

*Sam Barnett* is a design researcher and PhD student at the Homeware Lab, at Simon Fraser University. He is interested in the ways in which technology and data mediate everyday life and developing strategies and interventions to support critically and speculatively engaging with these sociotechnical systems. Being outdoors and in nature is a priority, where Sam hikes, camps, skis, climbs and surfs in the areas around Vancouver.

*Will Odom* is an Associate Professor in the School of Interactive Arts and Technology at Simon Fraser University. He is the founder and director of the Homeware Lab which explores a range of projects that inquire into topics including remaking outdoor technologies, long-term human-data relations, slow interaction design, and methods for developing the practice of Research-through-Design. He has co-organized numerous successful workshops at ACM CHI and DIS over the past 15 years.

We design, work and engage with nature on the unceded ancestral territories of the **xʷməθkʷəy̓əm** (Musqueam), **Skwxwú7mesh Úxwumixw** (Squamish), **səlilwətaʔ** (Tsleil-Waututh), **q̓íćəy̓** (Katzie), **kʷikʷəłəm** (Kwikwetlem), **Stó:lō Coast Salish**, **K'ómoks**, **Tla'amin**, **Qayqayt**, **Kwantlen**, **Semiahmoo** and **Tsawwassen Nations**. These locations are rooted within Indigenous lands and nations. Acknowledging traditional territories, nations, and lands can be an initial step toward challenging the underlying colonization bound up in standard Western maps, and lead to further exploration and understanding of the history and complex effects of colonialism.

We have recently completed a 6-year design and auto-ethnographic research project, centered on the hiking technological artefact Capra, that captures images and metadata (time, altitude and colour) on the trail, and projects them in the home, with various organizational filters. We were interested in:

- how to decenter the human perspective, and support “noticing” [3] on the trail and in later mediated reflection/reminiscence
- how to design unobtrusive technology that mediates human-nature relations
- how these design interventions may support reorganizing selfhood in relation to ecologies and more-than-human actors

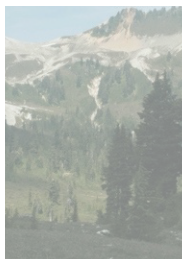
Capra is an intentionally “dumb” technology, that captures and displays images without interpreting them or adding semantic context, and it operates as a closed loop with no built-in way to extract or circulate the data. We see these constraints as a provocation for designing technologies that mediate relations between humans and forests, and *we look forward to discussing what is afforded when forest technologies deliberately deprioritize “smart” sensemaking.*

With this phase of our work concluding, we’re also turning towards what comes next: continuing to probe the potential and limitations of technology in mediating our complex, entangled and evolving relations to nature, forests and ourselves.



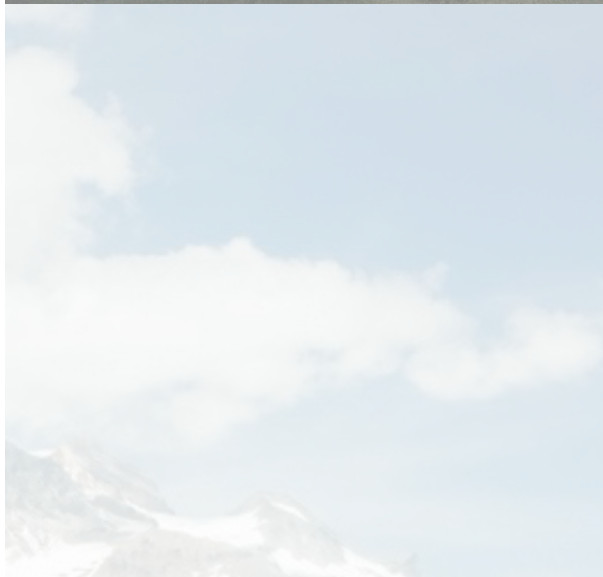
*The two reflections below, illustrate how through long term use of the Capra system, while in nature and in forests, prompted and facilitated a deeper reflexive engagement.*

*Sam Barnett* → “A keystone hike in my archive is from the early winter of 2021 to Elfin Lakes in Garibaldi Provincial Park. This hike is the longest in my archive, and



covers the broadest range of elevation, and moves through the full color spectrum of covered forest, low alpine, and then above the snow line. When exploring my archive in various filters this hike always re-emerges. I repeated this hike in summer 2023. I’ve revisited this hike through the Explorer so many times that I had a clear image in my mind of the hike’s trajectory. We never hit the snow line; the seasons were different. This stark difference drew my attention the other differ-

ences in the environment. The views were hazy—obscured by smoke from the forest fires, driven by the changing climate. The hike is framed by glaciers, and this journey prompted reflections on how much longer they will be there.”



*Will Odom* → “I had arrived at the Lynn Headwaters trailhead and reached inside my backpack only to realize my Collector was still charging at home. As I embarked on the hike, I unexpectedly became aware of how my attentiveness and gaze toward nature has shifted over the years. I thought back to how I had hiked this trail before I had Capra five years ago, and what I was on my mind then—hiking pace, unread emails, getting to the waterfall, hustling back as quick as I could before my parking expired. My approach is quite different now. I adjust my gaze to look ‘up’ and contemplate the ecologies that exist above us in the forest. I look ‘down’, thinking about the networks of root grafts and mycelium that connect these trees. I remembered these scenes unfolding through my Explorer and then coming full circle in my mind as I was on this hike. I stopped to notice the textures of sand, mud, and riverbed rocks. My mind drifted to questions of different timescales—the geological times of the riverbed rocks, the bacterial time of the micro-organisms ever present in the forest, the perpetual movement of temporalities in nature. I thought about the unpredictable ways my relation to nature may have changed and how, in some ways, this was mirrored in the slow, ongoing unpredictable changes my Capra archive.”



UNOBTRUSIVENESS:

# HOW DO WE DESIGN TECHNOLOGY THAT MEDIATES A HUMAN-FOREST RELATIONSHIP, WHILE DISAPPEARING INTO THE BACKGROUND?

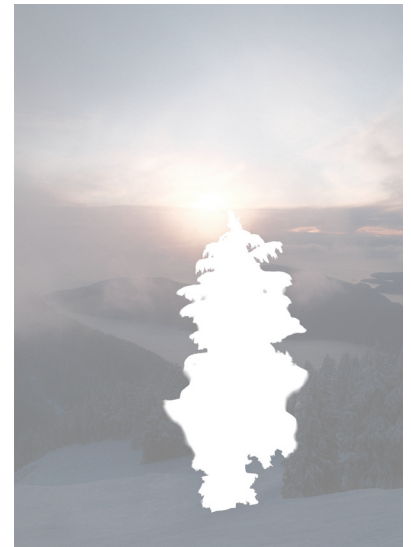
HCI research continues to highlight how technology has the potential to interfere with human's experience of and engagements with nature [1, 2, 4].

In Anderson and Jones' framework for HCI in nature, a core tenet of their vision is that "in outdoor activities, human-nature interaction holds priority over human-computer interaction" [1:293].

This leads to the provocation of designing *unobtrusive technology* [3] that mediates human-forest interaction.

*Technology that fades into the background of the experience.*

Häkilä et al. also consider the unobtrusiveness of technology from the perspective of nature, and argue that technology should not "disrupt or harm any element of the environmental flora and fauna" across any potential modality, including "visual, audible, tangible, olfactory and gustatory" [3:7].



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- [2] Richard Coyne. 2014. Nature vs. smartphones. *interactions* 21, 5 (September 2014), 24-31. <https://doi.org/10.1145/2656933>
- [3] Jonna Häkkilä, Nicola J. Bidwell, Keith Cheverst, Ashley Colley, Felix Kosmalla, Simon Robinson, and Johannes Schöning. 2018. Reflections on the NatureCHI Workshop Series: Unobtrusive User Experiences with Technology in Nature. *IJMHCI* 10, 3 (July 2018), 1-9. <https://doi.org/10.4018/IJMHCI.2018070101>
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- [5] William Odom, Samuel Barnett, Nico Brand, Minyoung Yoo, Henry Lin, and Jordan White. 2024. Negotiating Conceptual and Practical Frictions in Making the Capra Short Film: Extending a Research through Design Artifact with Video. In *Proceedings of the 2024 ACM Designing Interactive Systems Conference (DIS '24)*, July 01, 2024. Association for Computing Machinery, New York, NY, USA, 2866-2881. <https://doi.org/10.1145/3643834.3660739>
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- [7] Anna Lowenhaupt Tsing. 2021. *The mushroom at the end of the world: on the possibility of life in capitalist ruins* (New paperback printing ed.). Princeton University Press, Princeton Oxford.