

Editorial: More-than-human Design in Practice

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Abstract: The field of design is currently undergoing a more-than-human turn. This shift is driven by pressing global challenges such as the climate crisis, alongside the increased agency of technologies in everyday life and a growing interest in advancing inclusive and sustainable agendas. This track invited submissions reporting on practical experiments within this emerging space. The contributions highlight diverse ways in which more-than-human thinking can be enacted across various contexts and emphasize the importance of forging new alliances –between humans and nonhumans, theory and practice, and research and industry. This editorial unpacks the track’s motivation and summarizes the contributions received, examining them through the concept of *designing-with*. Our discussion expands this concept to include a wide array of more-than-human engagements across three themes: making-with care, thinking-with technologies, and becoming-with multispecies. These themes move the field beyond mere participation of nonhumans in design processes, and towards novel practices of making, thinking, and becoming within human-nonhuman relations.

Keywords: more-than-human design; designing-with; care; multispecies; technology

1. Materializing more-than-human thinking

In a world marked by urgent ecological and social challenges, the need for novel design approaches that can transcend the conventional human-centric paradigm has never been more pressing. While human-centered design has deepened the understanding of human



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needs and values, its humanist conception of users (by default white, male, and able-bodied) has inadvertently marginalized diverse human and nonhuman perspectives (Braidotti, 2013). It is becoming increasingly clear that anthropocentric design approaches are outdated and novel approaches are necessary to move towards more sustainable and inclusive futures: “Design must participate more actively in questioning the social systems that nurture our current anthropocentric development system, generating conditions for projecting plural, post-capitalist, post-patriarchal and post-human communities” (Tironi et al., 2023, p. 6).

In response to this imperative, numerous design researchers are moving away from the human-centered paradigm and shifting their attention towards more-than-human approaches. More-than-human design questions human exceptionalism and offers a relational perspective, acknowledging that humans, nonhumans, and the environment can only be understood in relation to each other (Wakkary, 2021). Although more-than-human design is garnering growing recognition, a practical turn in this field is yet to materialize. Despite the abundant theoretical contributions, there remains a lack of clarity on how these ideas should be enacted in concrete design practices.

The track is motivated by a question posed by Laura Forlano several years ago: “How might we further expand the application of non-anthropocentric design [...] beyond niche academic conversations?” (Forlano, 2016). More recently, a panel in the neighboring discipline of Human-Computer Interaction discussed this issue: “So far, the theoretical ground for more-than-human design has been established by introducing and discussing the design relevance of various post-humanistic theories and concepts to the field [...] These pioneering works paved the way for studying and discussing the values and principles underlying a more-than-human approach to design. Now, the challenge lies in initiating a dialogue among more-than-human designers and researchers to identify strategies for connecting more-than-human design theory to more-than-human design practice” (Coskun et al., 2022, p. 2). These inquiries revolve around two main challenges: firstly, how designers might materialize posthuman theory, and secondly, how more-than-human design can become widespread and manifest as staples in professional design practice.

In response to these inquiries, the track sought submissions detailing practical experiments within the realm of more-than-human design. It encouraged designers to present products, services, or artifacts inspired by or developed through a more-than-human perspective, or informed by insights gained through material engagement with this approach. Additionally, it welcomed research through design or speculative design projects employing more-than-human principles in a generative manner, with the aim of yielding generalizable insights or intermediate knowledge. Furthermore, the track sought teaching methodologies and materials capable of equipping students with tangible more-than-human skills and sensibilities applicable to real-world challenges. Lastly, it sought accounts of applied transdisciplinary research exploring socio-technical entanglements, plural ecosystemic perspectives, and the intricate assemblages of human and non-human entities.

The track's contributions exemplify the diverse ways in which more-than-human thinking can be enacted in various contexts and in alliance with a rich variety of humans and nonhumans. The papers in this track emphasize that the design research community appears uniquely positioned to develop practical resources that can complement existing conceptual developments. The contributions also highlight that rather than merely translating posthuman thinking into practice, designers have unique ways of materializing posthuman theory and developing novel posthuman knowledge through design (Nicenboim et al., 2024), which challenges the perceived divide between practice and theory (Giaccardi et al., 2024). In the precis of the track's contributions, our aim is not to articulate what more-than-human design *is*, but rather what more-than-human design *does* to design practice; and in turn, what a focus on practice can do to more-than-human thinking.

In the following sections, we outline the contributions within three distinct themes: making-with care, thinking-with technologies, and becoming-with multispecies. These themes are not intended to be prescriptive or comprehensive but rather to illuminate diverse aspects of the contributions. While there may be overlaps between the themes, as expected when exploring diverse contributions to an emerging field, this structure enables us to begin identifying similarities and differences across the papers. In the final section, drawing from the collective body of work presented in the track, we discuss how the DRS and the broader Design Research community can contribute to further enriching the impact of more-than-human design.

2. Expanding practices of designing-with

The idea of 'designing with' was initially suggested by Giaccardi and Redström (2020) in relation to technology. They suggested that "if we follow the idea of machine agency and artificial intelligence far enough, we have to revisit the idea of human-centered design. Not because humans matter less but because it is no longer exclusively humans that act, design, make use, change, and thus create new possibilities. To explore the futures we might face, we need to inquire into what a more-than-human world might look like, and what happens when technology is not just material but participant" (page 36). This is a different way of designing, which is not "for these technologies but *with* them" (page 35).

Wakkary (2021) has then conceptualized the notion of "designing-with" as a posthumanist design practice. He explains that "exploring a posthumanist design is to explore what it means to design-with; that is to design with humans and nonhumans in ways that are fundamentally expansive and relational" (p. 15). Wakkary describes this practice as "a critical and creative speculation that interweaves design with posthuman thinking" (page 5). It is a way "to rethink design in ways that humans and nonhumans are bound together materially, ethically, and existentially" (page 234).

The following three key themes in this track allow us to explore different dimensions of designing-with.

2.1 Making-with Care

In "Healing our Designing: Practices of Care for Human and More-than-Human Relations," Marysol Ortega Pallaneza (2024) delves into the experiences of embroiderers in Hermosillo, Mexico, and presents two everyday design practices that explore women-plant relations.

In "Using a Mutualistic Design Methodology to Exhibit the Benefits of 'Suboptimal' Product Design," Asa River Jackson (2024) explores a Mutualistic Design methodology in an exhibition featuring everyday objects, inviting a reconsideration of what constitutes 'optimal' design.

In "When a Tree Says No: Towards a More-Than-Human Consent Approach for Design," Franca López Barbera (2024) uses the Quebracho Colorado tree as a case study to introduce the concept of more-than-human consent.

In "Generosity in More-Than-Human Design," Karey Helms (2024) articulates generosity, positioning it within feminist theory and presents three design cases to situate it in design practice.

In "Designing with More-Than-Human Temporalities," Riel Bessai and colleagues (2024) use a music festival stage as a case study to explore ways to engage with more-than-human temporalities.

Lastly, in "Gulls on the Move? Synanthropic Design in the Dutch Delta," Joanna van der Leun and colleagues (2024) map the interrelations and dependencies between gulls and human interventions in the Port of Rotterdam.

2.2 Thinking-with Technologies

In "Hybrid Ecologies of Artificial Intelligence: Prototyping Terrestrial Practices through a Design Installation," Martín Tironi and Manuela Garretón (2024) focus on water to challenge the often immaterial conception of AI and highlight its environmental impact.

In "Embodying the driving experience through AI driving assistants as a means of noticing the more-than-human," Olga Lackner (2024) emphasizes the role of AI in mediating interactions with nonhumans in driving experiences.

In "Beyond human-centered Empathy: Tools and techniques to engage curiosity," Cassini Nazir (2024) argues that traditional empathetic design approaches are inadequate for addressing the nuances of more-than-human interactions and provides techniques to cultivate curiosity and care.

In "More-than-human design and AI: Exploring the space between theory and practice," Iohanna Nicenboim and colleagues (2024) develop generative AI tools that turn posthumanist texts into design strategies, advocating for bypassing the idea that there is a gap between theory and practice that needs to be bridged.

Finally, in "Contours in blurred design spaces: More-than-human participation of artifacts in design-in-use," Evert van Beek (2024) develops conceptual smart thermostats to discuss how the participation of artifacts in design activities during use time blurs traditional categories.

2.3 *Becoming-with Multispecies*

In "Becoming Microbes: An approach to cultivating microbial sensibilities in Biodesign," Jiho Kim and colleagues (2024) propose 'becoming microbes' as a philosophically grounded approach advocating for a non-anthropocentric stance in Biodesign.

In "Learning in Place: Reimagining Design Practice as Ecological Literacy," Nick Logler (2024) presents findings from a month-long immersion in a coastal wildlife refuge and offers considerations for cultivating ecological literacy.

In "Exploring more-than-human worlds and becoming with living and non-living entities through play," Filipe Pais (2024) examines video games as ways of *becoming with* more-than-humans and offers guidelines for crafting more-than-human games.

In "Does phosphorus want to sound like that?': Experiencing more-than-human futures," Anton Poikolainen Rosén and colleagues (2024) examine practices of noticing through 'deep listening' and present principles for problematizing and reimagining how data of the more-than-human world may be sensed and represented.

Lastly, in "Designing from the Plants' Perspective, a field case study in urban forest 'La Goccia'," Francesco Vergani and Fabio Di Liberto (2024) describe a 10-day workshop with design students that focused on the experiences of plants as a journey to design for plants as active stakeholders.

3. Towards new alliances

Collectively, the papers offer an emergent notion of designing-with, one that illuminates diverse more-than-human relations and considers different kinds of engagements. More specifically, the contributions expand it beyond the participation of nonhumans in design processes, and towards novel practices of making, thinking, and becoming with humans and nonhumans.

These contributions highlight that making more-than-human thinking actionable requires processes of unlearning, attuning, and sensitizing, alongside intentional effort, repetition, dedication, and a generous and humble stance (Wakkary, 2021). Crucially, the contributions emphasize the importance of experimentation: "designers need to creatively and extensively exercise and practice the principles of a new approach [...] before they can actually design with it" (Giaccardi, 2020, page 100). Furthermore, the contributions highlight that engaging in more-than-human design requires new alliances (Rosner, 2020).

From a more-than-human perspective, alliances can be viewed as dynamic and complex relationships that extend beyond traditional human-centric frameworks. They may not adhere to conventional power dynamics or hierarchies but emerge instead through collaboration, cohabitation, and coexistence. They are "fundamentally new alliances for making sense, framing, and bringing into existence 'things' that do not yet exist – which is at the essence of design work" (Giaccardi, 2020, p. 124). Creating these alliances may entail designers navigating a multitude of interests and values among various stakeholders,

encompassing both human and nonhuman entities, and exploring and negotiating alignments and tensions within human-nonhuman relations—that is, the "with."

Considering more-than-human alliances opens up new questions, such as: What kind of alliances can designers form? With what intentionality? Can the 'ethos' of more-than-human design facilitate new alliances between different arenas of design practice or between theory and practice? What novel alliances need to be forged within the more-than-human design community to enable the scaling and broadening of these practices, both within academic settings and beyond? Can alliances with other academic disciplines enable more-than-human designers to participate in broader discussions about how posthumanism can address critical concerns regarding race and intersectionality?

To begin answering these questions, designers might find inspiration from the feminist poet Audre Lorde (1982) when she writes:

"You do not have to be me in order for us to fight alongside each other. I do not have to be you to recognize that our wars are the same. What we must do is commit ourselves to some future that can include each other and to work towards that future with the particular strengths of our individual identities" (page 47).

In "Radical Interdependence: learning/doing with things", Jaron Rowan (2021) reflects on Audre Lorde's work and claims that "design research needs theory, with its objective distance, its critical suspicion and its affective aesthetics, but also needs to engage erotically with materiality, with the contradictions inherent to the practice. It needs to open up to playfulness, to material alliances and weird entanglements" (page 4613).

This framing mirrors the deeply felt sense of joy that spans the contributions to this track. This seems to be driven by a fulfillment that arises from the realization that fluidity of an open theoretical engagement, and the flexibility of designing when one's design inquiry orients around multiple centers rather than just one. Through these moves, the authors of the papers in this track have allowed themselves to collectively be moved, challenged, and transformed by both their individual and collective engagement with the very material of design research itself.

While diversity among the publications in this track is relevant, the collective of papers signifies a turn in design research and practice toward a new paradigm that not only recognizes but leverages a fundamental sense of transdisciplinarity, intended as a multilevel and purposive knowledge integration that embraces lived experiences and social learning practices. The contributing authors' affiliations and backgrounds, spanning a wide variety of professional contexts, disciplinary alignments in academia, and flavors of practice, suggest that more-than-human practices can open doorways to connect to diverse disciplines within and outside the world of design research. In that space, designers can work beyond disciplinary boundaries and adopt relational and plural theories and ethics, leveraging holistic methods to extend knowledge production to a plural set of non-academic and more-than-human actors.

4. Conclusion

The main motivation for this track was to gather more-than-human design practices. The track's contributions illustrate that the design research community seems uniquely positioned to materialize posthuman thinking and provide practical approaches to complement existing conceptual developments. The contributions showcase how design researchers are already experimenting with these approaches in diverse contexts and in alliances with a multitude of more-than-human perspectives.

Bringing the contributions of the track into a conversation with one another suggests that insisting on practices offers an opportunity to establish new alliances and nurture existing ones. Such alliances may become the foundations for emancipatory exchanges between researchers, practitioners, scholars, stakeholders, and global citizens of the human and nonhuman variety. Such inclusivity and cooperation are crucial to address the planetary scale challenges with which everyone and everything on Earth is confronted. However, as demonstrated in the papers in this track, these alliances must be formed and nurtured on lines of openness and plurality to avoid falling back into anthropocentric tropes or academic territories.

We hope that this collection of work, the motivation to bring it together, and the huge collective efforts of those who actually conducted and participated in this research indicate a willingness and desire to embrace more-than-human thinking and move towards a more inclusive future for the design research community.

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5. References

- Bessai, R., Bendor, R., & Balkenende, R. (2024). Designing with more-than-human temporalities. DRS2024: Boston.
- Braidotti, R. (2013). *The Posthuman* (1st ed.). Polity.
- Coskun, A., Cila, N., Nicenboim, I., Frauenberger, C., Wakkary, R., Hassenzahl, M., Mancini, C., Giaccardi, E., & Forlano, L. (2022). More-than-human concepts, methodologies, and practices in HCI. *Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems*, Article Article 150.
- Forlano, L. (2016). Decentering the human in the design of collaborative cities. *Design Issues*, 32(3), 42–54.
- Giaccardi, E. (2020). Casting things as partners in design: Towards a more-than-human design practice. In H. Wiltse (Ed.), *Relating to Things: Design, Technology and the Artificial* (pp. 99-132). Bloomsbury.
- Giaccardi, E., & Redström, J. (2020). Technology and more-than-human design. *Design Issues*, 36(4), 33–44.

- Giaccardi, E., Redström, J., Nicenboim, I. (2024). The making(s) of more-than-human design: Introduction to the special issue on more-than-human design and HCI. *Human–Computer Interaction*.
- Helms, K. (2024). Generosity in More-than-human Design. DRS2024: Boston.
- Jackson, A. R. (2024). Using a Mutualistic Design Methodology to Exhibit the Benefits of "Suboptimal" Product Design. DRS2024: Boston.
- Kim, J., Kim, R., Martins, J., & Karana, E. (2024). Becoming microbes: An approach to cultivating microbial sensibilities in biodesign. DRS2024: Boston.
- Lackner, O. B. (2024). Embodying the Driving Experience Through AI Driving Assistants as a Means of Noticing the More-than-Human. DRS2024: Boston.
- Lopez Barbera, F. (2024). When a tree says no: Towards a more-than-human consent notion for design. DRS2024: Boston.
- Logler, N. (2024). Learning in place: Reimagining design practice as ecological literacy. DRS2024: Boston.
- Nicenboim, I., Oogjes, D., Biggs, H., & Nam, S. (2024). Decentering through design: Bridging posthuman theory with more-than-human design practices. *Human–Computer Interaction*, 1–26.
- Nicenboim, I., Lindley, J., & Redström, J. (2024). More-than-human Design and AI: Exploring the Space between Theory and Practice. DRS2024: Boston.
- Ortega Pallanez, M. (2024). Healing our Designing: Practices of Care for Human and More-than-Human Relations. DRS2024: Boston.
- Pais, F. (2024). Exploring more-than-human worlds and becoming with living and non-living entities through play. DRS2024: Boston.
- Poikolainen Rosén, A., Sanchez, C., & Epp, F. A. (2024). 'Does Phosphorus Want to Sound Like That?': Experiencing More-Than-Human Futures. DRS2024: Boston.
- Rosner, D. K. (2020). *Critical Fabulations*. The MIT Press, Massachusetts Institute of Technology.
- Rowan, J. (2021, September 29). Radical Interdependence: Learning/doing with things. *Cumulus Roma 2021 Conference Proceedings*. <http://dx.doi.org/>
- van Beek, E. (2024). Contours in Blurred Design Spaces: More-than-Human Participation of Artifacts in Design-in-Use. DRS2024: Boston.
- van der Leun, J., Kolks, L., & van Eekelen, B. F. (2024). Gulls on the move? Synanthropic design in the Dutch Delta. DRS2024: Boston.
- Tironi, M., Chilet, M., Marín, C. U., & Hermansen, P. (Eds.). (2023). *Design For More-Than-Human Futures: Towards Post-Anthropocentric Worlding*. Routledge.
- Tironi, M., & Garretón, M. (2024). Hybrid Ecologies of artificial intelligence: prototyping terrestrial practices through a design installation. DRS2024: Boston.
- Vergani, F., & Di Liberto, F. (2024). Designing from the plants' perspective. A field case study in urban forest of "La Goccia". DRS2024: Boston.
- Wakkary, R. (2021). *Things We Could Design: For More Than Human-Centered Worlds*. MIT Press.

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