

Algorithmic Frontiers, the Exhibit

Curator's Notes

In the AI adoption discourse, the debate has polarized, opposing those who offer hope without borders to those who offer awareness and vigilance. Reality and hope shouldn't be opposed. Digital citizenry in the age of AI requires both. This is particularly true in the use of generative AI for cultural content creation and art. *If we are to recognize AI Art as Art, it should at the very least have a social responsibility. It should « raise questions, puncture pieties, encourage empathy, and offer alternative visions for the future. »* It should be the new resistance, the avant-garde. Partnerships and funding policies should “*strengthen the hands of independent thinkers and creators*” (From [Foreign Affairs](#), February 2024). It is in this context that I launch the Algorithmic Frontiers Interactive Exhibit. The creation of the 12 pieces started as a poetic exploration of abstract algorithmic representations in February 2020. The Algorithmic Frontiers artwork is now more like graffiti on the walls of AI. Its rawness and imperfections shed light on the challenges that lay ahead before we can dare say that Generative AI is art and democratizes anything at all.

The Algorithmic Frontiers includes 12 Digital Stills. The art pieces explore algorithmic art, inspired by data contributed by women/womxn from over 40 countries. The goal of the Exhibit is to counter gender, racial and cultural biases in AI and engage a broader public in conversations about the ethical, legal, cultural, economic, and political implications of Generative AI. It also aims to facilitate the understanding of both the technical and the social policy implications of Generative AI, using a critical approach to AI Art and leveraging it as a civic engagement medium. It is designed to improve confidence in our collective power to intervene in the socio-technical pipeline of AI development and governance.

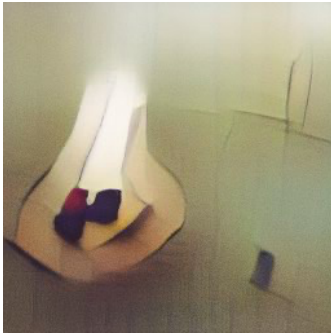
The 12 art pieces embody the Art Impact AI curatorial best practices (8). Click [here](#) to read what those are. One of those principles is not inducing fear and give those who view, visit, or take part in an art project, a sense that they have control over AI's impact on their lives. Both as an artist, as a woman, I wanted to be in an exhibit where I felt safe. For that reason, I avoided including algorithmic outputs (images) that were shockingly discriminatory or objectifying. You will be exposed to such outputs in the more educational material. If you invite me to give a talk or organize a workshop, we can tailor the content to your needs. I hope I managed to create a space where we can learn together without having to be exposed to biased and harmful content.

You can contact me to organize an in-person exhibit to engage your audiences in rich and constructive conversations about AI and its intersection with art and culture. Remember to go to the Sign and Connect section to share your thoughts and join the conversation!

**This document includes both the Curator's notes and the Exhibit tour.*

Sincerely,
Valentine Goddard, February 26th 2024

Collaborative Data Sourcing: PearAI.art



On February 14th 2020, Valentine Goddard prompted RunwayML with the words “Women. Beauty. Imperfection.” And the result was an abstract kind of pear. That pear triggered many questions and the exploration of AI through art projects took a deeper dive. A team came together and the [PearAI.Art](#) data collection application was born and launched in May 2021. The PearAI.art app invites users to contribute 9 words per person redefining gender and beauty and countering bias in AI.

That team wrote a paper to highlight a collaborative and interdisciplinary process in Responsible AI. Although the technical explanations about how text-to-image works is outdated, the rest is still very useful, and you can [find it here](#).

That data set has 3 different data buckets prompted by these questions:

1. Gender: What does it feel like, to you, to be a woman, identify as a woman or as a fluid being embracing elements of femininity?
2. Beauty: What does beauty represent to you. What would you tell your mother, daughter, sister, best friend about what it means to be beautiful?
3. Imperfection: What illustrates moments, or objects, of imperfection, bearing in mind that history and culture have shown that imperfection can be the cornerstone of aesthetics (*wabi sabi*), or again, the mother of all inventions (necessity)?

We are grateful to have received close to 3000 words describing notions of gender, beauty and imperfection, hereafter called the “Words.” We used both AI and human intelligence to extract the most meaning and impact from this data set.

You can explore the Words and create your own art by visiting the Explore and Play Section.

Algorithmic Frontiers: Observations and Key Themes

- Many words about beauty were about imperfection and vice versa. Perhaps that was caused by our biased question that suggested imperfection could be “*the cornerstone of aesthetics (wabi sabi), or again, the mother of all inventions (necessity)*”?
- The Words highlighted the importance of emotional connections in the human experience and the human capacity to overcome challenges and difficulties; they underscored an acknowledgment of the natural world and the impact of human actions on the environment; they emphasized the value of embracing one's unique qualities and celebrating personal authenticity; they highlighted issues of power and equity.

The human curator’s interpretation and analysis

I found it useful to use ChatGPT4 as well as our own AI (RAG) trained chatBot to understand which themes were most present, or less so, in the 3000 words, including some in French, Spanish and Japanese. However, my heart, brain, creative neurons pursued their own path, a path that meanders. Words that touched me lived in my head for months, macerating, sometimes twinkling like a distant star, sparking new thoughts. I wrote many of them in my paintings. They fed me. They fed the art. They fed algorithms. They were the blood in the veins of this exhibit. They rooted the art pieces into something broader than what can be seen in the 12 pieces.

Of those meanderings and macerations emerged 3 core sources of inspiration.

1. Mer Intelligente. Ecofeminism. Reconciliation.

The first thing that struck me was how many Words related to nature were in the 3 buckets. I grew up on a northern seaside, the Saint Lawrence River, in a small francophone Catholic village of fishermen. Mi'kmaq people call the river "*Magtogoek*," or "*the path that walks*". I used to deliver the newspaper along its iced-up shores and watch the Milky Way and dancing Northern Lights, or enjoy the yellow and blue contrast in the fall. My mother bought fish caught by locals. There are few fish left now but more seals. Those images perhaps explain my fascination with the Seal Women, or the Selkie series who turn to observe the observer, take control over a tool (text-to-image AI) that disregards their cultural and economic rights. She has words in her mouth, words on her chest. Words that shape the outcomes of Generative AI systems. She has the power to choose the words. She has many skins. Does she own and control them, if not, who does? I later learned from Karina Kesserwan, that the Selkies have similarities to Sedna, in Inuktitut, ᓄᓐ Sanna, who rules the Inuit underworld. My mother's ashes are with Sedna in the underworld of the Saint-Lawrence, *Magtogoek*, *the path that walks*.

In a co-created documentary on AI and the Saint-Lawrence, we defined Smart Oceans this way :

*"Une mer intelligente est une mer **intelligible**, une mer sensible et sentie, une mer sage, qui assure une **pérennité des ressources naturelles et humaines**, de notre territoire, et ce, dans le **respect des savoirs traditionnels autochtones**."*

"An intelligent sea is an intelligible sea, a sensitive and sensed sea, a wise sea, which ensures the sustainability of the natural and human resources of our territory, while respecting traditional indigenous knowledge"

-Mélanie Brière, Kateri Lemmens, Valentine Goddard.

*Note: in French, oceans is feminine.

That documentary and a 1-year long socio-legal study on the feasibility of a data trusts are part of a holistic approach to proactively ensuring Responsible AI deployment. They are part of my inter-arts-based approach to the study of the different implications of AI.



Satellite image of Lac St-Pierre, courtesy of Pierre-André Bordeleau, RIVE, UQTR

2. Women. Peace. Democracy. Caring. Community.

As I continued reading the Words, notions pertaining to power, resilience and care surfaced as another dominant theme: Peace.

As a political artist, I am lucky to live in a safe country and can advocate without fear of violence, imprisonment, and murder. Violence against journalists is known but what is less known is the growing violence against artists. Their role in democracies is vital.

Can Generative AI be "Art"? If so, where does it situate itself between political "avant-garde" art, and public pleasing aesthetics? Diminishing the capacity of the arts and culture sector (cutting funding, limiting their role and independence, etc.), sets us up for a future in which art as a living institution of democratic societies is weakened. So, if we adopt Generated "art" in film production, in the creative industry, how will we protect this vital role? If the definition of art

changes and "generative art" is controlled by technocrats and for-profit megacorporations, aren't we putting our children before the gloomy choice of either techno-authoritarianism or political authoritarianism? Those questions are important for our cultural security.

That's why I wanted to create an exhibition that reminds us that neither fear nor blind enthusiasm will facilitate the responsible development and deployment of generative AI; an experience that weaves between art exhibition and interactive, collaborative documentary; and, finally, a space for dialogue that reminds us to steer clear of polarizing conversations about AI, because the social construction of our collective future depends on it.

The Dove short video is slow. We need to feel peace to be able to take the actionable steps that lead to it. So, breathe and enjoy a moment of Peace. Bring that Peace back to the next debate on AI for Humanity. Bring that Peace back behind the closed doors where money talks.

“Characterized as a daring art of the future, challenging entrenched norms and styles, the avant-garde claims to defy the aesthetic inclinations of the past and present but to anticipate the taste of future generations. In this context, the proper public for the avant-garde is the infinitely educable public: that is, the public of the future, as yet only dimly foreshadowed.

Imagining that the activity of education is the bridge between present and future, between prejudiced populist majorities and knowledgeable sophisticates on the margins, advocates of the avant-garde see art working to transform majorities, to encourage broad-mindedness, new knowledge, tolerance, and good judgment. Understood this way, the avant-garde neither reflects public taste (as friend) nor offends it (as enemy), but challenges it in order to change it (as friendly enemy).

And if the avant-garde seeks to transform the public into a more literate, more knowledgeable, more critically capable group, it begins to look something like the project of public education itself, a longstanding democratic project and one that has fierce proponents across the political spectrum. In this light, avant-garde rebellion emerges as far less hostile to traditional democratic ends than we might typically imagine.”

-Caroline Levine,
Provoking Democracy:
Why we need the Arts, Blackwell Manifestos, 2007.

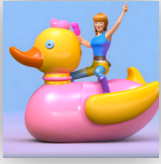
AI Art risks becoming a [facilitator of authoritarianism](#) if the role of art in democracies isn't understood and protected. Nazi's discarded avant-garde representations of beauty. Stalin had a theatre professional executed. The Nigerian government executed Saro-Wiwa in 1995. Historical examples are plentiful and terrifyingly the [escalation of aggression towards artists](#) mirrors the lamentable erosion of democratic principles globally.

3. Sex. Consent. Fish and Ducks.

Finally, there were a number of words about our physical bodies, about creation. This was particularly well aligned with the uproar around consent and authorship that broke out last year (2023). A lot of my time was spent on the Art Impact AI Coalition, the Art X AI Conversation, on advocating for artists to be at the table of Generative AI regulation. This project was initially supposed to be focused on bias, but that issue had to make space for intellectual property violations, the lack of consent of artists and the non-remuneration in the use of their work in Generative AI systems. That is why the QR code and link to the Art Impact AI petition are part of this Exhibit. This is also why I recommend more work be done to understand the gendered implications of Generative AI on the arts and cultural sector. We also need strong principles such as these Best Curatorial Practices to ensure that AI Art (if we accept to call it this way) does not augment discrimination.

Using Generative AI platforms as is will make existing biases, sexist, racist and other discriminatory practices and socioeconomic inequalities worst. Despite hours and hours of hand painting, editing, prompting, to counter biased visual outputs, you'll notice images in which these problems remain: Digital Whitewashing (making a darker skinned person's skin paler), the Madonna-Whore dichotomy, The Invisible Age, Undressing Girls, etc. You'll find those in

some of the examples provided in the 12 art works as well as the “unfiltered” biased generated outputs in the pop ups. I explain this more under painting no.7.



The Duck Rider represents women being a minority in AI and tech and being told to follow the line. It's not in the Exhibit but it sure was part of the process. You might find her on one of my t-shirts one day. 😊

What the Words meant to AI was different than what they meant to me

From the words contributed, three key meanings were extracted by ChatGPT. In its optimistic summary it overlooked many words about being fat, ugly, wrinkled and so on. As a human, I took those words, and others about war or pain, and injected love into them. I didn't erase the pain like ChatGPT summary does. I took as a steppingstone to doing better. ChatGPT summarized the words into these three groups:

1. Diversity and inclusivity: The words emphasize the importance of diversity in all aspects of life, including beauty, gender, nature, and community. They celebrate individuality, uniqueness, and the need for inclusivity, promoting the idea that differences should be acknowledged, respected, and embraced.
2. Empathy and kindness: Many words reflect qualities of empathy, kindness, and compassion. These words suggest a desire for a more empathetic and caring world, where people are considerate of one another's feelings, needs, and experiences. This theme highlights the importance of building connections and supporting one another.
3. Nature and sustainability: The presence of numerous words related to nature, environmental concepts, and the planet signifies a strong concern for the environment and a desire for sustainable practices. This theme underscores the need to care for the planet, address issues like pollution, and promote responsible stewardship of natural resources.

The 12 paintings, what inspired them, how they were made and what policy or research questions they are tied to.

1. The Word Selkie

INSPIRATION: Selkies are mythical creatures found in Irish, Scottish, and Faroese folklore. They are said to live as seals in the sea but shed their skin to become human on land. If they find their skin again, they must return to the ocean. Selkie tales speak to themes of identity, belonging, and our relationship with our environment, all core to the Algorithmic Frontiers Exhibit. The Word Selkie has "Words" in her mouth because this Exhibit is inspired by the words that women, womxn and non-binary folks contributed from over 40+ countries to challenge AI's misperceptions of beauty and gender. Some say AI is like a mirror of us, but it's more like a collage made by strangers who don't know who we are.



HOW: This piece started with a paper then digital drawing and watercolour of a round woman, crouching and looking at the viewer. I prompted Dall-e for a variation and this one was the closest. I then overpainted digitally. Generally, Dall-e and most platforms do not permit input or output of breasts, but they slip now and then. I emphasized them with other layers of digital paint.

POLICY & RESEARCH: This project started because in 2019, I prompted a now vintage text-to-image generator with three words: women, beauty, imperfect, and I got a pear. That silly pear made me curious and determined to challenge it. When the PearAI.art app was created to collect words, we wrote a paper explaining the process. It is already technically outdated, but sadly, the bias problems are not.

Cultural appropriation and respect of cultural intellectual property

When having a sneak peek tour of the exhibit, lawyer Karina Kesserwan asked whether I was aware of parallels between the Selkie and [Sedna](#), Inuit Goddess of the Sea. Similarly, [Mami Wata](#) and Ningyo (Fish doll) are also culturally significant characters linking women and sea. The Selkies in *Algorithmic Frontiers* were not inspired by these. However, it is possible that the prompt for a visual variation of my drawing was a result of algorithms trained on traditional Inuit



art representing Sedna, or other traditional visual representations that are part of people's cultural heritage. It is impossible to confirm due to Generative AI platforms not being transparent about which data (images and text) is used. In the image sample below (not my artwork), I prompted Dall-e to generate each one of these goddesses, spirits, legends. After it produced the images, I asked if this constituted cultural appropriation. ChatGPT 4 answered that it was, and to be sensitive in their use. Is that enough? Share your thoughts on our platform!

For more learning on these important questions, please refer to experts such as [Jason Edward Lewis](#), [Angie Abdilla](#), [Kimani Goddard](#), [Micaela Mantegna](#) and others. Click [here](#) to read new Australian Protocols for using First Nations Cultural and Intellectual Property in the Arts.

2. Feet in the Water



INSPIRATION: I grew up in a small town in Gaspésie that adopted my mother and I. When my mother died, I was living in Japan. She lay on the floor for 3 days. During those 3 days, I was by the ocean for a final camping trip with my then husband, knowing we were going to divorce soon. I wrote that story and started making a short film about it because losing her was the biggest loss I'd ever experienced. That is the art that went into the machine.

HOW: *Feet in the Water* is a Digital Still of a short video using 16mm film I

made of my mother-in-law's feet walking on watercolour and an algorithmic variation generated using RunwayML.

POLICY & RESEARCH: To create this Digital Still, I used both a video and an image (my analog art) to prompt the video variation. I read the User Agreement and had a conversation with ChatGPT to help me better explain the complex implications. RunwayML states that it the user (in this case me) still owns the original artwork, but by sharing it on the platform, I accept that the platform will use it to get better and make money from it. The short story is: artist inputs artwork and helps train the Generative AI platform; platform monetizes and shares with their partners. Keep reading, it gets spookier. ChatGPT explains RunwayML's user agreement as follows:

"We're not going to claim we own your original artwork or the new pieces created from it. But when you share your art with us, you're giving us permission to let our technology learn from it. This could mean your art helps improve how our platform works, helps us understand different types of art better. Also, we might make money from your artwork by using it to enhance our platform, show it to others in different ways, or create new art based on it. Artwork or data shared with a Generative AI platform could indirectly enhance AI models that might be used in defense contexts, due to the broad applicability of AI advancements across various fields. While your specific artwork isn't likely to be used directly by the military, the improved capabilities of AI systems, developed through exposure to diverse datasets including artwork, could be applied in defense-related areas such as image recognition. It's important to be aware of how the technology developed by platforms you contribute to might be used, including potential military applications, by reviewing their terms of service and understanding their collaborations."

Then I asked ChatGPT to clarify what happens when I input more of my art to create algorithmic variations. Here is the answer.

"When it comes to algorithmic variations or derivative works generated by the service provider based on your original artwork, the situation becomes more complex and depends on specific copyright laws, which can vary significantly by jurisdiction. Generally, copyright for derivative works can sometimes be held by the creator of the original work, but in the case of algorithmic or automated transformations made by a platform, the platform might claim some rights over those new creations, especially if the transformation is substantial and involves a significant amount of creativity or originality by the platform's algorithms."

If you re-read that last sentence carefully, you'll notice that ChatGPT implies that machines are creative, a bias that reflects the interests of commercial viability and close partnership with Microsoft. Some of the handful of large tech companies that are developing and deploying Generative AI platforms have presented arguments before the [Federal Trade Commission](#) (FTC) in the U.S. and [asking governments](#) around the world to change intellectual property laws for their benefit. It is also noteworthy that the FTC started investigating [deceptive changes in user agreements](#). Artists are fighting back.

What are the policy implications of women, women of colour, Indigenous women, non-binary folks, differently abled people or otherwise marginalized and equity seeking people, feeding Goliath size Generative AI platforms? Should benefit distribution mechanisms be implemented and enforced?

3. Fish



INSPIRATION: The Saint-Lawrence River, or the K'taqmkuk in Mi'Kmaq, and the realities of fishing communities.

HOW: Digital Stamp (no AI) made using a cut out of a satellite image of Lac St-Pierre, courtesy of Pierre-André Bordeleau, RIVE, UQTR and the Sketches painting app. The short video below was generated using a text and image prompt in RunwayML.

POLICY & RESEARCH: Amid disruptive climate changes, overfishing, and unsustainable business models, communities that used to rely on fish for their survival are now facing scarcity.

- Click [here](#) for recent policy work presented at the United Nations titled *Gender Equality and the Environment in Digital Economies*.
- Click [here](#) for an interactive documentary (in French only) co-created with artists to define Smart Oceans.
- Click [here](#) for a sociolegal study of the feasibility of a data trust for the Saint-Lawrence River (in French only).

4. Selkie # 2: The Sea Lioness

INSPIRATION: The Words written on her chest reflect the meanings attributed to "Imperfect" by our contributors: ache, war, bruise, bias, fear, stain, sabotage, anxiety, anger, etc. The Sea Lioness video reminds me of motherhood and the fierce Lioness that leaps out when your young is under attack; of hurt provoking anger; of constructively channelled anger that leads to action and positive change. The original graphite drawing + digital watercolour was inspired by an image of my mother when she sat comfortably in her skin.

HOW: I used my painting as an image prompt. A video was generated, when prompted with "*a seal-woman dives into the ocean*", producing a rather *interesting* algorithmic interpretation. Technically, the controls in the Generative platform, RunwayML, include text, image, video, angles, speed, etc. They are still limited but rapidly evolving.

POLICY & RESEARCH: The concept of control is pivotal in intellectual property law, serving as a cornerstone for safeguarding artists' economic rights. In the video I created, I used an original image of mine to influence the video's final output. Currently, the extent of control I have over the result makes it relatively straightforward for a court to identify the creator. However, my concern is that this clarity may soon diminish.

For instance, an AI-generated film named "AI Surobuin" was granted copyright in South Korea, primarily because it was classified as a Composition Work, where the creators exerted significant control over the final product. This control was manifested not only through the editing process, combining generated images, text, voices, and music, but also through the detailed customization of the AI's generative capabilities, similar to the techniques we use in 'Explor'art', our Retrieval Augmented Generation (RAG) chatbot (in Explore & Play section).

Recently, OpenAI unveiled a preview of its text+image-to-video generator, capable of producing compelling videos up to 60 seconds long, surpassing RunWayML's current 18-second limit. OpenAI's strategy involves developing a base model that allows others to train specialized mini-generative AI systems, thereby enhancing user control. This approach is akin to OpenAI's existing GPT Store, which resembles an App Store. With the potential tsunami of videos this new generator will produce, how will the protection of copyright be affected?



The secret me is a boy.

*He takes girlness off like a sealskin:
something that never sat right on his shoulders.*

*The secret me is broad-shouldered;
the sea can't contain him,
the land can't anchor his waves
to its sand.*

*The secret me swims
with the big fish, brash, he swaggers*

*like a mermaid, bares teeth
like daggers, barks at the moon when it's thin.*

*He's whiskered, that boy. Thick-skinned.
Quick-finned, always turning tail.*

*He wears his own skin like a sail,
lets it carry him to where*

*salt swallows mouthfuls of air.
Let them find me there by the shore:*

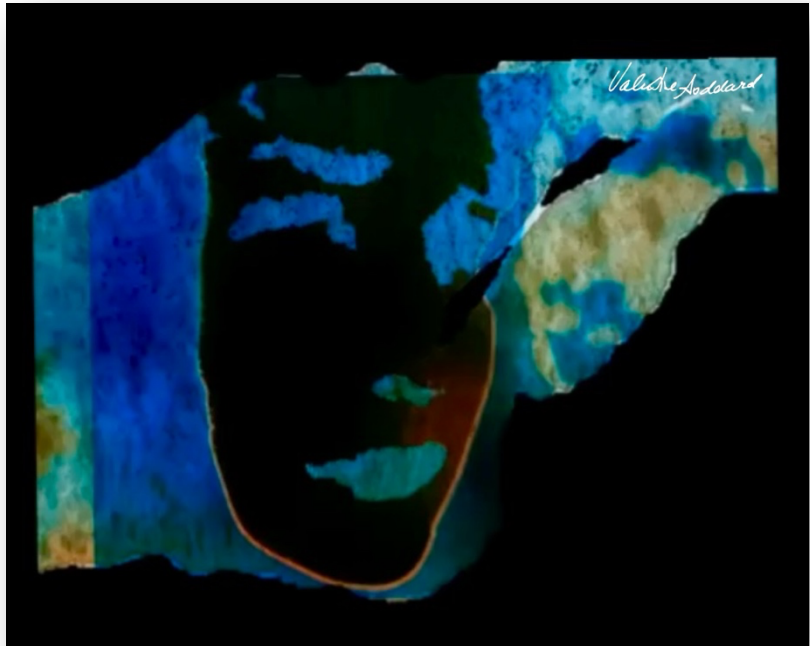
*the girl-seal with a secret
boy inside. Rough-voiced. Black-eyed.*

*Washed bare
as the beach by the tide.*

By Rachel Plummer
From *Wain: LGBT reimaginings of Scottish folklore* (The Emma Press, 2019)

5. Algorithmic Molds

INSPIRATION: Algorithmic Molds reflects on identity and how technologies can enable, or censor, how we tell our stories, and Generative AI will augment which stories are told. As discussed under other pieces, namely SPEAK, freedom of expression is not equal for all users in Generative AI platforms. If I chose this piece because it is a positive representation of who I feel I am (I'm a sea person), don't be fooled. Most representations had to be discarded or heavily transformed. The video includes other examples of selfie variations, some where you'll notice are repainted, adding layers of digital paint and ink, and others highlight what variations of my selfie look like when prompting for an older woman. The video on the Exhibit includes a collage of failed attempts: a drawing I made of a young girl into RunWay ML or VideoLeap, and their algorithmic variations undress her, literally take her pants off, another grows breasts, and another ends up in a small white bra. A woman of colour with silver hair and wrinkles is digitally whitewashed and age-washed. I spent a couple hours adding darker tones to her skin, beautiful age lines and silver in her hair, in seconds, those were all gone. This causes harm.



In this 2min video, I explain AI Art: https://youtu.be/l58ldy5BHc8?si=kc_DsMuG3EgkV52K

HOW: This Digital Still is a blend of analog and digital, of a 16mm film, a photo of acrylic gel skin on window, and an algorithmic variation using the video+image prompt (no text) in RunWayML. The percentage of AI in the output is very low.

POLICY & RESEARCH: Some technologies help us tell our stories better, some limit everyone, some limit only some of us. I felt censored so I pushed the limits and explored how I could impact the generated outputs. It turns out that redressing biases and sexualization every step of the process requires more funds, more time and involves giving more of our own art for platforms to use for their benefit. People who are racialized, marginalized, sexualized or otherwise made invisible, or represented negatively by Generative AI must input more to protect their self-expression from being censored, and from existing bias in society becoming worst.

Here are some examples: I input a drawing I made of a young girl into RunWay ML or VideoLeap, and their algorithmic variations undress her, literally take her pants off. Or, again, I input an image of myself, a middle-aged woman, and the variations are reflective of aesthetic standards... or Algorithmic Molds. I prompt with an image of a woman of colour with very dark skin, and the algorithmic variations whiten her. That's called Digital Whitening, I input one of original Selkie variations, the variation takes her skin and puts her in a small white bra. This list could go on.

Some say AI simply reflects bias in society but a recent report from Bloomberg shows that [Generative AI is more biased and risks making discrimination worst](#). This Exhibit hopes to increase awareness of these issues and support policies (AI design, funding, and more) and regulations that address them proactively.

What do you think is an acceptable solution to this problem? Share your ideas with us in the "discussion" section.

6. MBMD: My Body, My Data

INSPIRATION: I made this watercolour with algorithmic variations for the cover of a presentation for the Canadian Fertility and Andrology Society's Gatekeepers' Dilemma and Ethics and Law Summit early 2023. For this particular conference, I was looking into uses of AI in reproductive health.

HOW: The Digital Print is a variation of my watercolour using Dall-e's out-of-frame tool. This means that the middle part is my watercolour while the outer edges were generated. I prompted it with words such as “*an abstract watercolour on the theme of reproduction and fertility*”. The video:



I made a watercolour when I heard that a friend of mine was pregnant with her first baby. I prompted PhotoLeap with low-level variations which means the variations are closer to my work than a variation at the other end of the scale. The video is a compilation (using VideoLeap) of variations of that Matryoshka-inspired

watercolour. I am not thrilled with the variations but it's part documenting of my research for this project.

POLICY & RESEARCH: AI can help discover new cures, saves lives but it could also resemble a Black Mirror episode especially for women, women of colour, Indigenous women and trans men. The lack of data in health translates to AI systems that don't understand womxn's bodies and health. If men are designing the AI tools to save lives, will the lives saved have a gender and a colour?

"Invisibility is indeed a fundamental trait underlying women's history. As machine learning algorithms learn from available data, we need to acknowledge that there is still an important gap in information concerning women's past and present, which we inherited, perpetuated, recreated particularly in relation to questions of intersectionality."

-Kimberle Crenshaw, 1989

"We need a gender reboot! A restart, an upgrade, a systems change. And it all starts with a new way of articulating how all our systems are intricately interconnected, and particularly how analog systems are permanently wired into our new digital universe with AI."

-Caitlin Kraft-Buchman
in the Forward to:

[Gender Reboot: reprogramming Gender Rights in the Age of AI](#)

by Eleonore Fournier-Tombs, 2023

7. Speak

INSPIRATION: This Digital Still was inspired by...frustration! Fear mongering tech millionaires are given so much power while concrete policy solutions put forward by experts in AI policy are barely heard. SPEAK and the video are my shout out to humans working to make AI less biased, to make digital economies more equitable and sustainable, to those who have a position of power and seek the systemic changes that are required to make AI and more holistically, digital economy, work for more than a handful of people, cities and countries.

HOW: I used my art a visual prompt in text-to-video by RunWayML. Every time, the generated video goes off course, I take a digital still (one image from the video) and digital paint over it. I then edited those images and videos together. The generated part in this image is the porcelain doll, the rest is digitally painted. *Speak* is an image exported (Digital Still) from a video generated using a watercolour as an image prompt. The intention was to animate the abstract portrait, but the AI model couldn't follow the contour of the eyes, face, mouth, and other details. It generated an 3D rendering of a porcelain-like doll instead which I painted overusing a digital painting app to keep more in spirit with my own intent.



POLICY AND RESEARCH: The making of this video coincided with a period in which I felt that not only was this AI not listening to my prompts, but that gender equity wasn't deemed a priority in AI strategies despite a solid body of research and policy work that demonstrates it should. This was created in the fall of 2023. It is now February 2024 and the technical improvements on Generative AI platform are noticeable, those in policy, less so.

I advocate for a diligent oversight of the multifaceted effects of generative AI and advocate for pre-emptive measures to comprehend and mitigate adverse outcomes. This could involve establishing a cross-departmental team or inter-ministerial committee dedicated to ensuring that the perspectives of marginalized and equity-seeking communities are considered in AI governance. Such initiatives could be implemented prior to the enactment of regulations or in jurisdictions resistant to regulatory measures. These efforts can be undertaken by governmental bodies, the private sector, or non-governmental organizations.

Click here to read the [letter](#) I sent to Ministers of Digital Transformation, Economy, Finance and Labour (all men). Feel free to use it as a template to write to your own MP.

8. Peace

INSPIRATION: Peace and Doves is inspired by the Words related to peace contributed by to our data set. The video below ends with a slow, visual poem about understanding our own strength.

HOW: This piece is entirely AI-generated. My prompt was "A white flying Peace Dove in the style of Pablo Picasso". RunwayML's platform as a "Train your own" option which I used so this image is a result of AI "Art" that is partly trained using my art (non-generated, real old style paint, pencil, analog film). The video includes non-AI art as well as a number of text+image to video generated pieces. As in other videos, I often export a still and work on it in digital painting apps such as Adobe's Fresco or Sketches.

POLICY & RESEARCH: As I was working through numerous versions of a Peace Dove, I was also mulling over the following questions: What are the implications of asking a Generative AI system to copy in the style of a deceased renown and wealthy artist who used women's bodies for his inspiration? Is it less of a steal if I prompt an AI to imitate his style and sell it on a t-shirt? I put a sample t-shirt below. Let me know your thoughts! Is there such a thing as an AI Art Robin Hood and if so, would that make it ok to use art works without permission and, at a global scale, what would that imply?



9. Whale's Breath



INSPIRATION: The original work (16mm film and watercolour) and the Digital Still that is then extensively overpainting digitally using Fresco are about self-care and that important cycle of effort followed by recuperation; about transparency and vulnerability. When overpainting the Still, I integrated Words contributed to our data set and that were related to water.

HOW: Whale's Breath is made from an animation film of a woman practicing yoga using a 16mm Bolex, an analog painted still, both which prompted an AI-generated variation, of which I pulled a Digital Still to paint over using digital paints. The generated outcome respects the initial intention of analog work done more than 10 years ago and sticks to the same yogic flow of movement similar.

POLICY & RESEARCH: When do AI-generated images become Art? If you look at this digital painted still, what is its foundation? Is it the work I started doing years ago, the layers I added to an algorithmic variation? Or is that foundation corrupt because the use of generative AI's Large Language Models in the process? For me, the answers to these questions vary depending on the painting. Some of the 12

pieces showcased in the Algorithmic Frontiers Exhibit are more on the scale of "corrupt", or at the very least I wouldn't dare register them for copyright. For WHALE'S BREATH, I would. I think I can rightfully claim that I have authorship on both the image and the video. What do you think?

10. Canvas of the Future

The inspiration for this strange piece were the political and economic implications of AI “art”. This abstract character is actually a Digital Still from a generated variation of the original Selkie. It reminded me of a sculpture, possibly a sort of Golden Globe or other trophy. It is layered on [Saint-Armand handmade watercolour paper](#) made by artisans since 1979. I chose that paper as a background because it’s important to me to understand the socioeconomic impacts of adopting Generative AI as an art form. Who will benefit? Who will close shop or lose gigs essential to pay the rent? That is the Canvas of the Future that is playing out before us.



If such a prize were to be handed out, what would be the judges’ criteria? How would they define what art is? Should they be interventions along the socio-technical pipeline and value-chain of data collection and algorithmic design? Recently the UK told artists not to be political “overtly political or activist’ statements could lead to a withdrawal of funding”. Given the important environmental and socioeconomic implications of generative AI, shouldn’t AI art be required to vibrant and legitimate Digital Democracies?

The AI for Good conference and the Information Telecommunication Union (ITU) in partnership with Shutterstock are holding a contest and the results will be known this spring of 2024. It will be interesting to see what criteria they choose. Will the environmental impact of AI be one of them?

The following [best practices](#) when curating art projects involving AI ethics have received wide-spread support globally. For the Art Impact AI petition, a Manifesto of sorts, co-creating Responsible AI with artists means supporting and creating spaces for:

- Art that acknowledges the political dimensions of AI and contributes to the co-creation of responsible, equitable and sustainable AI and data governance.
- Scenarios that foster a sense of “agency”, avoid dystopia or fear and panic.
- Interactivity and immersion that facilitates learning together.
- Projects that put inclusion as an added-value in design (for juries and funders, this could mean for example assessing who is leading and benefiting the most from the project, add that as a question).
- Public art in all sorts of spaces, neighborhoods (less so in institutions).
- Projects that recognize the plurality of knowledge sources in co-construction processes, and give credit.
- Art that values authenticity and concrete objectives for their project such as Reconciliation, Human Rights and Sustainable Development Goals.
- Policies that respect the intellectual property and moral rights of artists as well as cultural intellectual property.

Share your thoughts in the Sign and Connect Section of the Exhibit.

11. Selfie #2

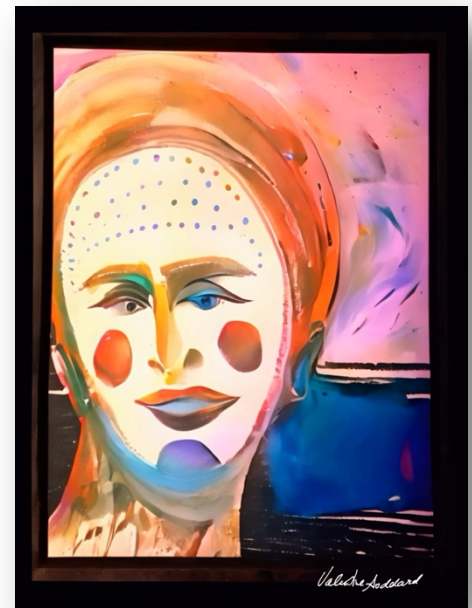
INSPIRATION: The original painting is a self-portrait. It is who I am. Art and justice. Art and human rights, coming together. Does image to video generation erase that, distort the bond between an artist and the tools used? Generative AI isn’t just a tool, it’s an information system, and as such, it’s not neutral. It translates and broadcasts.

HOW: From a self-portrait made with acrylic paints and collage, I prompted the text-to-video generator, RunWayML, to animate the eyes to look towards the camera. The generated video pushes “me” out of the frame. That says a lot, no?

POLICY & RESEARCH: At the time of creating these pieces OpenAI's video generator, Sora, isn't accessible but issues are most likely the same as those exposed in the Algorithmic Frontiers Exhibit. OpenAI's says they will engage with artists, educators and policymakers around the world before making it accessible to the public blog in the recent announcement of Sora, a video-generator.

If you are one of those artists who answer their call, remember your engagement has value. How artists contribute to training these platforms and how the benefits will be shared and redistributed is a critical conversation.

When DeepMind (Google) approached me for a Generative art project, their budget allocated 5% to the artist, the rest was for AI research and deliverables included policy recommendations. I refused and launched the [Art X AI Conversation](#) asking for policies to limit Big Tech from using artists to advance their objectives. Industry can support artists in their AI explorations, but 1) our work has more value than 5%, 2) artists must be at the table of the regulation and governance of Generative AI.



12. Social Fabric



INSPIRATION: Social Fabric and community are concepts I've always been curious about and explore in some of my paintings. Community is also a theme that emerged from the Words. We are collectively experiencing an information war made worst by increased polarization. How do we build community, solidarity, and peace when we can barely talk to each other anymore? Discussions on AI are becoming more and more polarized. It's normal because adopting AI involves very political choices deeply rooted in issues of power and identity.

HOW: I used the free Hugging Face [QR Code generator](#) and I prompted it with “colourful, vibrant pinks and vermillion orange textile weaving”.

POLICY & RESEARCH: The background behind painting 12, titled “Social Fabric” is as follows: As generative AI's influence burgeons into a \$1.3 trillion market by 2032, its capacity to redefine creative industries and cultural norms poses a dual-edged sword: it fosters innovation but

also threatens the livelihoods of artists and the democratic fabric of society. The centralization of AI's development and policy-making in the hands of Big Tech risks not only the disenfranchisement of artists but also the erosion of democratic principles through the manipulation of cultural narratives and the monopolization of what constitutes art. In response, our coalition advocates for artist-led guidelines to ensure that the evolution of art and culture remains a democratic process, reflective of diverse perspectives and inclusive of the community it serves.

The community that supports the Art Impact AI Coalition asserts that the future of art and culture should be shaped by the very individuals who contribute to its richness and diversity; emphasizes the urgency of setting artist-led guidelines to govern AI's impact on the cultural sector; champions the crucial role of art in sustaining democracy.

Four (4) policy paths to explore to strengthen social fabric in creative economies:

1. Protect and promote artists' economic rights by 1) protecting intellectual property (IP) protection, copyright and moral rights and promoting affordable measures to enable artists to defend their IP; 2) study, implement and enforce new mechanisms, business and sustainable financial models that ensure profit and benefits redistribution in care and creative economies.
2. Protect democratic processes in AI regulatory and policy innovation: prevent the influence of large foreign companies on AI regulation; ban industry from using public funding to unduly influence emerging AI policies and regulations that will affect artists, cultural workers, and all citizens.
3. Proactively protect equal opportunities for all in digital economies: establish processes and cross departmental teams that monitor the gender and intersectional implications of generative AI; ensure that underrepresented, marginalized voices are heard; put in place proactive measures at every step of the “making-of” AI systems.
4. Ensure that the valorization and promotion of arts and culture is a priority in national and international agreements, as is the case, for example, with gender in the free trade agreement between Chile and Canada.

And you, what do you think: how do we build community, solidarity, and peace when it's become difficult to engage in constructive conversation with each other?

Share your thoughts in the Sign and Connect Section of the Exhibit.

Acknowledgements

Huge thanks to **Mozilla** for the 2023 [Creative Media Award](#) allowing me to do this Exhibit!

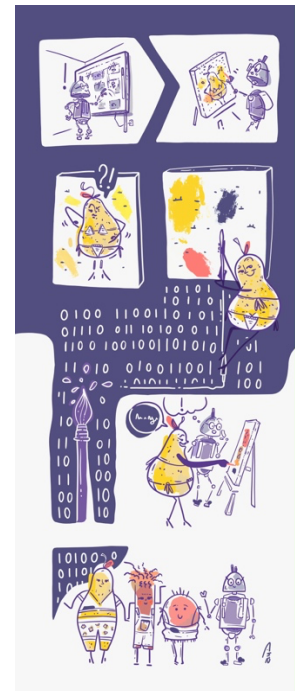
Huge thanks to the app creation, PearAI.Art, team: [Marta Kersten-Oertel](#), [Jonathan Reyes](#), [Giula Taurino](#) who made it possible to engage with women/womxn in 40+ countries.

The PearAI.art app creation had no official sponsor, but the [AI on a Social Mission](#) Conference had partners (Microsoft, Montreal Art Council, and many generous ticket buyers). [AI Impact Alliance](#) stretched the sauce, most of the team worked on a volunteer basis. For this exhibit, Daniel Harris integrated interactive elements on the Algorithmic Frontiers website using html, python. We used Vev, a website builder that speaks both to coders and non-coder creatives. Daniel also contributed to training experiments for the RAG-Chatbot.

Huge thanks [Karina Kesserwan](#) for her review and comments on the Exhibit prior to launch and to [Yousra Benziane](#) for her feedback.

Merci à [Sylvie Ratté](#) qui a sauté dans le bateau et écrit une belle demande pour ce projet en 2021. Celle-ci ainsi qu'une autre ont été refusées mais ce n'est qu'un exemple des résultats de la persévérance. Never give up!

[Audrey Desaulniers](#) illustrated the PearAI.Art app.



Sébastien Thibault did the illustration for the Art Impact AI Coalition (petition).



Thank you to all the [Art Impact AI Coalition signatories](#).

Thank you to everyone who is engaging with this Exhibit and those engage in the conversation when signing the registry!

Finally, the roots of this Exhibit started with the Art Impact AI Program in 2019 thanks to funding from the Council for the Arts of Canada when I was exploring the *then* very abstract generated images using texts summarizing artists points of views on AI. If “AI” had listened to artists back then, we might have a very different Generative AI landscape now.



AI is Listening to Artists, vintage Generative AI, 2020