## Nina Rajcic: Navigating Artificial Intelligence for a Meaningful Artistic Practice

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As a self-professed AI artist, Nina presented an opportunity for us to explore a curiosity regarding how AI artists have been developing a process during an AI boon brought on by transformer and generative AI tools. Although her journey has been one of pursuing text as a creative output, the nature of transformers and diffusion suggested relevance to graphical outputs. The following interview did not disappoint in that pursuit.

Francesca: Thank you for joining us, Nina. We were drawn to you initially upon finding your work on a piece called *Mirror Ritual* (see Figure 1). There's not a lot of web presence as to what you have been up to since then. That makes sense to me as my websites are two years behind my current thinking. Bruce and I usually end our interviews by asking where you are currently, but let's have a change of pace and start with that and where you are going as you move forward from your work on *Mirror Ritual*.

N: I am juggling roles at the moment. I'm doing art, but also researching how to go about doing some new things. I finished a PhD degree and am wondering if I continue with that theoretical research, or do I do artistic research and continue with that? Maybe it's more my personal preference but I find myself more pulled toward the theoretical. I'm interested in thoughts regarding AI and the impact it is going to have on society. Making art is an interesting way to probe, but maybe it will be a matter of doing many things at once in the name of research. How to proceed gets a little confusing. I have done a few projects in the last year that haven't contributed to research outcomes. It might not be relevant, but I felt the effort needed to be justified through those other outlets. I have found an artistic process where one follows intuition about where one wants to go and then follows what one finds interesting.

Maybe the research contribution can come later after the analysis when one finds some underlying value through probing. I'm figuring it out.



Figure 1 – Nina's exhibit entitled *Mirror Ritual*, suggesting interaction with a mirror as a common household object.

F: That's interesting because a lot of the artists we interview are fully in that probing mode. Your work spans both art and research so it makes sense you are looking at where you are going to land. Do you want to talk about the things you have been experimenting with this year?

N: I have been working with AI models since the beginning of my artistic practice. I did a fair amount of investigation on generative model fine-tuning in the *Mirror Ritual* piece that you mentioned. I have been developing that further over time.

F: Can you talk about fine-tuning a model? What does that mean exactly and what is that process with and since *Mirror Ritual*?

N: Yes. Fine-tuning picked up when GPT 2 came out. That was the first GPT of its time as a transformer that provided mass access. Everything before that was restricted access. And that GPT was significantly better. It was released open-source in 2018. That version of GPT lets you use it with your own set of data so I started doing that. You can retrain the model and then apply post-training adaptations, which I applied to a small number of layers.

**B**: Sounds like you were early to those explorations from an art perspective.

N: You essentially retrain what is a small amount of the model but it can change the style of the output. People have done this, but it actually is not all that common any more as the masses of genAI text users are just familiar with the basic interface of ChatGPT. Now people more often just ask it via prompts to provide outputs with a certain voice. There is more integration of style in the model than before when it was just complete-the-sentence kinds of systems. I made a data set of text that I liked in order to use it to create a particular style, and then use my own writing and combine. I needed a lot of data. I had to compile a mishmash of various texts including postmodern poetry. I have been working with that, generating with that, and then adding those outputs to the training inputs as well. It's been a long process.

F: I am curious about the AI generated text has evolved from *Mirror Ritual* to your current work?

N: Well, in terms of the text, perhaps what is more important is the framing and context of the installation and how it is presented that will influence how people read the text. For *Mirror Ritual* it was framed as being responsive to your emotions. In that regard, a lot went into getting the text that popped up to fit a purpose for how the audience was viewing the work. So that they would be thinking about their own emotions as they read the text. In that framing, I expected that they would use it as an emotional device. I use a lot of literary devices that don't address the viewer directly. And then with the new work it is not so different, but maybe the framing is different. With the mirror I could sometimes generate poems that were affirmations.

F: Can you describe another piece where the generated text had a different framing?

N: In my installation This is Not Your Breaking Point the generated text was structured as a list where each text was one line of twenty words or less. I installed that last year right in the center of Melbourne CBD. The installation included a pen plotter and an AI model that reproduces human handwriting, in a way where you could push it to be illegible. I am very inspired by a visual style that uses markings that look like visual language but you cannot actually read them-it's called asemic writing. We had this AI-generated handwriting exhibit set up in a big glass container with a big scroll of paper (see Figure 2). People conceptualized it as a big robot, which was interesting to explore. The AI generates an infinite amount of text with language that describes why this is not your breaking point. It's like an endless poem that is created in a big glass container that people can watch. I've done this type of work before where I sat inside the box for a period of time. I did eight hours at one time and I would cut up and stack the paper and then distribute it. That's the little bit of cherry on top.



Figure 2 – Nina's exhibit, *This is Not Your Breaking Point*, as installed and active in the Central Business District of Melbourne, Australia.

F: So, talk to us more about what was being generated in *This is Not Your Breaking Point*. Did I hear you say it automatically generates poetry? Or is it more about autogenerated marks?

N: It is poetry. It's text poetry that goes in and out of legibility. Sometimes it gets scrolled out of control as if a robot is struggling and sometimes it is readable text output (see Figure 3). It's interesting but keeping it running for two weeks straight was quite complicated. There's this element of paint in a paint pen. and it kept on jamming up (see

Figure 4), and I found myself visiting it every day to make sure everything was going fine. I was creating a list, writing it myself while using the system to continue writing the list when I needed room to catch up. It was a continuous installation. I kept it running. That was a cool experience.

F: You mean you had to keep giving it new material?

N: Yes. Because it wasn't completely automated. I could have automated it but the actual content was too important to me. I couldn't allow it to be just anything, if that makes sense.

F: That makes total sense.

N: In that consideration, it wasn't feasible to have it completely curated. It's the part that I enjoy and I've been working with generative text for so long. It is interesting because back four or five years ago, like at the time of *Mirror Ritual's* inception, the generated text wasn't really great. It was more semi-comprehensible as the generation process could get lost with that earlier GPT version. That then created a part of the aesthetic.

F: So, what you are feeding the models is evolving. Clearly you are developing an artistic practice *with* AI instead of just relying upon it.

N: Yes, and the best way I found to present it as art was to cut up the scrolling output text into A3-sized pieces of paper to sell as pieces. That was also a way to share examples long after they were created. Some examples are on my website at www.ninarajcic.com/shop/.

B: You used the word probe early on in this interview. I like that word a lot. There is a scientific way that a scientist would probe a phenomenon. They might develop a hypothesis and then develop test cases to see what the phenomenon did with them. Then they might use scientific thinking to evaluate what the response means in light of the hypothesis. The artistic process of probing, I assume, could be very different from that?

N: That is an interesting question because I am scientifically-minded. That was the way my brain worked before I got the PhD. I incorporated those earlier experiences of studying physics and programming computers into my artistic practice. Then I got away from that when I approached art from an emotional standpoint. When I started, I was more disposed to having a thesis and thinking about creating an extension of myself through training. I think people have explored this–not so much in using technology as a collaborator, but whether one could capture an essence of style. Long ago people tried it for

Shakespeare. I created a writing style that I produced. Capturing a style was what I was interested in doing.

F: Your early work reflected an interest in a writing style. Was that something that took time to refine?

Figure 3 – A section of output from *This is Not Your Breaking Point*, demonstrating transitions from illegible to legible to illegible text.

N: I think I hit on something early on that I was happy with. There was something that was a little off, call it clumsy machinist, but because I wasn't in the picture any more it was OK. I then continued to grow and develop my art with my writing. I look back and I'm not too fond with any of that early output. You need something to continue to work with that can learn from you and that captures just one particular time in your life. It's now four or five years later and I already feel differently. Now I am playing with technology that is much more advanced, aware that there are still a considerable number of people who haven't played with ChatGPT 4, for example, in an artistic sense. For most people, the experience is very literal and the generated dialog has an annoying voice with a finality that you cannot escape.

F: That's a very interesting point. What you said is that ChatGPT is getting more advanced and is almost crafting its own personality. I see that in the visual work that comes out. It is interesting to hear you talk about that in the realm of literature and other writing. Can you talk more about that change and what you see and how you might work with that in the future?

N: Yes. You said something about the personality that is developing but what I also think is happening is that the developers of the products of AI are being driven by societal pressures. They have to censor the AI which was something I had to do four years ago. I was censoring for *Mirror Ritual* as I was thinking that the generator could create anything, or direct someone to do something that was offensive or could create unwanted controversy. I worried about how it was going to reflect on me and what were the possible consequences. I think OpenAI is terrified of a terrible PR story that is offensive and causes something bad to happen. Those considerations make for a risk averse approach which is leading to ChatGPT having its particular personality. But that's only when interfacing to GPT though. I work with GPT directly.



Figure 4 – Another section of output from *This is Not Your Breaking Point* when paint oozed out of the paint pen during a live installation.

B: Perhaps it is useful to linger here. Many suggest that the potential of AI is going to grow exponentially when AI models communicate with other AI models more regularly and when AI models access applications that enable actions to be taken. What you are saying can be considered within a framework of AI models generating interfaces to other AI models. Considering that, one could imagine using a prompt to generate the personality of a ChatGPT interface.

N: There are already many other models, and there are many other interfaces to GPT. Those models have a similar quality whereby they can be fine-tuned. There remains the possibility to collaborate with AI models in an artistic way. And that is where I am at now with trying to experiment and update the work.

F: Thinking in terms of a chronological thread through your work, it sounds like *Breaking Point* is a recent work in a line of iterative work and lessons learned. What have you taken forward from your previous work, and the text you have generated, to pursue something different with regards to looking at other AI models?

N: With *Mirror Ritual*, I didn't know what the mirror was going to say. With *Breaking Point* it was more planned as a performance so I wanted the text to be more curated. It's a very long poem that I am writing, but I cannot write every single line when there are ten thousand. I mean I could, but I didn't want to spend that much time doing that.

F: It's interesting that here you had something in mind about what you wanted to convey, or project if that is a better word, as opposed to the *Mirror Ritual* piece, which seemed to be interactive in reflecting back. Could we go back to an earlier section in the discussion? Was there anything in *Mirror Ritual* that assessed emotion and then you were dictating the text? Or was that totally disconnected?

N: No. That is how it works in a basic sense. It's not precise or elaborate but it uses a detection algorithm through computer vision and that is passed on to generation through a mapping language that would complete the sentence. It started out with the assessment of the emotion a person was feeling and then it would use the model to finish the poem.

F: Do you consider yourself more of a writer, a visual artist, or a combination? Or is your work an interpreter of technology? Or all of the above as a mix of things?

N: It is a mix of things. I like writing but I don't like the traditional modes of reading and writing or interacting with that community. There were other interests instead that I wanted to combine into one kind of practice. I was always technical and I was not trained in artistic. I was never thinking "how am I going to contribute to art?" I just started doing it. Traditional formats of writing don't appeal to me.

I wasn't going to be a published poet. I envisioned different types of audiences.

B: Some of our most compelling interviews, at least for me, are from people who are technical, but weren't heavily trained artistically, and who realized their best way to communicate what they wanted to communicate was through art. Artistic practice had the perspective that was going to let them communicate what their audience needed to know that they assessed could not be communicated through existing scientific means available. In your case perhaps, artistic perspective led to work that was more meaningful to you compared to any formal technical practice you felt confined to before. If so, that's useful to our readership. There is promise with AI if artists can figure out a process whereby they get visual results that they then report as being necessary to communicate.

N: I resonate with that. I worry about how AI might stifle creativity. I think most people would agree it is a tool an artist can use but there is this sense of how much agency of their creativity is being outsourced to the models. I think the art community was quite critical of the early artwork produced by AI as having negative impacts on society. I am seeing less of that now. Now AI art is considered as what Midjourney produces. AI art is what I say I do. Four years ago, I might get pushback on that.

F: But *This is Not Your Breaking Point* does not have the language that comes out of Midjourney but draws on a language that is yours. That is what makes it more interesting to me. I would like to return to this balance you are looking for and thinking of: Are you a maker of things or a researcher of ideas? How do you map your practice to impact? It sounds like you have been working more on letting the artistic side drive and now you thinking you should turn towards letting your research side drive?

N: I am thinking more in terms of me splitting them or disentangling them a little bit. Internally I don't think they are entirely separate but perhaps practically they need to be.

B: Do you mean in terms of communication channels with two separate professional networks?

N: I mean I am trying to pursue the artistic parts independently without thinking about research outcomes. As to the question of my intention when I create something, right now I am thinking about writing a poem. I am thinking about someone painting and why they might do that. That's my approach. I am learning more about art and the art world because they are new to me. Maybe it's because they are new to me that I find it so interesting. Contemporary art and the way technology is not being incorporated into

contemporary art. At the lab, people think "oh this is interactive art," where they accept the technology in the piece as providing interaction in an art piece. I am pursuing that and constructing those projects from a pure place of how I want people to feel—nothing about the technology except how it facilitates that. That gets to the heart of my practice. What can we do with technology that wasn't possible for the audience to experience without? I want the new experience. And then in terms of research I guess I am mostly interested in theories about how we conceptualize AI. The two things are linked but I am finding it is easier to split it up to get it presented. What is the philosophy of the AI? Can it be conceptualized with regards to a human? Is it an extension of the human? How can it change writing? It has already changed writing as I have experienced it through everything I have done. It's perhaps getting easier again by conceptualizing writing from the humanities perspective.

F: That makes perfect sense. I understand how it is motivated from two different places. One requires an analysis kind of thinking and the other comes from a part of your brain that drives an artistic process. I get why you are splitting them up. Talk to us about looking forward. What are you excited about? What are you working on that is either in progress or that you are excited to consider pursuing next?

N: In progress there has been so much work that I am currently updating *Mirror Ritual* because after the *Breaking Point* work I was inspired by the public context and making public artworks. I think public artwork kind of has a bad rap and it is hard with technology to make public installations outside of projected imagery. For my work, I like being outside of the lab and outside of the gallery. There's something about people stumbling upon the robot writing that was compelling. It confused people which caused a really intense response. I loved watching people's reactions.

F: Yes, that is usually interesting. I used to do public art and I think your thoughts about public art are spot on. The audience of the world is out in the world—it's not in the gallery.

N: I agree. Of course. it is possible to get similar reactions when it is in the gallery, but not guaranteed.

F: No, it's very different.

N: I enjoy trying to dissect the art world as I get into those differences. That's how it has always been since I had the first mental image of the mirror. When that was a seed in my mind, it was always a public artwork that I wanted to make. My vision was always of someone coming across this

thing and having no idea what is happening or why. But it was meant to be promoted or advertised as an AI interface. Now I know where I want to go: to recreate the mirror for a public space as a larger context of redoing it basically—to redo the code and redo the model.

F: What kind of changes are you making?

N: It is going to be larger and more suitable for getting visual impact (see Figure 5). As an academic piece it was presented as a domestic object that you can live daily with and the theoretical contributions started with that. This would be larger and more of a soft sell. I feel unrestrained right now in an independent sense. I don't have to do anything in particular so I am interested in exploring where it might go. It's not necessarily about emotion. It might shift to something beyond that. GPT's current abilities allow it to go well beyond looking at text. It can look at an image and then tell you so many things. In the mirror context it can see the person and make assumptions about that person. It makes sense to use the generalized intelligence of the model and then pass that into the text generation along with a signature text style.

F: That sounds like a physical installation with a mirror that is larger, but with going beyond the underlying premise of emotion to more about the person?

N: Yes! And I'm considering motion capture. Now you can pass in a video or livestream to a large language model and you can have it make an assessment of a person. The multimodal intelligence model has gone so far beyond GPT 2. I don't think I would make it about basic emotion detection because the technology has gotten so advanced now. I'm thinking of playing around a lot to see what is interesting: an AI, perhaps GPT, and a local model to look at the human viewer to make an assessment and then pass that through to some kind of mapping potentially.

F: What kinds of assessments are possible?

N: It's kind of infinite in a way. It depends on how one writes the prompt.

F: You mean you might filter for ethnicity or you might filter for...

N: I mean as opposed to the initial experiments when I asked the model what is this person feeling. Perhaps expanding to what the person is doing or going through based on what they are wearing as a full body thing. Can you make some assumptions about this person? Something like that that can be reasonable to pursue, and then ask the question if that is going to be interesting in generating a reaction. How do you frame that?

F: You are crafting the prompts and experimenting with different kinds of prompts to see if you are getting at something deeper than a basic reflection?

N: Yes. It's not necessarily deep, but it is something interesting. It's not to go straight at it. The whole intent of the mirror reflection was not a direct path to emotion, but to go all around it and see if it is capturing anything. Capturing and then trying to quantify the emotion is such a ridiculous concept. It might be the same way whereby AI is critiquing and categorizing people based on statistical norms. We will see. I really am at the very start of this.



Figure 5 – Nina envisions a large, public, exhibit space for a large-format packaging entitled *New Information*, which will analyze a person's appearance according to a transformer model trained on 500 terabytes of data.

B: We had one interview where the interviewees enlightened us greatly about how public art is dependent on where the installation takes place. With the context of an art gallery, you are going to get people with their art mind on. One in the context of an underserved or disadvantaged neighborhood might have visitors with a different mind space. That might be interesting to get a sense of any macroscopic reaction in different settings. In terms of the AI, perhaps like how ChatGPT maintains a dialogue with one person, the reactions from a stream of visitors might keep a dialogue going with an AI. To see what the AI does with describing the context when there is a temporal aspect of continuity to it.

N: It is definitely capable of that. You can give it a lot of information and let it reflect upon it. It can simplify responses to huge amounts of information. To read through and then summarize. That could be a way forward too. There are many possibilities.

B: The synthesis of all our *Art on Graphics* columns, which will reach ten years' worth at the end of 2024, suggests there are nuggets from each that seem to be relevant to whomever we talk to next. We don't just spew them all out because we are focused on the person we are interviewing and we are trying to add to the list of insights more than convey what an AI might already list from synthesizing past interviews. Supposedly that is what AI is supposed to help with. Ingest the interview texts and make a list that is nice and concise.

What we are led to expect is that AI can generate insightful nuggets from the interviews.

N: I think that using AI like that instead of generating a piece of writing is easier. It's not as good at finishing a polished piece of writing compared to interpreting a polished piece of writing. Seeing a polished piece of writing is impressive and takes a long time to do. And I am very critical of using one tool to do all this well.

B: There definitely is a drive for efficiency in our culture. That can get us in trouble if we lose so much pursuing it. And "haste makes waste" seems applicable as a warning.

N: Yes, I think that technology in general is pursuing increasing convenience which I think is totally the wrong direction. Just in my personal life I find that more convenience takes away from enjoyment somehow. I think that going through struggle and going through pain, and the pain of writing is just the worst, allows you to get to something. You are removing that if you just let ChatGPT write. If everything is convenient, I think that is such a huge issue. We think we want convenience but I don't think that is what is going to help us most in the end for finding satisfaction and enjoyment from life.

F: I think you are spot on and that might be an excellent place to for us to break.

B: Thank you.

## About the Authors

**Nina Rajcic** is an interdisciplinary artist exploring new possibilities of human-machine relationships. She received her PhD from Monash University. Her practice is centered around the materiality of language. She works with machine-generated text as a way to subvert conventional understandings of intention and authorship, redirecting our attention towards the material aspects of meaning. Her work takes the form of performative installations that challenge the dominant narratives for the future of human-AI relationships, narratives which too often fall into binary modes; AI as threat, or AI as savior. Disrupting this binary, allowing for the possibility of something else entirely.

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