



## **Speculative Materialities, Indigenous Worldings and Decolonial Futures in Computing & Design**

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### **Abstract**

This intra-view follows a round-table discussion that took place during the New Materialist Informatics conference on 25 March 2021. The discussants – Indigenous researcher and game designer Outi Laiti, artists and researchers Luiza Prado de O. Martins, Femke Snelting and Caroline Ward – start with their own artistic, academic, and creative practices and discuss how these practices relate to otherwise-worldings in computing that engage materialist, anti-racist, decolonial, Indigenous, and trans\*feminist thinking and doing. This discussion, facilitated by artist Ren Loren Britton and researcher Goda Klumbytė, brings up questions of collaboration and infrastructures needed to support otherwise practices in computing and design.

### **Keywords**

Otherwise computing; Indigenous games; Artistic research; Black feminist epistemologies; Social justice; Decolonial practice; Speculative methodologies.

## Introduction

Critical computing is emerging as a branch of informatics that takes up the Indigenous, decolonial, feminist concerns within computing. It is both critical of existing modes of doing informatics, as well as active in transforming engagements and doing informatics differently. This work crosses disciplinary boundaries and performs research and design oftentimes in a diffractive manner, bringing different fields of scholarship to bear on each other. This means that methodologically critical computing research and design do not rely only on computational practice to generate insights into computing but take multiple points of entry and different material forms to critique and work with “otherwise computing practices”<sup>1</sup>.

Importantly, critical computing and critical design praxis start from positions that are overlooked or marginalized in conventional computing and aim at actualizing re-orientations. These re-orientations and critical investigations often focus on legacies of colonialism, heteropatriarchy, racism and other structures of oppression, and question how they get enfolded in objects and categories of analysis, and how they prescribe certain values and ways of seeing (Mills, 2018). Critical re-orientations scrutinize and challenge white prototypicality (Browne, 2015) that gets inscribed at multiple levels, from the sourcing of minerals for technologies, to designing machine vision, to generating forms of representation that enact racializing assemblages (Dixon-Román et al., 2019; Weheliye, 2014).

At the same time, new conceptual and praxis horizons are being opened. Speculative design, for instance, is by now an established method and domain of research. Indigenous AI as a field is also gaining ground (Abdilla et al., 2020), as are eco-centered, anti-extractivist perspectives in computing and design (Escobar, 2018; Kannabiran, 2014; Overdorf et al. 2018). The role of researcher and designer is crucial in this. How do we find forms that move us towards de-centralization, de-individualization, while resisting techno-nationalism? How do we foster material forms of accountability towards computing and worlding otherwise? These critical practices expose and aim to find ways around, above, through and out of contemporary technological, computational infrastructures that foreclose experiment

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<sup>1</sup> For instance, see a series of entries on “otherwise practices” within computing on the Engines of Difference blog: <https://enginesofdifference.org/2021/01/04/otherwise-practices-with-in-computing/> (accessed on 17.02.2022).

and speculation by optimizing for profit. At stake is the becoming of technology and becoming of techno-life-worlds. We invited Indigenous researcher and game designer Outi Laiti (OL), artists and researchers Luiza Prado de O. Martins (LP), Femke Snelting (FS) and Caroline Ward (CW) to talk about their practices in critical computing and design. The discussion was facilitated by researcher Goda Klumbytė (GK) and artist Ren Loren Britton (RLB).

## Intraview

**GK:** So Ren and I would like to ask you all to first talk about your own praxis and propositions for re-orientations that engender otherwise worlds with computing.

**CW:** I would like to share some early thoughts on collaborative practice around AI justice as an example of ways of thinking about computing otherwise, through different forms such as collectivity, time beyond the human lifespan, and Black feminist thought. My practice intersects across design, art and social research and I am currently on a fellowship, together with Dr Erinma Ochu, to address racial justice and AI ethics with JUST AI<sup>2</sup>. Having a joint fellowship and being part of a fellowship cohort allows us to realise that thinking and action happen in collaboration – in this case, a lab in which racial justice and AI ethics can be considered.

Within the lab we have centred Black feminist epistemologies to think through AI justice issues whilst developing our individual projects. This space<sup>3</sup> is held as a queer, anti-racist, anti-ableist space produced at the intersections of our lived experiences and expertise. Through opening up our lab to the broader discourses on AI ethics, we are forced to confront the power dynamics and culture that come with mainstream investment and interest in minoritized collective thought. Particularly in the field of AI, which is dominated by colonial rules of extraction of value, knowledge and profit, while also reinscribing what knowledge, bodies, information and facts are deemed “valid.” This labour of extraction reinforces what Patricia Hill Collins describes as the matrix of domination (Hill Collins, 1991). Rather than challenging or overcoming cycles of inequality, technical fixes – such as AI – too often reinforce and even deepen the

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<sup>2</sup> See <https://www.adalovelaceinstitute.org/just-ai/> (accessed on 17.02.2022)

<sup>3</sup> <https://bit.ly/JustAIOpenLabs> (accessed on 17.02.2022)

status quo around racial codes that are born from the goal of and facilitate social control (Benjamin, 2019) and serve whiteness through epistemically reproducing it (Katz, 2020).

How then to escape the matrix of domination, or are all minoritized efforts likely to become co-opted or complicit? Care as power may be an option. Black feminist epistemologies centre lived experience at the intersections of race and gender with dialogue built around the ethics of caring (Hill Collins, 1991). By centring Black epistemologies within our work and within my design practice and the narratives that we tell I am considering how an effect of care creates collective power and justice and reorganizing around collective liberation.

In our Just AI fellowship, we start by connecting AI to questions of care. Specifically, we want to think about care that extends with and beyond the human. We are doing that by thinking with three oak saplings that we started growing.



Figure 1: Preparing the acorns for incubation in a damp, cold environment.

These saplings at some point will demand more time, space and light than we can currently give them. We wonder if perhaps this offers propositions for collective consciousness and equitable living in a warming world where there is inequitable access to land, shade and air quality. We are coming to value local, community-based experiments, the tools and technologies for the possibility to sustain and replenish life. Our practice is based on inscribing alternative narratives for equitable

futures and taking thinking with more-than-humans seriously while doing that. Here we are in solidarity and acknowledge Indigenous knowledge systems and practices.

**LP:** In my work the question of collective effort is also important, particularly with regards to decolonial work in design and multispecies justice. In my recent practices I have been thinking with and through environmental disasters that have been consuming the South American continent (forest fires, pesticide spillages, among others). The history of coloniality is profoundly marked by an impulse to consume; a perpetual and insatiable hunger for profit that is used to justify all kinds of injustices and abuses to human and non-human persons. In satiating this hunger, the modern/colonial project classifies not only non-human bodies – of land or water, for instance – but also *human bodies* under the definition of “resources,” thus excluding these from every possibility of subjectivity. Indeed, the indigenous author and activist Ailton Krenak points out that when we remove the personhood from the river, the mountain, when we remove their senses, thinking that this is an exclusively human attribute, we allow these places to become residues of extractivist industrial activity (2019, p. 38). For some to be satiated, others must be plagued with scarcity—in the form of environmental degradation, the breakdown of food systems, conflict, and forced migration, among others.

We are then tasked with answering, through our everyday practices, difficult questions: how do we create the conditions for life whilst navigating a system meant to produce death? How do we reject this framework of scarcity and consumption? How do we sustain practices that centre on care and affect through decolonizing work? When considering these questions, I often turn to the words of the Zapatista indigenous liberation movement in Mexico. In their Fourth Declaration from the Lacandona Jungle, they argue for the creation of a “world where many other worlds fit.” In this pluriversal conception, abundance and generosity act as governing principles that allow communities to reject the universalist impulses of coloniality. In their words:

Many words are walked in the world. Many worlds are made. Many worlds make us. There are words and worlds that are lies and injustices. There are words and worlds that are truthful and true. We make truthful worlds. We are made by truthful words. In the world of the powerful there is space only for the big and

their servants. In the world we want there is space for all. The world we want is a world where many worlds fit. The nation we build is one that may fit all the peoples and their languages, that may be walked by all gaits, that may be laughed in, that may be awoken. (Comité Clandestino Revolucionario Indígena-Comandancia General del Ejército Zapatista de Liberación Nacional, 1996, n.p.)

Decolonization is not an individual choice; it demands collective, sustained, committed work.

**OL:** I approach the questions of otherwise practices in computing through Indigenous perspective, where the story begins with the land. Indigenous worldview is about relationality, especially with the land, including all the ways of knowing, the systems of arranging information, entire cultures, ways of conceptualizing the world, languages, history, and everything is nurtured by the ties between Indigenous peoples and the land.

As an example, this game, *Rievssat* made at the Sami Game Jam in 2018, describes the story of land connections and oppression from the Indigenous Sámi perspective. Sami Game Jam's goal was to, in a short span of time, produce video games based on Sámi culture. It had 44 participants from around the world, some of them being local Sámi. The event took place in the northernmost municipality of Finland, Utsjoki.



Figure 2: Screen grab from the game *Rievssat*. Picture source <https://itch.io/jam/sami-game-jam/rate/228170> (accessed on 18.02.2022), copyright team Rievssat.

The bird in the game *Rievssat* is willow grouse. It is flying through the eight seasons of Sámi year, trying to find food in a world that is constantly changing. Suddenly there are human markings increasing rapidly, and the bird struggles more, season by season. This is one of the six games created through collaboration and sharing, highlighting the Indigenous land connection. These games show that Sámi game development is a cultural attribute that emerges when given space. Combining technical skills with cultural insight generated knowledge based on sharing, where intangible knowledge combined with technical skills produces tangible outcomes like video games. Sámi game developers also saw the game development event as a possible platform for building reconciliation, which, in and of itself, is telling of the collective experience and its potential.

Digital games play an empowering role in Sámi culture as a platform for self-determination supporting both the traditional game and play tradition and preserving and developing the Sámi's intangible cultural heritage. The cultural games developed from within the Sámi culture serve to normalise mundane Sáminess, rather than to promote cultural symbols or underscore the fact that they are games based on Sámi culture. When the Sámi make games for themselves, they do not have to underscore the importance of cultural objects or situations and are free to instead focus on the deeper thematic levels at, for instance, the emotional level. When that happens, the games can truly express something genuine: current, everyday cultural content without the pressure to please outsiders.

**FS:** An example that I want to bring to the table has to do with otherwise computing practices that are rooted in trans\*feminist critique and artistic practice. It is based on the book *Volumetric Regimes: Material Cultures of Quantified Presence* that I have edited together with co-researcher and companion Jara Rocha, where we present “disobedient action research,” triggered by concerns about the way 3D computing seems to quite routinely render sexist, ableist, speciesist and ageist worlds. We call it the Industrial Continuum of 3D. It can be observed when volumetric techniques and technologies flow between industries such as biomedical imaging, wildlife conservation, border patrolling and Hollywood computer graphics. Its fluency is based on an intricate paradox: even if the continuum smoothly moves between distinct, different, or mutually exclusive fields of application, it leaves very little space for

radical experiments and surprise combinations. It thrives on fabricating similarities between situations, invoking a type of space-time that is both fast and ubiquitous, ignoring complexity and implications. But volumetric computation can and should operate otherwise.

Connecting to what Luiza mentioned on pluriversality, I think that if we want to find another computational “how” that will not negate nor erase other modes of existence, our first task is to rescue the desire for “continuity” from the claws of the established, the normed and the Modern. Against the unbearable persistence of 3D, discontinuity, latency and un-settlement are evident counterforces only as long as they engage with resisting that which 3D settles by flow: neoliberal accumulation, colonial commercial normativity and one-directionality.

So we compiled a list of trans\*feminist proposals for “computing 3D otherwise.” Here I want to just briefly list three examples. First example: Remediating Cartesian Anxiety. What if we decide to use six instead of four axes, twelve instead of three or zero instead of  $n$ ? What if we take time to get used to multiple paradigms for orientation, instead of settling for only one regime? Letting go of the finite coordinates of  $x$ ,  $y$ ,  $z$  and  $t$  could be a first step to break with the convenient reductions of parallel and perpendicular assumptions.

Second example: Extra-planar Projections. We know that the cartographies of complexity are already there, but we just have been lacking the means for their representation, their analysis, and their use. Extra-planar projections would not assume the axioms of linearity, but rather convoke playful articulations that diffract inwards. 2.1D, 2.5.3D and 2.999999D.

Third example: Fits-and-Starts-Volumetrics instead of smooth continuity. Time as mattered through computation works too hard on appearing continuous. How to hold time beyond constant speed, agile advancement, and smooth gait? Linear time is a problematic norm that will always confirm and appreciate what goes forward. Let’s use our energy for flowing with what gets crooked and throttled, to move with the flutters and stutterings.

In case these proposals feel too hard or even impossible to implement, remember that this is always the effect of hegemony! Because abolishing the Industrial Continuum

of 3D means to place it at the eccentric core of a kind of computing that dares to world without patriarcho-capitalist and colonial structures holding it up.

**GK:** There are a lot of resonances between all your practices: questions around the importance of collaboration, strategies of resistance that sustain multiplicity, but most of all the search also for alternative ways to *think and do* through and with computing and design.

**FS:** Yes, I would like to pick up on this *doing* and ask Caroline: could you describe how do you approach such enormous questions of trying to claim for AI justice in the daily life of the lab?

**CW:** It starts in centering care and actively working to create a care-full anti-ableist, anti-racist space already in the way we bring up those questions – of justice, of AI practices and how they relate to justice. For instance, we, the fellows in the AI Justice programme, put a lot of effort in holding a certain kind of space for each other. One of the first things we do when we come together is ask how we are and check in with each other. We create a space to vent and to bring our frustrations. This can be heavy sometimes but also crucial to have a space to off-load and bring experiences that we can learn from and grow as a collective.

But I have a question for everyone too: how are your collaborations made possible, perhaps virtually and otherwise? And I am interested in the resistance to being co-opted. As our labour continues and is opened up to share with dominant AI communities, we are considering how to avoid the trap of becoming complicit, co-opted or erased through practice. Is collective resistance the only possibility for change towards different possible futures?

**OL:** I guess in our work with Sámi game jams, collaboration – including outside of Indigenous community – is important because we don't have enough knowledge for the game developing tools at the moment within our community. However, collaboration is also a really powerful tool. The Indigenous people saw that collaboration was moving things forward and they thought it would be, for example, a tool for reconciliation. But of course, there are many questions how it's done so that it supports Indigenous communities and does not create more sense of otherness or reproduce power structures.

**LP:** I can also comment on collaboration and the intricacies of framing collaborations. In 2019, I was working on a project called *The Councils of the Pluriversal*. For this, I was collaborating with a group of indigenous artists based in Boa Vista, in Northern Brazil, in the Amazon basin, and in Rio de Janeiro, my hometown. In my initial idea, the Councils would be a way to convene artists, curators, singers, storytellers, activists, who were conducting their own versions of or thinking about pluriversality and were involved in the struggle for decolonization. As I lived and worked with others in the Jaider Esbell Gallery in Boa Vista, I realized that I didn't need to be there as a mediator for anything, I didn't need to convene anything – I just needed to offer my own perspective as a layer, and not a framing. Resisting framing, especially the idea of a universal frame of reference – which is what is at the core of colonialism, but also at what Femke called the “Industrial Continuum of 3D” and what Caroline referred to as the matrix of domination in Hill Collins’ work – is at the heart of the idea of pluriversality. It goes against the universalist impulse of sameness.

**FS:** To me this also connects to the tension between the probable and the possible, which manifests a lot in computing as well. Between what looks like a range of possibilities, a flow of abundance, as Luiza would say, but that in fact is confirming the probable – that which is optimized according to the logics of colonial capitalism. How to not let go of computation as such, but at the same time, not to get drawn into the probable disguised as the possible is the hard work that I think we all in our own ways and in our own spaces are trying to do.

**CW:** In terms of multiplicity and plurality, I've always found Spinoza and Braidotti (e.g. 2019) are quite useful and productive in thinking around the “and... and... and” instead of “either – or”, and that we don't know what a body – human or technological – can do<sup>4</sup>.

**RLB:** Outi, is multiplicity or the idea of pluriverse also something that your work on Sámi games resonates with?

**OL:** I think it's a hard work sustaining pluriverses. For me the key is how to avoid self-colonization, especially in spaces of collaboration. When we collaborate, we are

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<sup>4</sup> The logic of “and... and... and” is initially discussed by Deleuze and Guattari in *A Thousand Plateaus* (2014, pp. 25, 98, 99), even though I think of it more explicitly in the context of Braidotti's work. Thank you to Jacqueline Barreiro for pointing out this initial reference.

mixing and mashing different epistemologies and ways of seeing the world. This can make it hard to hold your space at the same time. However, collaboration and support are sorely needed. This support can be anything, from supporting Indigenous game developing events financially, to organizing digital tool workshops and sharing tool knowledge or collaborations. Research plays an essential role of making the voices heard, but the most important lesson to be learned is sovereignty. The change happens from the inside, guided by Indigenous worldview. We have our own path that we are trying to walk on. And then there's the main road next to it, where we can deepen the knowledge of, for example, game development tools. But the collaboration goes between these two worlds. We are not building bridges, we are walking side by side, but we are taking on our own roads. That's the balancing act – how to walk alongside without getting pulled to the main road.

**RLB:** Thank you, Outi, that's beautifully put. I think that brings our intra-view to a close. As a final note, I would like to highlight that all your work and the topics we discussed also point to the importance of embodiment – physical embodiment, but also forms of technological embodiment and embodiment of different worlds through alternatives. These alternatives also need infrastructures of support for otherwise practices in computing that are oriented towards multispecies, pluriversal, decolonial, anti-ableist, trans\*feminist presents and futures to flourish. I look forward to the ways in which we continue to build and invent them.

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Dr. Outi Laiti is an Indigenous game researcher and designer. In 2020, gamesindustry.biz nominated her as one of the 100 Game Changers for her work on promoting e.g. Sámi gaming. She is an Associate researcher at the University of Helsinki Indigenous studies. Her field of research is education and computer science with a focus on Sámi language and culture in digital games and programming. She is also active in designing and co-organizing Sami Game Jams and has been involved in several game development and educational projects in the past. Her doctoral thesis “Old Ways of Knowing, New Ways of Playing” published in January 2021, discusses the potential of collaborative game design to empower Indigenous Sámi.

### Luiza Prado de O. Martins ([luiza@luiza-prado.com](mailto:luiza@luiza-prado.com))

Dr. Luiza Prado de O. Martins is an artist, writer, and researcher whose work examines themes around fertility, reproduction, coloniality, gender, and race. In her doctoral dissertation she approaches the control over fertility and reproduction as a foundational biopolitical gesture for the establishment of the colonial/modern gender system, theorizing the emergence of ‘technoecologies of birth control’ as a framework for observing—and resisting, disrupting, troubling—colonial domination. Her ongoing artistic research project, “A Topography of Excesses,” looks into encounters between human and plant beings within the context of herbalist reproductive medicine, approaching these practices as expressions of radical care. She is part of the

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**Femke Snelting** ([snelting@collectifs.net](mailto:snelting@collectifs.net))

Femke Snelting develops projects at the intersection of design, feminisms and Free Software. In various constellations she has been exploring how digital tools and practices might co-construct each other. With Seda Guerses, Miriyam Aouragh and Helen Pritchard, she runs The Institute for Technology in the Public Interest, a transpractice gathering that creates spaces for articulating what computational infrastructures in the “public interest” might be when “public interest” is always in-the-making. With the Underground Division (Helen Pritchard, Jara Rocha) she studies computational imaginations of rock formations and co-edited Volumetric Regimes: Material cultures of quantified presence (with Jara Rocha, forthcoming). Femke supports artistic research at a.pass (Brussels), PhdArts (Leiden) and MERIAN (Maastricht). She occasionally teaches at XPUB (Rotterdam).

**Caroline Ward** ([carolinejaneward@gmail.com](mailto:carolinejaneward@gmail.com))

Caroline Ward is a designer and researcher. She is a Fellow at JUST AI (LSE), looking into racial justice and AI (supported by Ada Lovelace Institute). She has also been a Jerwood Fellow at Manchester International Festival in 2018-19 and researcher in residence at INIVA and the Stuart Hall Library in 2017. Together with Dr Erinma Ochu, she has co-founded and directs Squirrel Nation Studio that creates memorable experiences and concepts that consider co-existence as an ethic. Their work spans installation and live events in a range of public settings, from an urban mushroom farm reimagining the future of food in a climate emergency, to moving image; Nature’s Switch, which was also exhibited in a forest clearing and explores human-plant relationships to red light.

**Ren Loren Britton** ([hello@lorenbritton.com](mailto:hello@lorenbritton.com))

Ren Loren Britton is a white trans\* interdisciplinary artist and researcher tuning with practices of Critical Pedagogy, Trans\*FeministTechnoScience and Disability Justice. Playing with the queer potential of undoing norms they practice joyful accountability to matters of collaboration, access, Black Feminisms, instability and trans\*politics. Ren shares work across academic and artistic institutions across Europe and North America. With Isabel Paehr as MELT they study and experiment with shape-shifting processes as they meet technologies, sensory media and pedagogies in a warming world. They are currently a fellow with the project ACCESS SERVER at the Het Nieuwe Instituut, Rotterdam, NL and an associate fellow with the project Data for...? (trans\* and disabled lives) with the Digital Curation Institute, University of Toronto, CA. <https://lorenbritton.com/> + <https://meltionary.com/>

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