TOWARDS A NEW WAVE OF JOYFUL NATURE TECHNOLOGY

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Research motivation

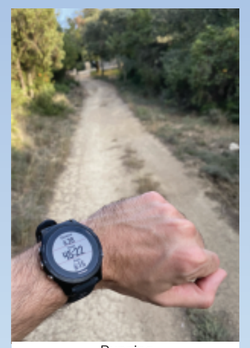
Our design-led research explores how to design interactive technology that affords experiences of joy within nature. The evolution of computation towards lighter, more portable forms opens new opportunities for implementation in myriad areas of human life. One of them is our activity within nature. We propose that, to truly enrich people's experience of nature, designers should transcend the bounds of techno-solutionism—an approach that has proven detrimental in other emergent design spaces within HCI due to its lack of attention on the social, cultural, emotional, and environmental implications of tech innovation.

Our proposal: incorporating joy into nature tech design

To build a solid foundation for this emergent design space, we need to carefully explore how tech may and may not add value in the context of nature. Rather than designing "by default"—i.e. inheriting the utilitarian inertias of the tech industry—we should engage in-depth with the idiosyncratic character of nature and find meaningful ways for tech to play its part. To respond to that need, we have a design research agenda of exploring how tech might support nature experiences that are socially, culturally, and emotionally rich. Building on the idea of celebratory technology [9], we wonder: **How can tech help us to find joy in our engagements within nature?** How can it contribute to surfacing and strengthening the inherent playful potential of nature, while keeping nature activity contextually and environmentally sensitive?

Method

Our study followed a Situated Play Design (SPD) approach, which proposes to closely engage a targeted context to identify existing forms of spontaneous playful activity (i.e. *play potentials*) and use them as inspirational material for design. During 4 months, the first author did 16 trips to nature to experiment first-hand with a range of commonplace nature activities. The trips took place and were structured regardless of our research agenda: we used them as chances to engage with situated, radically naturalistic nature activity while co-imagining how future tech might contribute to enriching people's experience of nature. We used a visual diary to store the key learnings from each trip, supported with photos, videos, written anecdotes, and reflections. Upon completion of the 16 trips, we used reflexive, inductive thematic analysis to examine the contents of the visual diary. Our work-in-progress findings surface 13 *play potentials* of nature, i.e. types of playful experiences that add joy in the context of nature and could be supported through technology. We summarize them below.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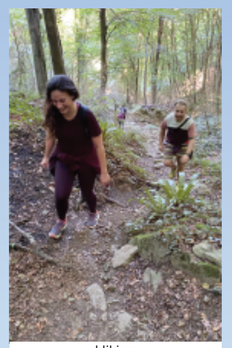
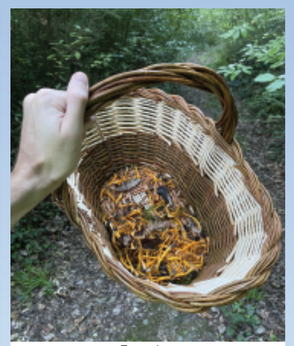

Hiking


Camping


Foraging


Snow walking

Work-in-progress findings

Our findings surface aspects of nature activity where tech could intervene to enable rich socio-emotional experiences. We present them as opportunities for thinking about the future of nature tech in ways that privilege the joy of being in the forest over other (instrumental) agendas. Here we summarize our *play potentials*, clustered thematically in 5 design directions.

From data-smart to socially and contextually gracious

Technology has the capacity to intervene in nature activity in ways that are socially gracious and contextually meaningful. Yet, it often acts as a disruptor, e.g. by centering too much on measuring said activity and pushing us to focus on improving our performance rather than on enjoying the in-the-moment experience of the forest. We found three play potentials that may help to overcome that limitation:

#1 **Ambiguous orientation**, i.e. providing people with ambiguous information about their whereabouts so they can enjoy the experience of figuring things out themselves.

#2 **The empathic training buddy**, i.e. tech that supports people in training by caring for its emotional (rather than productive) dimension.

#3 **A sensei rather than a guide**, i.e. technology that does not teach or instruct, but rather empowers people to do complex activity within nature (e.g. foraging or orienteering) by providing them with partial information only.

Reclaiming the aesthetic beauty of being in nature

Nature has a lot to offer when it comes to affording experiences that are rich and fun; yet, we often take that potential for granted, to a point that we grow distant to its pleasures. We surfaced two play potentials that can inspire the design of technology that re-directs people's focus towards the aesthetic experience of being in nature:

#4 **Reminders of nature's beauty and seasonality**, i.e. technology that that subtly points people towards the seasonal beauty of nature and hints at the lovely things it has to offer throughout the year, so they go out and explore.

#5 **The lovely divide between suffering and reward**, i.e. experiences of aesthetic gratification that operate at the intersection between physical exhaustion & well-being.

The joy of sharing the forest

Nature activity has a huge potential as a source of shared joy & laughter. Our shared forestry encounters shed light on several opportunities for playful intervention:

#6 **Role taking and distributed responsibilities**, i.e. scaffolding group activity in nature in ways that all participants have a role that suits their abilities and makes them feel seen and recognized.

#7 **The forest as a battleground**, i.e. the potential of the forest as a platform for playful disputation.

#8 **Pathfinding and signaling**, i.e. giving nature goers the role of "carers of the forest" by allowing them to contribute to signaling and taking care of nature trails and paths.

Seeking that precious silliness

Imbuing our nature activity with an element of carefree fun and laughter has the potential of making those events memorable. During our trips to nature, people experienced countless situations that made him aware of that potential. From those situations, we distilled three play potentials:

#9 **Bloopers and spontaneous laughter**, i.e. the joy of being part of, or seeing closely, an epic fail such as falling on one's butt.

#10 **Suffering together**, i.e. the fun that derives from being part of a group experience that is strenuous and exhausting enough yet still socially pleasurable.

#11 **Performative documentation**, i.e. the act of turning an ordinary situation into a fun and memorable one by documenting it in playful and performative ways.

Technology for belonging

The experience of establishing bonds of familiarity with and through nature can be a powerful one. In our study, we found two opportunities for designing to support that kind of experience:

#12 **Becoming an expert of the forest**, i.e. the experience of becoming acquainted enough with a forest as to be able to (intuitively) navigate and otherwise act within it;

#13 **Symbolic ownership**, i.e. the idea of feeling a sense of belonging to the forest by customizing and/or bringing it home without making an environmentally negative impact on it.

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Kinds of trail marking the researcher encountered during his trips to nature, including: a rock-based sculpture, a fabric hanging from a tree branch, a handmade wooden sign, and a series of paintings on tree trunks.

An example: unpacking play potential #8: Pathfinding and signaling

Forestry experiences can also be shared in an asynchronous manner, in ways that shape large, loose-knit-yet-still-valuable communities of forest goers. A clear example is the act of marking trails, i.e. putting up signs or making marks on paths so other people can follow them. That activity is often performed by average forest goers in a rather bottom-up and non-institutionalized manner. During many of his visits to nature, the first author found those kinds of acts of asynchronous sharing to be an interesting opportunity for playfully re-ambiguating the forest. They "can be seen as a creative act of care" that could be computationally enhanced as to "be used as a sensitizing activity" that entices people to care more for the environment by "feel[ing] they are the 'keepers of the forest'". A design idea emerged from those reflections: an AR-based experience that allows "creative ways of signaling paths", extending with multimedia affordances people's existing signaling practices such as making rock-based sculptures to indicate a turn.

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