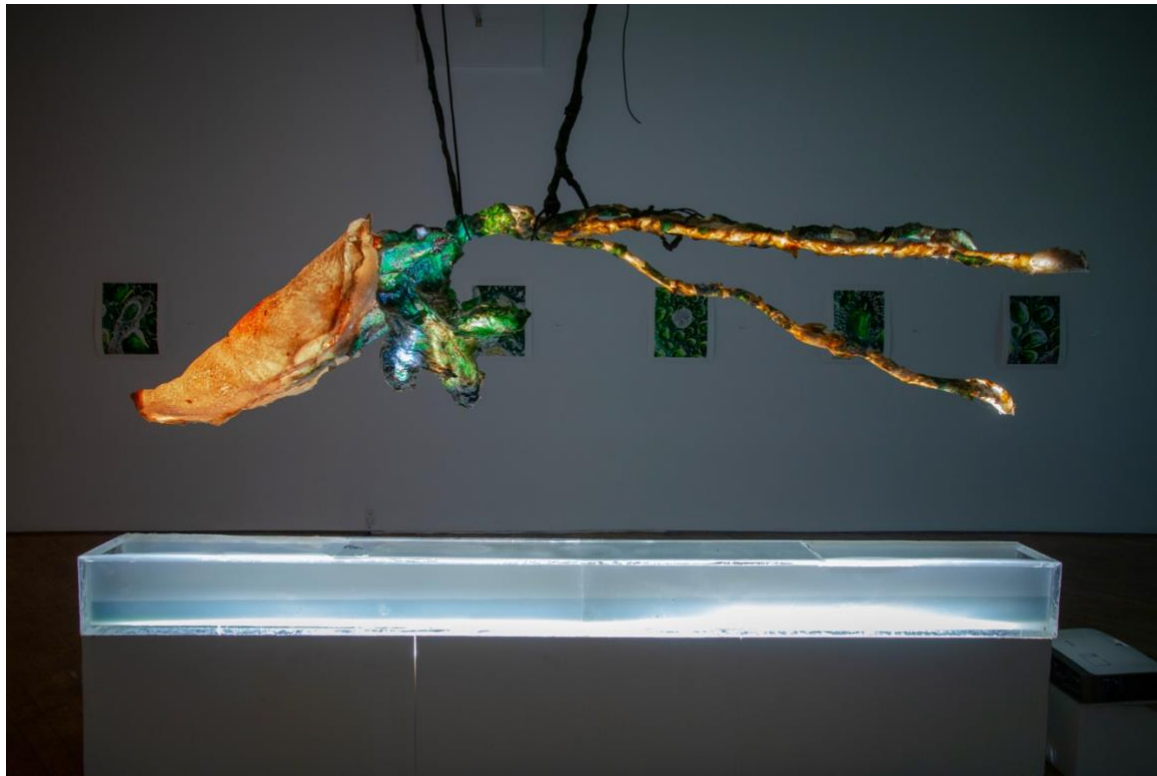


Figure 4B. *LACE Carbon-Capturing Installation II*, Natalie Logan, 2025.

LACE's ecosystem utilizes the methodologies of Hans Haacke's system aesthetics and his *Condensation Cube* (1963-1967), in which external conditions cause the water in a sealed cube to cyclically condense and evaporate, making invisible atmospheric processes tangible.⁴³ Like Haacke's self-regulating systems, where "invisible parts, share equal importance with things seen,"⁴⁴ LACE adds to its materiality, extending invisible condensation, respiration, and water vapour exchange processes into a sculptural form. Below LACE's suspended sculpture, a large tank filled with algae reveals rhizomatic condensation forming on its surface over time.

⁴³ "Condensation Cube, 1963-1967: Hans Haacke: Macba." Hans Haacke Condensation Cube. Accessed February 2, 2025. <https://www.macba.cat/en/obra/r1523-condensation-cube/>.

⁴⁴ Jack Burnham, "Systems Esthetics," *Artforum* 7, no. 1 (1968): 5, https://www.professores.uff.br/ricardobasbaum/wp-content/uploads/sites/164/2019/04/2a_Burham-Systems-Esthetics.pdf.

New algal life is born within condensed droplets as an organic emergence visible to spectators who influence algal growth and formations through their exhaled CO₂ (see Fig. 4C).



Figure 4C. *LACE Condensation on the Algal Tank*, Vladimir Kanic, 2025.

Additionally, a CO₂ sensor controls the speed of LACE's video projection, making the levels of CO₂ in the exhibition space visible. Reduced CO₂ levels cause the algae to grow slower and simultaneously slow down the projection, while increased respiration through human presence and interaction accelerates the visualization. As viewers breathe, their presence alters the ecosystem, and algae respond by growing, moving, and exhaling oxygen in a space where practicing breathing-with methodology creates interspecies dialogue and collaborative artwork. Like Haacke's *Condensation Cube*, where water vapor marks invisible atmospheric shifts, LACE renders the CO₂ levels visible by building a relationship between the projection and

condensation, CO₂ and O₂, humans and non-humans (see Fig. 4D). I have been exploring utilization of CO₂ sensors in art since 2021, when I created my first project that composes music and animates lights based on the exchange of gasses between humans and non-humans.⁴⁵ LACE's CO₂ sensory programming has been developed in collaboration with Ryan Kelln, a prominent software engineer and AI researcher based in Toronto.



Figure 4D. *LACE CO₂ Controlled Projection*, Natalie Logan, 2025.

LACE also embodies the principles of radical hope and methodologies of care. Its suspended form is based on a sculpture destroyed beyond repair during a previous exhibition.

⁴⁵ Vladimir Kanic, *Inversed Lungs Orchestra*, Vimeo video, 9:16, April 2021, <https://vimeo.com/533126320>.

Radical hope “anticipates a good” without comprehending the means to achieve that good.⁴⁶

Deployed as an integral part of my praxis, the outcome of the impossible repair was a new original sculpture whose qualities surpassed the original. The ruptures, holes and fixes are intentionally not hidden; they are signs of care, intended to convey the possibilities of healing and transformation to the audience (see Fig 4E).



Figure 4E. *LACE In the Background of the Exhibition*, Vladimir Kanic, 2025.

⁴⁶ Jonathan Lear, *Radical Hope: Ethics in the Face of Cultural Devastation* (Cambridge, MA: Harvard University Press, 2006), 70.

Section C: The Alganese Language

LACE's ecosystem expands into two *Photosynthetic Archives* (2025), a series of photos displayed on adjacent walls. The first archive depicts macro photographs of newly born algae taken in my studio, where algae look almost like they are posing for family album photographs, positioning themselves as non-human generational knowledge carriers. During my research-creation of algal communities, I collected vast sets of visual information on bubble-like algal patterns and situated them into my post-positivistic research framework, formulating a speculative hypothesis that the configurations of bubbles containing living algae and CO₂ and O₂ molecules represents a complex geological language that could be deciphered by using machine learning and artificial intelligence systems (see Fig.5A).

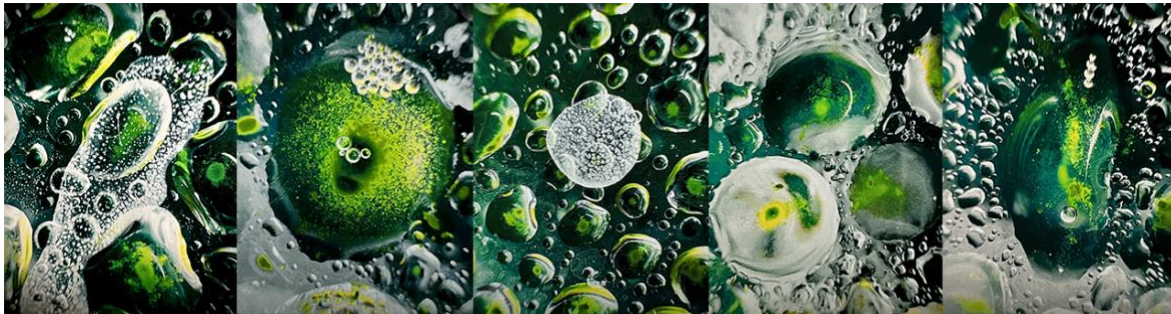


Figure 5A. *LACE Effervescent Alganese Language*, Vladimir Kanic, 2025.

In his book *The World Computer*, media theorist Jonathan Beller delivers a vision of the world that operates as a computer, and where human and non-human entities are perceived as instances of computer code, running as software within a vast planetary supercomputer. He elaborates their computation potential, stating that “altering the states of matter by means of concepts embedded in states of matter” could be perceived as organic (biosoftware)

programing.⁴⁷ Beller's theories are relevant to my research, as algal photographic archives could be perceived as computational sequences, and algal metabolism as an act of computational abstraction that utilizes matter, light, and gas as encoded signals to pass planetary-scale information through photosynthesis, respiration, and reproduction. Decoding this language is imperative for solving the pending climate crisis, as understanding non-human languages could open new pathways to capturing carbon and transforming it into materials that could replace two carbon-heavy industries: construction and textiles.

Artificial intelligence is capable of inventing and translating complex new languages.⁴⁸ Using machine learning and collected large data sets on algal effervescence, I have researched and developed a speculative algal language, *Alganese*, along with an initial version of algal writing system, based on the petrification of captured carbon, depicted in the second part of the *Photosynthetic Archives*, a fine art prints series displayed on a gallery wall⁴⁹ facing the algal macro photographs. These Algal Tablets are non-human representations of the Rosetta Stone, intended to start research into understanding geological planetary language (see Fig. 5B, 5C).

⁴⁷ Jonathan Beller, *The World Computer: Derivative Conditions of Racial Capitalism* (Durham: Duke University Press, 2022), 56–60.

⁴⁸ K. Allado-McDowell. *Pharmako-AI*. London: Ignota Books, 2020.

⁴⁹ Vladimir Kanic, *Garden of Hope* (exhibition at Abbozzo Gallery, Toronto, February 28–March 31, 2025).



Figure 5B. *LACE Alganese Language Dialects Written on Algal Tablets*, Vladimir Kanic, 2025.

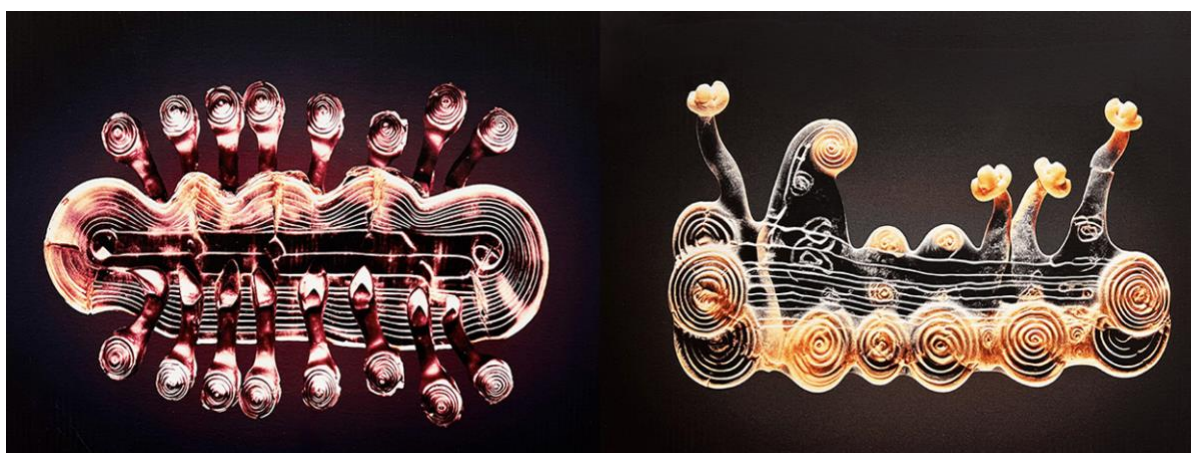


Figure 5C. *LACE Alganese Language Dialects Written on Algal Tablets*, Vladimir Kanic, 2025.

This project aims to eventually transform LACE into a posthuman ecological consciousness capable of conversing with humans through AI mediation. It embodies science philosopher Donna Haraway's vision of the cyborg, which breaks down the boundaries between humans, non-humans, and machines.⁵⁰ Reframing algae from undesired microorganisms into ancestral beings extends the notions of radical hope to more-than-human worlds by remembering, translating, and collaborating with non-human histories.

⁵⁰ Donna J. Haraway, *Manifestly Haraway* (Minneapolis: University of Minnesota Press, 2016), 5-8.

Section D: Carbon Footprint of AI Image Models

Using artificial intelligence and machine learning (ML) models raises plausible concerns regarding the carbon footprint created by computers running AI/ML software. According to MIT Technology Review, “generating 1,000 images with a powerful AI model, such as Stable Diffusion XL”⁵¹ is equivalent to driving “4.1 miles in an average gasoline-powered car”, producing approximatively 1640 grams of carbon dioxide.⁵² However, in comparison to a human illustrator, a similar AI model, Midjourney, emits approximately “2900 times less CO₂ than a human artist based in U.S.”, working for an average of 3.2 hours on a single commercial illustration, emitting roughly 5.5 kg of CO₂.⁵³

I utilized multiple AI/ML models during my research of the algal language and generated a maximum of two thousand images (using original source content only), producing approximately 3280 grams of CO₂. In comparison, *Garden of Hope* contains 100 liters of algal cultures in four sculptures, capable of doubling every 1.58 days,⁵⁴ and capturing 0.92 grams of carbon per liter daily,⁵⁵ bringing the exhibition’s maximum carbon offset capacity to 1.6 kg per day and 51.2 kg per exhibition. However, this calculation does not consider the exponential growth of algae. Under the assumption of approximately 50% daily growth, and a moderate carbon capture capacity of 0.5 grams per liter per day, the one hundred liters of algal cultures

⁵¹ Melissa Heikkilä, “Making an Image with Generative AI Uses as Much Energy as Charging Your Phone,” *MIT Technology Review*, December 1, 2023, accessed March 11, 2025, <https://www.technologyreview.com/2023/12/01/1084189/making-an-image-with-generative-ai-uses-as-much-energy-as-charging-your-phone/>.

⁵² U.S. Environmental Protection Agency (EPA), “Greenhouse Gas Emissions from a Typical Passenger Vehicle,” accessed March 11, 2025, <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#:~:text=Visit%20fuel%20economy.gov%20for%20more,of%20CO2%20per%20mile>.

⁵³ Bill Tomlinson et al., “The Carbon Emissions of Writing and Illustrating Are Lower for AI than for Humans,” *Scientific Reports* 14, no. 3732 (2024): 1–8, <https://doi.org/10.1038/s41598-024-54271-x>.

⁵⁴ W. Y. Cheah et al., “Biosequestration of Atmospheric CO₂ and Flue Gas-Containing CO₂ by Microalgae,” *Bioresource Technology* 184 (2015): 190–201, <https://doi.org/10.1016/j.biortech.2014.11.026>.

⁵⁵ M. G. De Moraes and J. A. Costa, “Biofixation of Carbon Dioxide by *Spirulina* sp. and *Scenedesmus obliquus* Cultivated in a Three-Stage Serial Tubular Photobioreactor,” *Journal of Biotechnology* 129, no. 3 (2007): 439–445, <https://doi.org/10.1016/j.jbiotec.2007.01.009>.

could capture roughly 256.85 kilograms of CO₂ in total during 32 days of the exhibition, significantly surpassing the carbon footprint produced by my utilization of AI/ML models.

Chapter Six: Material Innovation: Rhizomatic Textiles

Section A: Everything That is Broken Can be Fixed (With a Needle and Thread)

Tim Ingold, a British anthropologist, defines making as an ongoing engagement with materials, where forces, histories, and disciplines converge unpredictably, challenging the conventional way of creating with a predetermined plan while proposing a process of continuous discovery instead.⁵⁶ This exploratory approach aligns with my methodology of intuitive artmaking, where I allow the materials to merge and emerge through research-creation into unplanned forms and shapes, such as the new sculptural textiles series *Everything That is Broken Can be Fixed (With a Needle and Thread)* (2025) (see Fig. 6A-6E). This series is a transdisciplinary integration of biomedica, glassmaking, printmaking and textile work, aiming to define how materials can act as resilient agents of repair while grounding radical hope into a material form.



Figure 6A. *Everything That is Broken Can be Fixed (With a Needle and Thread) VI*, Vladimir Kanic, 2025.

⁵⁶ Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (London: Routledge, 2013), 22-24, 115.



Figure 6B. *Everything That is Broken Can be Fixed (With a Needle and Thread) VI – II*, Natalie Logan, 2025.

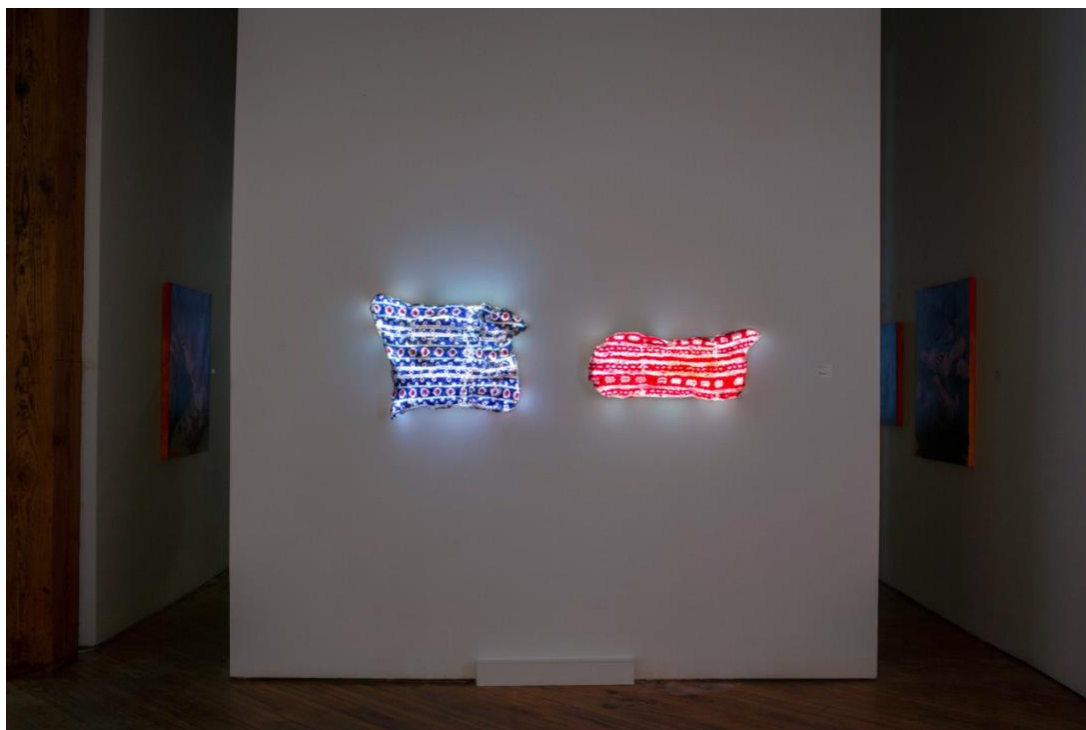


Figure 6C. *Everything That is Broken Can be Fixed (With a Needle and Thread) I & II – I*, Natalie Logan, 2025.



Figure 6D. *Everything That is Broken Can be Fixed (With a Needle and Thread) I & II – II*, Natalie Logan, 2025.

Ingold is also a proponent of an "anti-disciplinary" approach to making; by merging anthropology, archaeology, art, and architecture, he pursues knowledge by engaging with materials outside of traditional academic discourse.⁵⁷ Similarly, my transdisciplinary practice rejects the confinements of a single discipline and merges processes and materials from visual art, biology, material sciences, ecology, environmental and earth sciences, anthropology, geology, linguistics, computer sciences, hardware architecture, electro-mechanical engineering, critical theory and philosophy, literature and cultural studies. I named this material practice *Rhizomatic Textiles*, as it does not operate as a singular artistic practice but as a convergence of multiple material disciplines, where each informs and transforms the other (see Fig. 6E). Rhizomatic textiles reject single mode of pre-planned creation, and embrace multiplicity,

⁵⁷ Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (London: Routledge, 2013), 10-12.

heterogeneity, and decentralized connections stemming from chance, repetition and mutation of both the material and disciplinary knowledge, mimicking algal rhizomatic communities.



Figure 6E. *Rhizomatic Textiles Process I*, Vladimir Kanic, 2025.

Radical hope is essential to the practice of creating rhizomatic textiles, as they utilize fibers made from carbon captured by algae, which are prone to breaking and cracking and require constant care and mending, often being broken beyond visible hope for repair. The repaired fractures are intentionally left visible as a sort of residual material memory that reinforces resilience within the repairer or observer. Although similar to the Japanese practice of kintsugi, where broken ceramic objects are repaired with golden sutures, left visible as a metaphor for “repairing mind, body and the spirit”,⁵⁸ rhizomatic textiles draw from Eastern

⁵⁸ Hinata Kobayashi, *Kintsugi: The Japanese Art of Repairing the Body, Mind and Spirit: Golden Joinery Lifestyle* (n.p.: Golden Joinery, 2020), 1-20.

European and Croatian repair mentality caused by millennia of wars, regime changes and poverty, where uneven sutures in textiles and clothing were left visible for pragmatical reasons and lack of resources.

In comparison to kintsugi, an art form that displays resilience and the wealth of repairer who has access to gold powder, my Eastern European iteration embodies the resilience of an ordinary person faced with insurmountable circumstances, such as world wars and multiethnic conflicts, who repairs everything with resources they have at their disposal, practicing the art of real life. This repair practice is embedded in the biomaterial utilized to create rhizomatic textiles, one that hosts millions of physical forces that are keeping it in place, which give it an agency resonating with Ingold's views of materials as collaborators which guide the process of creation (see Fig 6F, 6G).⁵⁹

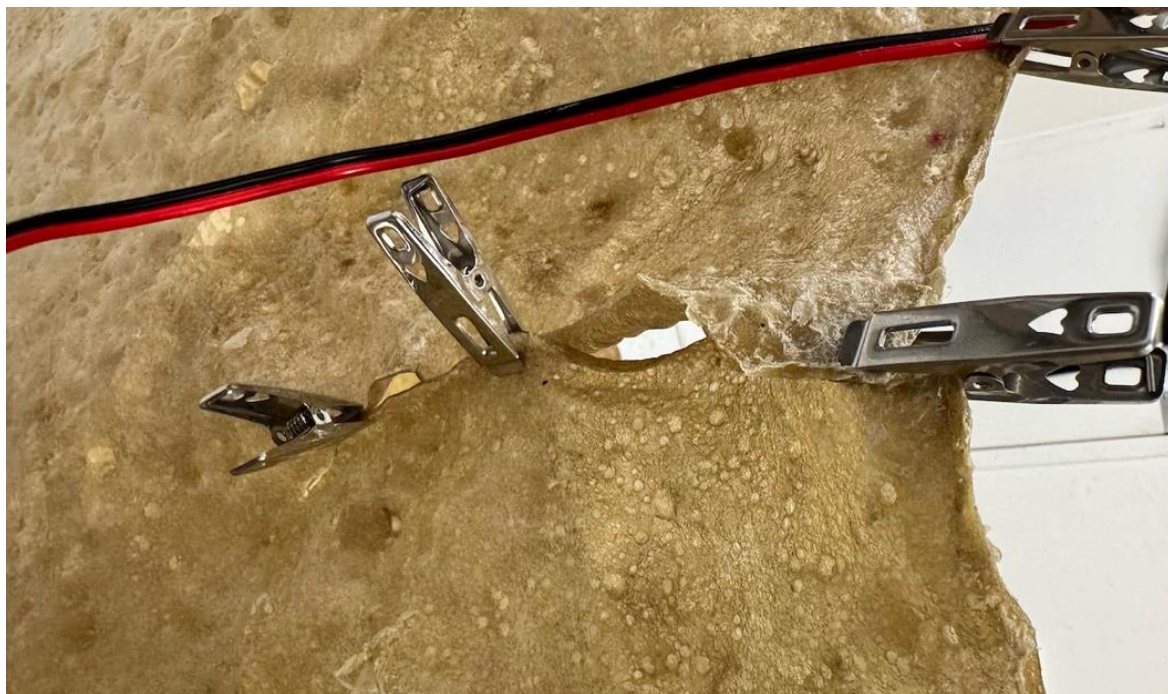


Figure 6F. *Rhizomatic Textiles Process II – Ruptures*, Vladimir Kanic, 2025.

⁵⁹ Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (London: Routledge, 2013), 30.



Figure 6G. *Rhizomatic Textiles Process III – Raw Canvas*, Vladimir Kanic, 2025.

Once the algal fibers are dried and assembled into a canvas-like structure, printmaking emerges as the next method in the fabrication of *Rhizomatic Textiles* and merges techniques of image transfer, hand-painting and integration of artificial light, all activating the glass-like properties of the material. Various repetitive printed motifs are transferred to the front side of the fibers via special photo transfer paper (see Fig. 6H), while the back side is hand-painted with glass vitrail paint, mimicking the most prominent reverse painting technique in Croatian Naïve Art (see Fig. 6I).⁶⁰ Two tinted sides are separated by a layer of translucent algal fibers, creating optical depth within the material, which is now ready to distribute light into the exhibition space.

⁶⁰ “Croatian Naïve Art.” Studio Generalic, February 8, 2024. <https://www.generalic.com/technique/>.



Figure 6H. *Rhizomatic Textiles Process – Print Transfer*, Vladimir Kanic, 2025.



Figure 6I. *Rhizomatic Textiles Process – Reverse Hand-Painting with Vitrail*, Vladimir Kanic, 2025.

When backlit with artificial light strips sewn into the sculptural base and hidden below the algal fiber canvas (see Fig. 6J), *Rhizomatic Textiles* become sculptural iterations of stained-glass windows, which have historically acted as portals to spiritual realms and means of symbolic storytelling.⁶¹ Light that passes through three tinted layers of material (print, algal fibers and glass paint) reveals abstract motifs (some from my late grandmother's quilt), illuminates healed fractures and acts as a carrier of knowledge that bridges past craft traditions and future material possibilities (see Fig. 6K). The title of this series illuminates my grandmother's life philosophy: *everything broken can be mended with a needle and thread* and extends the exhibition's broader inquiry into how art can serve as a site for ecological (art made from captured carbon), cultural (revival of lost textile techniques) and personal regeneration (intergenerational collaboration with my late grandmother).



Figure 6J. *Rhizomatic Textiles Process – Backlights*, Vladimir Kanic, 2025.

⁶¹ Anne F. Harris, *Stained Glass Window as Thing: Heidegger, the Shoemaker Panels, and the Commercial and Spiritual Economies of Chartres Cathedral in the 13th Century*, *Different Visions: A Journal of New Perspectives on Medieval Art*, no. 1 (September 2008): 18.



Figure 6K. *Rhizomatic Textiles Process – Exhibited Work*, Vladimir Kanic, 2025.

Section B: Becoming Glasswort / The Essence of Rhizomatic Textiles

In *Braiding Sweetgrass*, Robin Wall Kimmerer describes plants as “our oldest teachers”⁶² who can offer wisdom and guidance to humans who “have the least experience with how to live.”⁶³ Like sweetgrass, which thrives by connecting to land and community, the glasswort plant thrives in the hostile salt marshes of my ancestral island while being essential for the ecosystem, providing fertile ground for agriculture and the growth of other species. Glasswort also bears cultural memory, as it was used in Croatian centuries-long glassmaking traditions, preserved in thousands of artifacts on display at the maritime museum of glass.⁶⁴ By taking care of glasswort,

⁶² Robin Wall Kimmerer, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (Minneapolis: Milkweed Editions, 2013), 220.

⁶³ *Ibid.*, 21.

⁶⁴ Museum of Ancient Glass Zadar, “About the Museum,” accessed Feb 2, 2025, <https://www.mas-zadar.hr>.

we enforce resilience that stems from the land and offers lessons in survival in harsh environments that strengthen interspecies and intergenerational collaboration.

To *become glasswort* is to embrace the art of adaptation and transformation as the plant does not resist its saline surroundings but instead metabolizes them, creating the conditions for new life. Cultural inheritance is similar, always in a state of Heraclitean flux, adapting and shifting as it moves through generations. This series adopts this ideology and transforms motifs from my late grandmother's quilts into new cultural artifacts, fine art prints that resist the erasure of time while providing blueprints for future artworks (see Fig. 7A, 7B). Extending this vision, two *Becoming Glasswort* prints have been translated into glass-like *Rhizomatic Textiles*, honouring the plant's glassmaking heritage while also reinventing its future (see Fig. 7C). By merging ancestral practices with new materials and artmaking processes, "the textile and technology codify the practices of female ancestors and become the medium for the transmission of feminine spiritual practice," situating futurism as an effective mode of resistance to erasure.⁶⁵



Figure 7A. *Becoming Glasswort – Various Fine Art Prints I*, Vladimir Kanic, 2025.

⁶⁵ Marissa Largo and Fritz Pino, "Piña, Why Is the Sky Blue? Crafting Cyber Transfeminist and Filipinx Futurisms through Creative Technologies," *Asian Diasporic Visual Cultures and the Americas* 8 (2022): 293, published online January 18, 2024.



Figure 7B. *Becoming Glasswort – Various Fine Art Prints II*, Vladimir Kanic, 2025.



Figure 7C. *Becoming Glasswort and Rhizomatic Textiles – Translation*, Natalie Logan / Vladimir Kanic, 2025.

Section C: There Are Two / The Roots of Becoming Glasswort

The roots of *Becoming Glasswort* are nested in my grandmother's abstract quilt, hand-stitched on a linen canvas woven by my grandfather in 1946 (see Fig. 8A). Titled *There Are Two / Dvi Su*, the quilt draws from the Croatian concept of *fjaka*,⁶⁶ a state of mindful stillness reflected in its name, stemming from a very local maritime proverb: "There are two options - either we catch the fish, or we don't." This pragmatic approach to life is reflected in the quilt's motifs, seaweed, boats, and waves that accentuate the bond between the islanders and water (see Fig. 8B). This rare quilt preserves a nearly forgotten Croatian embroidery technique that interweaves odd and even elements to create a precise yet organic symmetry, through knowledge passed down verbally, first to my mother and now to me.

The quilt connects weaving with oral storytelling, where words are equal to threads, aiming to transmit, preserve and evolve knowledge by utilizing new technologies and material cultures such as biomedias and rhizomatic textiles. The threads are *fiber-mnemonic*,⁶⁷ capable of long-distance data transmission between generations and cultures, life and death, similar to fiber-optic cables that use light to create decentralized high-speed computer networks. These ideas resonate with Marissa Largo and Fritz Pino's writings about the etymological connection between text, textile, and technology, as they are all rooted in the Latin word 'texere,' which translates into 'to weave' or 'to fabricate.'⁶⁸ Similarly, the Latin word 'contextus' means 'interwoven', 'continuous' and 'unbroken', depicting an ongoing process of connectivity which is actively creating a network; therefore, fiber-mnemonic threads are also contextual, in a way that

⁶⁶ Kristin Vukovic, "Dalmatia's Fjaka State of Mind," *BBC News*, February 25, 2022. Accessed March 1, 2025. <https://www.bbc.com/travel/article/20180118-dalmatias-fjaka-state-of-mind>.

⁶⁷ An original term created by Vladimir Kanic.

⁶⁸ Marissa Largo and Fritz Pino, "Piña, Why Is the Sky Blue? Crafting Cyber Transfeminist and Filipinx Futurisms through Creative Technologies," *Asian Diasporic Visual Cultures and the Americas* 8 (2022): 292, published online January 18, 2024.

both precedes and supersedes the creation of transgenerational knowledge, and where storytelling emerges from my grandmother's fibres into my iterations of her work, embodied within *Rhizomatic Textiles* and *Becoming Glasswort* series.



Figure 8A. *There Are Two / Dvi Su Quilt*, Vladimir Kanic, 2025.



Figure 8B. *There Are Two / Dvi Su Quilt Detail*, Vladimir Kanic, 2025.

Chapter Seven: Future Tales of Long Ago: World-building and Mythology

Section A: Mythology as an Ecological Archive

“How might we rescue the future from the grips of planetary negativity, capitalist longtermism, and generalized catastrophism?”⁶⁹ The series *Future Tales of Long Ago* intertwines oral traditions, ecological thinking, and speculative world-building to explore supernatural beings from ancient Croatian folklore that once acted as protectors of nature and humanity (see Fig. 9A, 9B), as recounted in my grandmother’s stories, often told in the darkness of the bomb shelters. Similar to Indigenous storytelling traditions worldwide, these oral narratives have been passed down for generations. Drawing from Anna Tsing’s theorizing on *matsutake* mushrooms, these stories are growing from the ruins of abandoned pasts to “encourage cultural revitalizations”.⁷⁰ This series further engages into an art practice of *fictioning*,⁷¹ a method that combines myth, history and speculation that counter mourning of losses with radical hope.



Figure 9A. *Future Tales of Long Ago - Vodan, Svarog and Lada Prints*, Vladimir Kanic, 2025.

⁶⁹ “Radical Futurisms: Ecologies of Collapse / Chronopolitics / Justice-to-Come - Matters of Activity.” Matters of Activity Image Space Material, September 17, 2023. <https://www.matters-of-activity.de/en/activities/12329/radical-futurisms-ecologies-of-collapse-chronopolitics-justice-to-come>.

⁷⁰ Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton: Princeton University Press, 2015), 4.

⁷¹ Simon O’Sullivan, “Art Practice as Fictioning (or, Myth-Science),” March 4, 2015.



Figure 9B. *Future Tales of Long Ago - Exhibition*, Natalie Logan, 2025.

Section B: Radical Futurism and Chronopolitics

In *The Mushroom at the End of the World*, Anna Tsing identifies the possibility of collaborative interspecies survival from the ruins of (capitalist) destruction, metaphorized as the resilience of the *matsutake* mushroom.⁷² Similarly, myth is an endangered species, a relic of the past, utilized in this series as a world-building tool that opens up a space for a possibility of hope within contemporary (capitalist) collapse. *Future Tales of Long Ago* defines itself as *Radical Futurism*⁷³ and correlates with *Afrofuturism*, *Indigenous Futurism*, and speculative fiction, all challenging dominant chronopolitics—a term describing “the relation of time-perspectives to

⁷² Anna Lowenhaupt Tsing, *The Mushroom at the End of the World* (Princeton: Princeton University Press, 2015), 279-282.

⁷³ T. J. Demos, *Radical Futurisms: Ecologies of Collapse / Chronopolitics / Justice-to-Come* (Berlin: Sternberg Press, 2023).

political decision-making”, where structures in power decide “which of the alternate futures to seek”.⁷⁴ To oppose colonial modernity, both Indigenous and Afrofuturists seek the right to reshape the future on their own terms, where artists like Skawennati and Ekow Nimako depict their peoples and civilizations in the far future by using various media (from digital technology⁷⁵ to black Lego bricks⁷⁶), disrupting linear Western temporalities. Similarly, *Future Tales of Long Ago* imagines post-carbon interspecies futures on the terms of radical hope, where each human and non-human has a right to create their own temporality and where living algae are actively cultivating speculative futures, materializing interspecies narratives of resilience and ecological regeneration as works of art.

Section C: Fictioning as Resistance

Future Tales of Long Ago is inspired by the only written record of millennia-old Croatian mythologies: a book of Tolkien-like stories written in 1916 by Ivana Brlić-Mažuranić.⁷⁷ She writes about ancient mythological beings: *Regoč* is a huge, simple giant who embodies friendship and love, *Stribor* is a protector of forests who symbolizes wisdom and justice and offers guidance to those who seek his counsel, and *Mokoš* is the goddess of fertility, water, and earth who protects women and textile labourers.⁷⁸ The integration of these mythological beings into *Future Tales of Long Ago* creates a new artistic lexicon, one that preserves the past by reconfiguring and speculating its future (see Fig. 9C).

⁷⁴ George W. Wallis, “Chronopolitics: The Impact of Time Perspectives on the Dynamics of Change,” *Social Forces* 49, no. 1 (September 1970): 102, <https://doi.org/10.2307/2575743>.

⁷⁵ Skawennati. “TimeTravellerTM.” Time Traveller. Accessed January 4, 2025. <https://skawennati.com/projects/timetraveller/>.

⁷⁶ “Ekow Nimako Studios.” ekownimako.com. Accessed February 4, 2025. <https://www.ekownimako.com/>.

⁷⁷ Ivana Brlić-Mažuranić, *Croatian Tales of Long Ago* (Zagreb: Matica Hrvatska, 1916).

⁷⁸ Ibid.

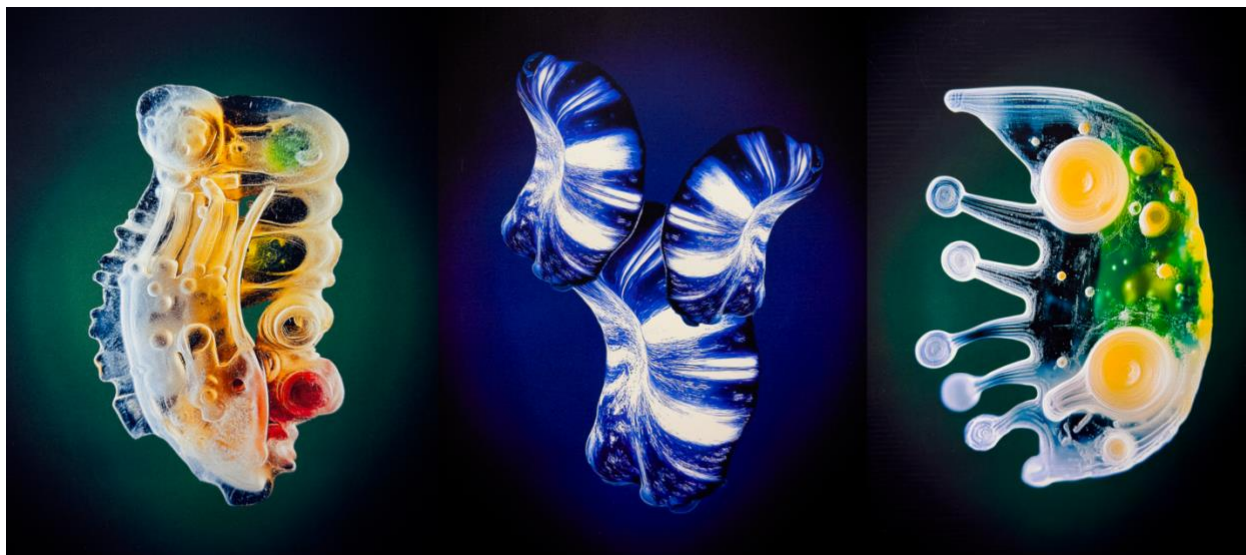


Figure 9C. *Future Tales of Long Ago* - Stribor, Regoč and Mokoš Fine Art Prints, Vladimir Kanic, 2025.

Simon O’Sullivan, an interdisciplinary artist and scholar, suggests such speculative interventions as *fictioning*, a method of layering time and space through the regeneration of a myth which creates different space-time narratives and transforms the world through fiction.⁷⁹ *Future Tales of Long Ago* utilizes fictioning as a method of resistance rather than a sort of escapism (see Fig. 9D), much like the other futurist movements, and tends to protect a cultural legacy from its degradation and nationalization, as some of the mythological stories have been prohibited by the Croatian government.⁸⁰ Deemed too communist for people to read, the stories teach moral values and the power of critical thinking; communism was not the issue, but a stark critique of a corrupt government.

⁷⁹ Simon O’Sullivan, “Art Practice as Fictioning (or, Myth-Science),” March 4, 2015, 1–11, <https://www.simonosullivan.net/articles/art-practice-as-fictioning-or-myth-science.pdf>.

⁸⁰ Urednik. “Božidar Alajbegović: Zabranjene Kućice, Izostavljene Knjige.” radio gornji grad, February 22, 2019. <https://radiogornjigrad.blog/2019/02/17/bozidar-alajbegovic-zabranjene-kucice-izostavljene-knjige/>.



Figure 9D. *Future Tales of Long Ago - Perun, Svarožić and Triglav Fine Art Prints*, Vladimir Kanic, 2025.

Section D: Materiality and the Liminal Space of Myth

Future Tales of Long Ago is a series of fine art prints whose materiality merges the physical and digital realms through interspecies collaboration, questioning the notions of what is real. Digital renderings have been created with various techniques and morphed using large data sets on algal languages and then merged with photographs of organic textures of algal-based canvases, creating hybrid ecologies that exist in the liminal space between reality and fiction, prompting instant curiosity and imagination. This process reflects Anna Tsing’s concept of the “patchy Anthropocene” that “makes possible a new form of attention to the particular in the planetary—and the planetary in the particular.”⁸¹ These prints embed algal biological memory within the cultural mythological memory, creating an entanglement of different lifeforms, cultures, technologies and temporalities in a multiverse of possible futures built on radical hope.

⁸¹ Anna Tsing et al., *Field Guide to the Patchy Anthropocene: The New Nature* (Stanford, CA: Stanford University Press, 2024, 5.

Chapter Eight: Atmospheric Attunements and Cross-Temporal Dialogue

Section A: Cross-Temporal Relationships

Giuliano Torrenco, a scholar of philosophy, proposes a mind-bending theory—entities and events do not exist in a singular time. Instead, their parts exist at multiple times simultaneously, forming bonds and relationships across time, including past entities that exist in present relationships.⁸² A photograph depicting my late grandparents is included in the exhibition, and although they are no longer alive (past entities), they still form active new relationships with me (present entity) through that photograph, which also affects the spectators and their multiple past and present entities, creating a web of cross-temporal entanglements. The *Atmospheric Attunements* (2025) installation engages Torrenco's theory by bringing multiple cross-temporal relationships into the gallery space through the medium of biomedia, photography, and experimental film, created through an intergenerational collaboration with my mother, Georgia, and myself, all installed in a separate part of the gallery space - the projection room.

The entrance to that space is marked by a large-scale photograph depicting a twelve-year-old me, looking into the depths of the sea, immersed into a sublime accentuated by the grandeur of my ancestral island's seascape.⁸³ Captured by my mother on the verge of the fall of communism and the Croatian War of Independence, the photograph exposes the vastness of the sea, moments before the storm, throwing violent waves around my exposed, almost entirely naked body (see Fig.10). The boy seems lost in between two upcoming storms, looking at the depths of the sea for answers, appearing like he is saying farewell to his childhood, bearing awareness that the next five years of wartime will profoundly change his body, mind, and

⁸² Roberto Ciuni and Giuliano Torrenco, *Presentism and Cross-Temporal Relations* (Milan: Mimesis, 2008), 45.

⁸³ Edmund Burke, *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful*, ed. Adam Phillips (Oxford: Oxford University Press, 1990), 39.

environment. On the opposite side of the space, an experimental film projection reveals a grown-up me, an immigrant to Canada, free-diving at the same location where the photograph was taken, introducing the two temporal versions of self into a dialogue.



Figure 10. *Atmospheric Attunements – Boy and the Sea*, Georgia Kanic, 1990.

The concept of bridging time and multiple self-identities by bringing them into a self-reflexive argument echoes the work of Dalibor Martinis, a Croatian performance artist active in the 1970s known for “pushing the limits and boundaries of art to their extremes, questioning what, in fact, art was, and questioning the role of the institution.”⁸⁴ In his critical project, *Dalibor Martinis Talks to Dalibor Martinis*, he records himself posing questions to his future self in 1978 and then answers them in 2010 during a live television broadcast, with the first question being “Is Dalibor still alive?”⁸⁵ Self-admittedly, the artist felt an obligation to stay alive so he could finish the piece while also perceiving his younger self as a separate person.⁸⁶

⁸⁴ Amy Bryzgel, “Dalibor Martinis,” *Performance Art in Eastern Europe*, February 21, 2019, <https://amybryzgel.wordpress.com/dalibor-martinis/>. Accessed February 1, 2025.

⁸⁵ Dalibor Martinis, “Dalibor Martinis Talks to Dalibor Martinis,” *YouTube*, May 6, 2010. <https://www.youtube.com/watch?v=3SCQiKDxmhk>. Accessed February 1, 2025.

⁸⁶ Amy Bryzgel, “Dalibor Martinis,” *Performance Art in Eastern Europe*, February 21, 2019, <https://amybryzgel.wordpress.com/dalibor-martinis/>. Accessed February 1, 2025.

Both works explore the construction of identity through the fragmentation of historical and personal memory, demonstrating that the present self is a multiplicity of related past, present, and future selves that borrow parts from each other, just as Torrenço suggested. Similarly, my histories of living under communism, in post-war democracy, and as a newcomer immigrant to Canada intertwine at the moment when I step in between the sublime photograph and the film projection, as the third version of the self, transforming Martinis' opening question into "Which fragments of Vladimir are still alive?" Where Martinis utilizes the medium of video and television to examine temporal displacement, my work utilizes temporality of breath as an embodied language capable of expanding my identities into more-than-human worlds.

Section B: The Posthuman Subject: Art as a Site of Deep Ecological Entanglement

The experimental film is projected onto a monumental 60x80-inch algal canvas (see Fig. 11A, 11B) made from fibers of captured carbon, capable of passively capturing carbon from the gallery space. The curved, uneven canvas interacts with the spectators through breathing and microprecipitation. It changes its shape according to the levels of carbon dioxide and humidity in the room, which are higher the more spectators are present and watching the film. Accordingly, the projection visible from both sides of the screen changes shape, creating endless film variations. Through its interaction with the spectators and the environment, the screen changes its identity and becomes a site of interspecies entanglement and a geological inscription of human and non-human histories recounted in the language of breath. The screen petrifies and solidifies its matter through time, an occurrence speculated with *Algal Tablets* artwork, which act as more advanced non-human language displays.



Figure 11A. *Atmospheric Attunements – The Experimental Film Projection*, Natalie Logan, 2025.



Figure 11B. *Atmospheric Attunements – Digital Stills from the Film*, Vladimir Kanic, 2025.

This dynamic interaction between the algal screen (see Fig. 11C), other artworks such as LACE, the audience, and the gallery's atmospheric condition materializes the exhibition's biomedial ecosystem as a “posthuman subject.”⁸⁷ This term describes the convergence of

⁸⁷ Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013), 82-87, 94-96.

humans, non-humans, and technology that acknowledges their mutual interconnectedness from an equal standpoint and dissolves the anthropocentric human self.⁸⁸ Philosopher Rosi Braidotti describes this “post-anthropocentric shift towards a planetary, geo-centred perspective” as a process of “becoming-earth” that aims to transform human-non-human relationships into a planetary consciousness.⁸⁹ To *become earth* is to reject the dominance of humans over non-humans and advocate for the entanglement of all living beings without a prevalent hierarchy,⁹⁰ a process that induces ecological thinking and environmental healing. The algal screen displayed in the projection room is a periscope to more-than-human worlds, and it coproduces received images and uses them to attune the spectators to “becoming-earth” in collaboration with other artworks on display.



Figure 11C. *Atmospheric Attunements – Making of the Algal Screen*, Vladimir Kanic, 2025.

⁸⁸ Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013), 82-87, 94-96.

⁸⁹ *Ibid.*, 81-85.

⁹⁰ *Ibid.*, 88.

Section C: Cross-Temporal Relationships II: The Archive as a Site of Intergenerational Communication

Additional cross-temporal dialogue occurs in the Projection room, where past and present communicate through photographs from my family archive, captured by my mother Georgia. These eight archival images document everyday life in 1960s and 70s communist Croatia and depict moments of familial intimacy and a pre-war maritime culture shaped by Yugoslav communist ideology, a world that now exists in faded fragments of memory. Next to these archival images, arranged in pairs with the archival images, eight derivative works explore memory fragmentation by glitching and morphing the original archive.

Similar to my textile works that connect various damaged fragments of algal fabric, the glitch is the suture that binds the fragments of lived and remembered experiences, connecting them with a compositional line flowing through the pairs of archival and derivative works, such as the line of the horizon or an outline of a building. The archival works are intentionally presented in a portrait format, indicating intimacy and closeness, while the derivative images are presented in a landscape format, historically tied to an expanded, panoramic view, and indicate projection of personal narratives into a collective environment and a domain of the imagined and the speculative. This aligns with the concepts of the world-building series *Future Tales of Long Ago*, exhibited in the adjacent room and visible through the membrane of the separating projection screen. The contrast between portrait and landscape formats is also temporal and creates an intergenerational, cross-cultural connection between the past, depicted as contained and intimate, and the future, expansive and rebuilt from the fragments of the past.

One photograph depicts my father and brothers in front of a ship bearing communist insignia (see Fig. 12A); the derivative photograph replaces it with a motif from my

grandmother's quilts (see Fig. 12B). In another, the figure of my late father holding my brothers is erased, leaving only the eerie presence of my brothers floating in the air (see Fig. 12C). The two most significant photographs on display depict my late grandparents (who made *There Are Two/Dvi Su* quilt featured in the exhibition) and my spouse, Quincy, wearing my grandmother's wedding dress, a centuries-old traditional Croatian outfit passed down through generations (see Fig 12C). Quincy's photograph is the only one displayed in colour, an intentional choice representing living continuity, aliveness of the intergenerational communication and convergence of displayed genealogies, stories, and traditions.



Figure 12A. *Atmospheric Attunements – Family Archive I, Father and Brothers I*, Georgia and Vladimir Kanic, 1975-2025.



Figure 12B. *Atmospheric Attunements – Family Archive I / Details*, Georgia and Vladimir Kanic, Eve Golubic, 1946-1975-2025.



Figure 12C. *Atmospheric Attunements – Family Archive II, Father and Brothers II*, Georgia and Vladimir Kanic, 1975-2025.



Figure 12D. *Atmospheric Attunements – Family Archive III, Grandparents and Quincy, Georgia and Vladimir Kanic, 1974-2024.*

The two photographs of Quincy and my grandparents are arranged to face each other in the middle of the Projection room, and although these humans never met, a sense of recognition illuminates the point where their gazes meet across time (see Fig. 12E). The adjacent projection of the experimental film animates the archival photos with its shifting glow and soft diffused hues of the sea, immersing the protagonists of the photos in its waters, giving them a sense of belonging and peace (see Fig. 12F). The spectators are invited to these dialogues unravelling throughout the projection room, and their presence is adding to the discourse of all displayed photographs and film frames (see Fig 12G-12K).



Figure 12E. *Atmospheric Attunements – Projection Room II / Lights On*, Vladimir Kanic, 2025.



Figure 12F. *Atmospheric Attunements – Projection Room I / Lights Off*, Natalie Logan, 2025.



Figure 12G. *Atmospheric Attunements – Family Archive IV, Mother, Georgia and Vladimir Kanic, 1960-2025.*



Figure 12H. *Atmospheric Attunements – Family Archive V, Brother, Georgia and Vladimir Kanic, 1975-2025.*



Figure 12I. *Atmospheric Attunements – Family Archive VI, Mother and Brothers, Georgia and Vladimir Kanic, 1975-2025.*



Figure 12J. *Atmospheric Attunements – Family Archive VII, Brothers, Georgia and Vladimir Kanic, 1975-2025.*



Figure 12K. *Atmospheric Attunements – Family Archive VIII, Father and His Boat, Georgia and Vladimir Kanic, 1971-2025.*

Chapter Nine: Conclusion: The Practice of Radical Hope

“To listen to and tell a rush of stories is a method.”⁹¹ In retrospect, my intention was not to create more than fifty new artworks for this exhibition; however, by pursuing the material’s initiatives, these new artworks emerged as stories it needed to recount, converting me into a physical conduit for achieving its corporeal forms. I created no sketches or elaborate plans and practiced breathing and radical hope as methods and rituals to attune to more-than-human worlds and listen. Every time the material fractured beyond repair, I recalled my grandmother’s repair ethos and mended the irreversible damage, and in return, a new artwork emerged. Working with the material healed me across time and generations, and I felt empowered by my ancestors—both human and non-human.

The thesis exhibition introduced material innovation by creating *Rhizomatic Textiles* by merging glassmaking, printmaking, biomedial, and textile work into a new hybrid material language. These new materials possess an agency that enables them to evolve continuously while accumulating traces of care and adaptation on both particular and planetary scales. The illumination of these textiles transforms them into visual portals to more-than-human worlds, where traditional craft is preserved and transformed into future material possibilities. Similarly, *Future Tales of Long Ago* utilize speculative mythology as a tool for world-building and providing a safe space where lost and endangered narratives can be reimagined through ecological thinking. These material and narrative entanglements reinforce the core inquiry of this

⁹¹ Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton, NJ: Princeton University Press, 2015), 37.

research, which can be summarized as the “survivance” of ancient cultures beyond their erasure by “fusing traditional handwork with technological innovation.”⁹²

This research-creation has been inspired by concepts of radical hope that have directed both my artistic processes and the material outcomes. Collaboration with algae emerged as a rewarding interspecies relationship in which we both embraced the unknown, trusting that human-non-human collaboration can establish a discourse into new creative and ecological possibilities. Jonathan Lear defined radical hope as something “directed toward a future goodness that transcends the current ability to understand what it is,”⁹³ a concept reflecting the current lives of algae – oppressed by the Anthropocene, they are considered as pollution and terminated with chemicals. In this project, they emerge as family members and active participants who provide guidance and lessons in resilience and survival that can be applied to human displacement and cultural loss. Concurrently, interspecies collaboration induces imagination and healing rather than despair and introduces new possibilities in research.

This project is a plethora of things entangled, but mostly a multiverse of matters tiny and invisible that tell world-building stories capable of changing narratives with one thing that we humans miss the most – irrevocable, unconditional, and contagious radical hope. *Garden of Hope* is a tale of outlier artists like algae and my grandmother who put so much care into the world, endlessly repairing it without asking anything in return. This is about honouring sixty years of my grandmother’s unnoticed fibre art practice, one she humbly kept from the world, transforming her tiny apartment into an occasional showroom for friends and family, sustaining

⁹² Marissa Largo and Fritz Pino, “Piña, Why Is the Sky Blue? Crafting Cyber Transfeminist and Filipinx Futurisms through Creative Technologies,” *Asian Diasporic Visual Cultures and the Americas* 8 (2022): 292, published online January 18, 2024.

⁹³ Jonathan Lear, *Radical Hope: Ethics in the Face of Cultural Devastation* (Cambridge, MA: Harvard University Press, 2006), 103.

her cultural traditions. It is also about appreciating our algal ancestors and billions of years of their unnoticed carbon capture and oxygen production activities, which created a breathable atmosphere, sustaining our human life. And that is the essence of it all, community, being one of algae or humans or rocks and sticks, dead or alive, it does not really matter which matter, all are welcome in *Garden of Hope*.

On a global scale, the stories planted in *Garden of Hope* are a platform for disseminating radical hope through carbon-capturing biomedica in a time when our beliefs are continuously undermined by the endless flux of negative global events, looming apocalypse, and the capitalist destruction of the planet. The enormity and power of this adversary, especially when combined with its access to the most advanced models of artificial intelligence, cannot be overthrown by conventional protests or social actions alone. *Garden of Hope* is a substance, a meaning, an introspection, and an atmosphere where seeds of radical hope are intended to grow in the shadows, unnoticed by that impossible adversary. The resistance begins with a breath and a hope, one of the few things almost entirely under our control. Through these acts of resistance, however small and invisible, we can begin to push back, knowing that hope, like breath, is unstoppable. Once exhaled, our breath is collected by algae and then immediately given to another human, leaving no trace of our insurgency. The frontier of this rebellion is everywhere, and it begins within ourselves by taking the first breath towards a better future, where life can finally become sustainable.

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