INTERVIEWS

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Interviewed by Margherita Tufarelli

The concept of prosperity is often associated with economic growth and the success of a product on the market, neglecting or downplaying the impact on the environment and people according to a model that has long been considered unsustainable. What is your definition of prosperity and what do you think are the tools and approaches to develop it?

I've not considered the term prosperity before the conference so I can't say I have an interpretation for myself. The term I use is *cohabitation*[1], the idea of living together well. Some qualify this further with the word "thriving", which I believe is a good addition, but the term is rich enough on its own. It takes more than compatibility or fair exchange to live together, to dwell in place among differences and similarities. It requires kinship and accepting entanglements to use posthumanist language. For me, it's important that cohabitation is collective or at least requires others and some form of collective participation. It is also active in that to live with others requires being there together, creating shared places, and lastly it is temporal or durational–the length of time together defines in part the cohabitation. To prosper and to thrive can be seen as an individual matter, separate from place, even exclusively about the interiority of the mind or self. I don't mean that as a critique but more as a comparison to highlight what cohabitation as a term brings.

In terms of approach, I see cohabitation as the goal for designing or what I call designing-with to invoke a more-than-human context for designing. In other words, it can be a measure for the success of what and how well we design. If a thing is designed, how does it contribute to living well together throughout its life and after, well past human use (which we then call "waste"). Further, we can ask how the thing designed existed in the world but also what it took to create a thing and its effects on cohabitation.

I want to be careful about methods, so we don't view emerging techniques as fixed and immediately teachable. This is a necessary area of design research that is difficult given the fullness of the challenge to design from a decentered position and as a relational subject (as required by designing-with or posthumanist understandings of design). Nevertheless, there are compelling theoretical starting points that we have explored (along with other design researchers) such as noticing (Tsing 2015), translations (Latour 1999), landscape ethnography (Watts 2019), diffraction (Barad 2014; Haraway 1994), and learning to be affected (Lorimer 2015). The work is to move these methods from the analytical to generative considerations of design: the actions and commitments required of designers[2]. I've conceptualized this as repertoires, to signal a more-than-human inflection on methods based on attunement and embodied actions. I have with others explored these in our practices in designing-with plants, pollination ecologies, textiles, networked devices, mycelium, and bioplastics[3]. These are early explorations and as I said in the end of my keynote, I caution against rushing to instrumentalize what we know now into practice. This caution is inspired by Isabelle Stengers' ideas of cosmopolitics (Stengers 2005) and slow science (Stengers 2018) that ask us to fully accept the challenges to know and further not to resolve differences so easily, especially in the context of neo-liberal pursuits. Rather to take the time (it will take time if done properly) and keep differences of knowing intact.

The concept of 'designing-with' that you propose challenges the tradition of anthropocentric design. What was the main motivation that led you to develop this more relational and inclusive approach? What are the limits of traditional design and how can 'designing-with' overcome them?

My motivation was to engage the community that I was doing much of my research in, namely human-computer interaction (HCI). On a high level, HCI is a fascinating enterprise to understand the relationship between humans and computers. Its starting points were between technical and human cognition but over time evolved to include social,

1 The many concepts discussed in this interview in italics come from Wakkary, Ron. 2021. *Things We Could Design: For More Than Human-Centered Worlds*. Cambridge, Massachusetts: The MIT Press.

2 See for example Nicenboim, Iohanna, Doenja Oogjes, Heidi Biggs, and Seowoo Nam. 2023. "Decentering Through Design: Bridging Posthuman Theory with More-than-Human Design Practices." *Human-Computer Interaction* 40 (1–4): 195–220. https://doi.org/10.1080/07370024.2023.2283535.

3 See for example Oogjes, Doenja, and Ron Wakkary. 2022. "Weaving Stories: Toward Repertoires for Designing Things." In *CHI Conference on Human Factors in Computing Systems*, 1–21. CHI '22. New York, NY, USA: Association for Computing Machinery. https://doi.org/10.1145/3491102.3501901 and Tomico, Oscar, Doenja Oogjes, and Ron Wakkary. 2025. "Constituency as a Matter of Practice: Moving a Plant Studio." In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*, 1–17. CHI '25. New York, NY, USA: Association for Computing Machinery. https://doi.org/10.1145/3706598.3713916.

philosophical, and political questions about human-technology relations. This has led to fascinating and constructive tensions in HCI between those who pursue a science of technology and generalizable models of users and those who focus on power in the relationships as a matter of race, gender, ethnicity or decoloniality, as examples. What fascinates me in these discussions of who we are putting at the center of our research or what is the appropriate technology, or which technological needs are addressed, is the relations between these questions and perspectives. How these concerns are connected, not only reveals what brings them together but what governs them or shapes them. What is "appropriate" for whom; whose "needs" are we concerned with; and which beings and matter are included in the question of "who"? In HCI, these relations are governed by human-centeredness. What is not said does not need to be said since we can readily assume we are talking about humans.

Human-centered design or user-centered design is an instrumentalized or practical implementation of human exceptionalism. In design, and this instrumentalization goes well beyond HCI to include design and its many variants, the humanist notion of humans as the privileged actors in the world is how we conceive of (and educate) designers; and human concerns are privileged over others in constructs of users and consumers. In professional design or the corporate world of design, late-capitalism and consumerism merge tightly with human-centered design to form the governing force of what is design, its values, and its aims. It's worth noting that Rosi Braidotti makes clear that despite the marketing rhetoric, corporate bodies and the global economy have long gotten over the exceptionalism of humans, flattening all life to be various sources of extraction whether human biology, labour across species, agriculture, or mining (Braidotti 2013).

My earlier research was timid given all this but set the tone. It questioned the concepts of user and designer, i.e., who designs and what do we mean by use (and for whom)? I later adopted a counterfactual strategy of inverting the privilege of humans over technology inherent in most HCI and design to decenter designers and users to ask what it means to be a thing? This question cannot be answered but it revealed other approaches: how things can be designed to ask that question that points toward a decentered form of designing; and how the notion of things is "leaky" to cite Donna Haraway (Haraway 1985) or more vividly described by Nancy Tuana as having a "viscous porosity" (Tuana 2008). Whatever is designed is not discrete but becomes entangled, not in the sense of the social conditions of things, that is well researched, but in feminist and cyber-feminist realizations that reveal posthumanist and new materialist relations. I would trace these entanglements as best I could to of course find that humans are entangled with nonhuman actors and forces[4]. This revealed to me the problematic of designing with a relational ontology, in which humans and nonhumans (myself, the things we designed, and other things, and the world) co-mingle, shaping each other into meanings and actions. And that a relational ontology made effects and meaning dynamic, changing or in a constant state of becoming to use another posthumanist term. It is from this point in my design research and writing of Things We Could Design (Wakkary 2021) the ideas of designing-with, much of what we have been discussing here, came to be articulated. Of course, there were others in my field (HCI) that were also exploring these concerns (Forlano 2017; Light, Powell, and Shklovski 2017).

I don't have the space here to discuss the limits of traditional design, but I can comment on how designing-with can inform directions. I will say that I increasingly came to see human-centered design as defuturing, to borrow Tony Fry's term (Fry 1999), in that it was obscuring and precluding other more expansive possibilities for designing. Designing-with can be seen in this light.

Designing-with can contribute to change in a variety of ways and along a continuum. At one end it asks for a radical change since the governing assumptions are very different than status quo and where our attention should be is also radically different. I tried to outline some starting concepts in Things We Could Design that we might get to in more detail later. It is in this sense aspirational but with some conceptual tools for making change.

While radical change may be required, I want to be clear that this does not put all the efforts within human-centered design in opposition. For example, a common point of departure in efforts related to decoloniality, race, or gender in design and more-than-human is a critique of the modernist position of oppression, the privileging of white European male as the idealized and universalized

4 See for example Wakkary, Ron, Doenja Oogjes, and Armi Behzad. 2022. "Two Years or More of Co-Speculation: Polylogues of Philosophers, Designers, and a Tilting Bowl." *ACM Transactions on Computer-Human Interaction*, January. https://doi.org/10.1145/3514235.

human that determines all others to be less-than or "inhuman" as Kathryn Yusoff refers to the historically oppressed of European colonization (Yusoff 2018). This understanding of the historical and ongoing work necessary when invoking the notion of humans is part of my understanding and others in more-than-human concerns. Building on feminist thinkers and indigenous ways of knowing grounded in interdependencies[5], this position is expanded upon, made more generous to include other species but also seeing technologies in cyber-feminist terms and so a part of more-than-humans. The shared needs and urgencies in this relational and expansive sense are seen to be matters of concern of designing. In the end, more-than-human is inclusive of humans with all the inherent power relations and new ones as well.

To move to the other end of the continuum, the most minimal change, is to affect a realization of the human exceptionalist enterprise of traditional design. And framing practice this way may instill a degree of humility or caution that leads to limiting some actions and engaging the most general level of ethics–just because we can doesn't mean we should. Whereas concepts like more-than-human biographies that speak to the fullness of the life of things we make can be made part of current design practices, extending sustainability efforts.

Lastly, designing-with has pedagogical value. It and other approaches can be integrated into design education as change is typically generational. Again, there are varying degrees of integration but one emphasis I would make is to shift the focus of the designer from an individual autonomous actor to a collective more-than-human assemblages, a form of infrastructuring (Ehn 2008) as it's called in participatory design (and what I call constituency). This translates to ongoing collective structures to support designing before designing occurs but inclusive of more-than-humans.

In your work you talk about 'posthuman subjectivity'. Can you explain how this idea redefines the role and responsibility of the designer? How does the creative and decision-making process of a designer who adopts this perspective change?

I think this is the central challenge. How we move past human subjectivity as cultivated by human exceptionalism from the enlightenment to modernism. A form of subjectivity that fosters the idea of the autonomous self. A sense of self that creates separation between us and the world around us. A self that is individual and leads to the pursuit of mastery and control. In many respects that is the humanist or modern subjectivity we reproduce in and ask of designers. By contrast, a posthuman subjectivity is not conceptualized as autonomous but relational or interdependent with the world. To the point that mastery and control are not available but also not desirable. Rather the pursuit is humble and seeks kinship and shares agency with other matters and beings. In philosophical terms it is a subjectivity that is decentered and relational, meaning we are one of many actors working in relation to each other in shaping and cohabiting the world and achieving subjectivity through our interdependencies in the world. And further, subjectivity is an ongoing process, even pluralistic, that is both dynamic and requires attentiveness in its constant formation and reformation (Foucault 2005).

In the most general terms, designing as a posthuman subject requires a shift toward listening and working alongside. Metaphorically, it is to embody a position of horizontality to increase contact points with others and sense degrees of difference across the body as opposed to verticality that privileges vision from a single viewpoint above and minimizes points of contact. To be horizontal to work alongside is to embrace the relationality (and humility) of the subject, how as a designer one responds and changes in relation to the situation we are embodied within and with those we cohabit. The metaphoric framing of this points to the need for exploration to meet what is quite a challenge to reorient and re-embody from human to posthuman subjectivities. Having said that, we discussed earlier methods or repertoires which are there to support the posthuman subjectivity in designing.

The concept of 'more-than-human worlds' implies a vision of design that takes into account non-human agents. What do you think are the main challenges in integrating this perspective into design practice? How can we translate these concepts into concrete tools for designers working in industrial or technological contexts, where a functionalist approach often prevails?

I prefer to turn the question upside down. Since the prevailing functionalist approach will exhaust and destroy the earth's current habitat, especially the critical zone (the biomes just above

5 A wonderful read that ties much of this together is Liboiron, Max. 2021. *Pollution Is Colonialism*. Durham: Duke University Press.

and below the surface of the earth we cohabit), the question is what concepts and tools can support radical change in how we design? The point is that privileging functionality, efficiency, and commerce is not a viable choice going forward. Equally important and relevant, is that designing in more-than-human worlds is also not a choice. Regardless of what approach one takes, one is always designing in more-than-human worlds. Worlds that contest much of what we do but also suffer great harm through the way we currently design.

On the one hand the challenge is great in that the change required is significant and complex. Of course, human-centered design similarly called for radical change from technocentric practices of the 1960s and took some thirty years or more to become a firmly established practice. Creative practices like in textiles for centuries were guild practice for elite classes. It was not until the early 20th century that creative practices were more broadly practiced for wider, less economically privileged classes. In this sense, the challenge is eased when seen as a generational change of integrating more-than-human thinking into design practices. Of course, the patience for change is challenged by the urgencies of our climate, biodiversity, and injustice crises.

Over time you have talked about concepts such as 'speaking subject', 'biography' and 'constituency' in design. Can you elaborate on how these elements redefine the relationships between designed objects and their users (human and otherwise)? How do these concepts help us see objects not just as tools, but as subjects with which we enter into a relationship?

I'm happy to go over these concepts in turn. They also help to address your previous question in more detail. But first I would like to address the last part of your question. I see things or objects, as you refer to them, as lively, meaning they can have agentic effects independent of us, and are dynamic. This liveliness contests the narrow definition of tools, things in stasis but more importantly, as you suggest, we are in dialogue, in an active relationship with things. This is readily obvious with living matter and species (think viruses and animals) but ideas like Haraway's cyborg or Ihde's co-shaping includes technologies (Haraway 1985; Ihde 1990). Things and us are co-constituted, we create meaning and actions in relation to each other. We form in relation to each other. I use the example of mountaineering to illustrate this point in Things We Could Design. Technological clothing shapes humans into mountain climbers and extends to shape mountains into climbable terrain. Of course, the challenge is to design to c-shape in ways that aspire to cohabitation rather than human mastery. This *shared agency*, as commonly referred to in posthumanism, adds to what I referred earlier to the need for designers to listen and work alongside. I distill this into the idea of participation. The need to accept and invite the participation of nonhumans in designing, whether its matter as materials, technologies, or other living beings. This idea of participation is what each of the concepts you asked me to elaborate on are in response to. For example, the speaking subject is about our human role in fostering nonhuman participation; biographies speak to the participation of things in their meaning and effects on the world; and constituencies are about the gathering of humans and nonhumans to participate in the infrastructuring or structures by which we design before designing.

To elaborate, let me begin with the constituency. It refers to a gathering of humans and nonhumans from which designers of things come together to go on to design things. Constituencies are an ongoing concern that are continually configured and reconfigured. A kitchen is a good analogy for a constituency. It is where humans are gathered with nonhumans like food ingredients, cooking utensils, pots and pans, ovens, stoves, and recipes. Cultural and political commitments are made such as veganism, non-GMO, halal, ethnicity, history, and place. This metaphor easily extends to the design studio or other forms of collective structures for designing.

Relatedly, the speaking subject describes the unique role of the human designer in amongst the more-than-human constituency that designs. The speaking subject is accountable for speaking on behalf of, maintaining, caring for, and refining the gathering of humans and nonhumans. There is an inherent ethical dimension to the speaking subject, the ongoing need to address the challenges of representing, caring with, and seeking participation from more-than-human others in ways that do not misrepresent or instrumentalize. For example, Latour talks about a "parliament of things" in which we politically represent humans and nonhumans to other humans (Latour 1993). This inspired the Embassy of the North Sea in the Hague, that seeks

to give inhabitants of the North Sea across all species political representation[6]. In this representation of others, the speaking subject acknowledges the inherent politics and inequalities in assuming such a role. It is important to say that it is impossible to fairly represent and maintain relations with all in a constituency and to speak on behalf others that cannot be fully known or seen. This underscores the need for accountability within the unresolvable ambivalence of the role. Hence, the speaking subject relies on repertoires that we discussed earlier to gather and engage more-than-humans to participate more fully and to make explicit actions to be held accountable.

More-than-human *biography* is the human and nonhuman life force (agencies) that come together to design or form a thing. It signals that shared agencies are dynamic and continually inscribe themselves into the world through their lifetime. A more-than-human biography operates across human and nonhuman temporalities that can challenge our human-scale of time. The concept argues that the value of a thing can be assessed by its more-than-human biography that directly relates to cohabitation, namely its consequences beyond human use and what it leaves behind. For example, the *Bag with handle of weldable plastic material* or more commonly, the plastic bag, patented in 1965 by the industrial designer Sten Gustaf Thulin and the company Celloplast, became a global product of convenience but also one of ongoing colossal waste and toxicity, environmental injustices, and belated legislations to curb its use. All this together, form the shared biography of the plastic bag, Thulin, and Celloplast. We may be closing in on the end of the plastic bag biography—yet its last chapter has the resiliency to last for up to 1,000 years that result in microplastics that do not decompose. In my own research, an example is a project to explore relational technologies with local pollination ecologies of solo bees. It aims to situate the materials and technological choices within the specific locale in terms of ecological cohabitation. Part of that is designing the technological forms in terms of their biography, where do the materials come from to design-with, how do they exist within the ecologies, and how do they end, in terms of decomposition and removal, but also along the different ecological timelines such as long enough for the nesting cycle of mason bees or the foraging season after which parts decompose on site[7].

How does the design and the narrative around objects change when we consider them as having a biography or as part of a wider constellation of agents?

This is something we have been exploring recently. In part, the notion of more-than-human biographies like the example of the plastic bag enlists narrative to frame a thing anew. This reveals the necessity to discuss and engage things differently. For example, I've explored how biographies shift the focus of designing from creating something new to creating how something will end–what it will leave behind. I've written about this theoretically in how the endings of things construct futures[8]. I've also encouraged students to design for the end of the thing they are making. And we've explored this in our design research. In any designed thing there are a plurality of endings we might consider: how will the thing or its parts disassemble, fragment, decompose, or become irreducible matter? The narrative framing makes explicit more-than-human temporalities that are not governed by human use or values and exist across different scales.

In the pollination ecologies project, I mentioned earlier there are different endings to consider along different temporal cycles of the ecology and its locale–which happens to be my backyard. Part of what we are designing allows for cavity nesting of the different solo bees in our area. The nesting cycles vary widely so this part is designed for year–round stability. While another part is made of bioplastics that house electronics that are removed in the Fall as they monitor foraging. The bioplastic housing begins to decompose late summer and is left in place to fall apart and decay through to late Fall. Here, we also consider the beginning of the biography. The bioplastic is mostly composed of ground spruce cones collected nearby and so as decaying matter it is not new to the site or ecology. The research surfaces the relations and effects that

6 https://www.embassyofthenorthsea.com/

7 This is an ongoing project but partly discussed in Wakkary, Ron, Doenja Oogjes, Oscar Tomico, Nazmus Sakib, and Ege Kökel. 2025. "Backyard Practices: A Liminal Approach to Designing in More-than-Human Worlds." In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*, 1–18. CHI '25. New York, NY, USA: Association for Computing Machinery. https://doi.org/10.1145/3706598.3713291.

8 See Wakkary, Ron. 2024. "More-than-Human Biographies: Designing for Their Endings." In *Designing More-than-Human Smart Cities: Beyond Sustainability, Towards Cohabitation*, edited by Sara Heitlinger, Marcus Foth, and Rachel Clarke, 305–26. Oxford University Press. https://doi.org/10.1093/9780191980060.003.0017.

occur over different timelines that affect how what we design cohabits within the ecology. Much of the focus is in determining what we don't know or cannot know and finding the humble path through.

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