
Photography as A Design Research Tool into Natureculture

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Abstract

We use photography as a research method to cultivate a designerly sensibility of the theoretical concept *natureculture*, a provocation to transgress the dichotomy of nature and culture. We investigate the visual language of natureculture through an iterative practice of creating, editing, organizing, and reflecting on images. Specifically, we explore natureculture as spatiotemporal movements, sediment-like layers, heterogeneous gatherings, formal homonyms, emotional experiences, and aestheticized expressions of style. Each of these has a materioformal concreteness and symbolic density that supports design ideation on topics such as environmental sustainability, agroecological systems, human-animal cohabitation, urban informatics, and more.

Authors Keywords

natureculture; human-nature interaction; design research; interaction design; visual thinking; pictorial

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

Humans are entangled with other species within our shared environment; we prey on organisms around us to survive, raise animals as companions, and rely on microorganism symbiotes for the regulation of our bodies. In Human-Computer Interaction (HCI) and

Interaction Design, there is an increasing interest in designing systems to support the interactions between humans and other species, in pursuit of goals including environmental sustainability, agroecological system design, human-animal cohabitation, urban informatics, and more. For example, Raghavan and others draw from the natural phenomenon of perennial polyculture to design agroecological systems that extend the lifetime of agricultural systems [15]. Hirsch et al. reveal the sociotechnical opportunities of urban agriculture by describing it as an urban innovation that coordinates activities between people, plants, machines, and institutions [7,8]. Similarly, Heitlinger et al. call attention into grassroots farming communities to be the center of sustainable HCI discourse [6]; Choi and Blevis stress to utilize network technologies to cultivate sustainable food culture in urban spaces [4]; Odom [14] and Lyle et al. [10,11] suggest that interactive systems should encourage community engagement to support urban residential gardening. Mancini [12,13] and Smith et al. [16] advocate the perspective of decentering humans to create a space for cohabitation in urban spaces.

Informed by previous studies, we explore the different ways humans and nonhumans interact in everyday life. We do so by drawing from the theoretical concept of natureculture and investigate through visual forms how natureculture provide implications for human-nature interaction design. Originally coined by STS scholar Donna Haraway [5], natureculture has been defined by sociologist Joanna Latimer as “a provocation for collapsing and transgressing the dominant metaphysics that dichotomizes nature and culture, and through which culture and all that is human is constituted as discontinuous with the rest of the world.” [9, p11]. By suggesting that the “human comes into being *with* this

world” [9, p12], we believe the theoretical concept of natureculture provide an opportunity for cultivating our sensitivity in discovering the dependency between human and nature that we tend to otherwise neglect.

Natureculture provides us a point of departure to attend to other nonhumans in developing the material world, and yet it is too abstract to become a design concept; we need to engage in other forms of *constructive thinking* to concretize it. Blevis has argued that photograph is a powerful tool for the expression of knowledge [3]. He says, “making photographs is a form of constructive thinking. Thinking about the meanings of photographs *in-and-of-themselves* and in their juxtapositions *one-to-another* is a form of meaning making.” [2, p983]. In this pictorial, we seek to understand and learn through visual forms what are the other forms of human-nature interaction in everyday life. More precisely, we want to use photography as a mode of constructive inquiry to investigate current modes of human-nature interaction and to inform the understanding of natureculture.

We contribute to the HCI and Interaction design community in three ways. First, from a theory making perspective, we use photography to “see” the theoretical concept of natureculture by capturing it through visual forms. Second, from a methodological perspective, we propose combining visual thinking with critical reflection as an iterative design research process that pushes the understanding in both visual and textual forms. Third, we construct visual representations of natureculture in hopes of informing design and design research concerning the interrelation among human-nature interaction.

Theory Through the Lens: Developing A Designerly Sensibility for Natureculture

In attempting to unfold the knowledge of natureculture as a design concept, our method is both empirical and critical—combining an iterative process of visual thinking and critical reflection. At the beginning, we simply applied the idea of natureculture through lens; we were not very selective on what kind of images we were taking but simply tried to capture the co-presence of natural and cultural elements (e.g., a tree in front of a house). After curating a certain number of images, we then moved on to critically analyze the images through textual forms the relationship between nature and culture, a process informed by Bardzell's conception of interaction criticism [1]. In other words, we created, curated, edited, organized, and reflected on the images to visualize natureculture; each of the activities have helped us to apply a different lens in collecting and interpreting images through the course of research. All images in this pictorial essay were taken by the authors with digital devices, including mobile phones, digital cameras, and DSLRs, depending on what was available at the moment we encountered such a juxtaposition. We also edited the photographic works (e.g., cropping, color correction, highlight/shadows correction) to improve their visual impact.

In total, we curated more than 400 photos during the year 2016 and 2017. Sites of our photographic investigation include Europe, North America, and Asia. Through the iterative course of visual thinking and critical reflection, we started to pay attention to moments when the juxtaposition between nature and culture are less explicit (e.g., the shadow of tree becomes the pattern of a house), or instances when nature is cultural or when culture is natural. For example, we consider food

preparation as both cultural (e.g., gourmet Japanese cuisine) and natural (we have to eat; what we eat is natural; and balances of savory and sweet and sour and bitter that are culinary and aesthetic also correspond to bodily needs for carbs, proteins).

Photographing Natureculture

Here we present a collection of images that visualize the concept of natureculture through various forms of human-nature interactions. Through the iterative inquiry process of visual thinking and critical reflection, this photographic essay presents some of natureculture's visual language as it is situated in everyday living.



The Wildness in Tamed Nature

In urban spaces, nature is often tamed and appeared in forms of parks, roadside trees, and indoor house plants. However, *nature also appears in ways that are unexpected and wild*: captured in Taipei, Taiwan, the visual contrast of the regular bricks and the waterfall like structure of the roots is unexpected and dramatic.



New Structures Created by Nature

The image on the left shows an old apartment in Vienna, Austria. The image on the right captures part of the remaining construction of Diocletian's Palace in Split, Croatia. This pair of photograph presents the moments when *nature*—for ivy and microorganisms alike—*creates new structures on which subsequent natureculture can be built*. For the “Ivy League” universities in

the USA, this visual representation becomes a way of naming and maintaining the scholarly prestige and the capital (in all senses of the word) of these universities. At the same time, the ivy structures create shelter for birds and insects, who pursue life within their tangled vines.

The Beautiful Juxtaposition

This 18th century banker's residence in Takayama, Japan, was designed around a courtyard, literally allowing snowfall into its (today) highly cultivated living room. Today, *the living room air is thick with jazz and snow*; it is a beautiful living space because *it juxtaposes, in a surprising way, the urbane and the natural*.

**Nature in Cultural Forms**

A community farm in the center of Taipei city, Taiwan. The site was originally an abandoned veterans' village and is turned into a city farm where local residents can grow fruits and vegetables. Here, nature is brought to the urban space and appear in *rows of crops separated by grassy walkways that resemble the rows of houses separated by roads* behind them.

**The Formal Symmetry**

This temple in Uji, Japan, was built at the water's edge with the obvious intention of creating reflective effects. Here, *formal symmetry is achieved through the deliberate pairing of nature and culture*.



Natureculture Across Senses

Food presents striking visualizations of natureculture. On the left, it's almost unclear what is to eat and what is decoration, as the explosion of natural colors almost suggests a still life painting. On the right, whole fish are vacuum sealed in a juxtaposition that is surprising for



those from cultures, outside of the East, where meat is presented without heads or tails, obfuscating its natural form. These images show how *visual beauty* (in the cultured sense) *is integrated with what is delicious*.



Formal Juxtapositions

These wooden walkways connect different buildings in a temple complex in Kyoto, Japan. In *the materials and curvaceous forms*, they visually reference the mountainous surroundings of the temple, harmonizing nature and culture in a way that contributes to the beauty of the site.

Natural and Cultural Clusters

In a rice paddy next to a highway entrance in Taichung, Taiwan, a man operates a bulldozer, while a flock of egrets gathers around. The egrets gather because they have learned that the bulldozer turns up worms, providing them with a low-effort feast. Such gatherings are common throughout the region. Visually, they demonstrate how *animal groups (flocks, herds)* incorporate human and cultural elements into their clusters.

**Movements in Space**

When domestication interferes with domestication: this man's bird feeding is interrupted when someone else's curious dog wanders over to look at the birds. Visually, *the image communicates motion, from left to right—natureculture sometimes is characterized by visible movement.*



Harmonious Hybrids

This photo shows an upscale tearoom in Taipei, Taiwan. This tearoom is designed like a stage where the tea master sits on one side of the wooden table making and serving tea to the guests on the other side. Everything is quite natural in this room—from the wooden table, the tatami flooring, the clay teapots, to the view outside of the window—but there are culturalized to present a *down-to earth aesthetic*. Here the *window to the trees literalizes the landscape painting*, which also offers a window onto a scene. *The natural materials also create a pleasing and warm color palette.*

**Ghoulish Hybrids**

This image was taken after a Halloween pumpkin carving party in Bloomington, Indiana, USA. The pumpkin carvings show high similarity to human heads (with eyes, mouth, and even ears). In this image, *the natureculture hybrid is uncanny, playful, and ghoulish*. Natureculture is not always innocent and sweet; for example, Jack-o'-lantern as a cultural object presents a form of natureculture that is dark and menacing—albeit in a festive way.



Culture in Natural Forms

Captured at Gas Works Park, a public park in downtown Seattle, Washington, USA. This image shows a group of people enjoying the sunset on a slope. Similar to the forest on the right side, *the sunset watchers' silhouettes appear as a human forest*, so that the hill is continuously covered by a natureculture forest.

**Movements Over Time**

This pair of image captures an abandoned wooden stair by a popular trail in Taichung, Taiwan. The image on the left shows its overall construction and the image on the right is a close-up of the stair. Humans, weeds, and wildflowers alike *seek sun and air, and all of us climb up to access them*.



The Resemblance

This image shows a group of tourists wearing traditional bamboo hats on a boat at Sicao Mangrove Green Tunnel in Tainan, Taiwan. From this image we see high resemblance between the nature and the culture: both the visitors' heads and the river are covered in vegetation, either in forms of hats or as mangroves growing toward the river. We can also see that the peaks of the hats resemble the peaks of the mangroves. *Natural forms are thus replicated across scales and even into cultural objects.*



Natureculture as Subjective Experiences

A boy revels in his first taste of snow. Takayama, Japan's propensity for snow is part of its appeal to tourists from Southern China, Singapore, and Thailand. As with many other locales, Takayama benefits from weather tourism. This image captures *the strong human emotion that can be experienced simply by touching nature in a new way.*



The Visual Language of Natureculture

As the HCI and Interaction Design community gradually shifts from a human-centric research agenda to one that encompasses other species, the concept of natureculture—a mode of thought that signifies the inseparability of the two—becomes useful. The contribution of this pictorial essay is to visualize natureculture by capturing, editing, organizing, and reflecting through photographs on the various ways nature and culture coexist. Throughout the images we came to appreciate the visuality of natureculture in many different ways:

- It manifests in ad hoc and heterogeneous clusters (e.g., a man on the bulldozer surrounded by egrets).
- It is characterized by movements in space (e.g., the dog chasing the pigeons) as well as over time (e.g., when natural forms reclaim human-made forms, visible in historic ruins and crabgrass on a suburban lawn).
- It can be deliberately constructed as a formal symmetry (e.g., in the temple by the reflecting pool).
- It entails formal juxtapositions that play up the similarities (e.g., the curvaceous walkway and the surrounding mountains) or highlight the contrasts (e.g., rectangular bricks and the roots that grow like waterfall) between the natural and the cultural.
- Natureculture hybrids have complex meanings, from the harmonious and serene (e.g., the tea room) to the festively ghoulish (e.g., Halloween pumpkin carving).
- Culture and nature build upon each other in a layered way, for example, when plants grow onto buildings and humans in turn cultivate that growth on cultural constructions (e.g., Ivy League Schools), which nature in turn reclaims in its own ways (e.g., with insects moving into the ivy).

- Natureculture can also cross senses, for example, when visual qualities stimulate appetites, as in the case of food presentation in haute cuisine.
- Natureculture can manifest itself as an intense subjective experience—a child's first taste of snow.
- Natureculture can itself be developed into sophisticated cultural forms, as in the cases of winemaking, the open-air living room in the Japanese banker's home, or Frank Lloyd Wright's Fallingwater.

Complementing the theory of natureculture, this photographic exploration has helped us to perceive and interpret, and then further perceive and interpret (etc.) in a virtuous cycle, what natureculture looks like in the world, how it is arranged, how it is concretized in everyday life. Its movements, layers, visual structures, formal homonyms have the potential to inspire design. In presenting this image collection, we hope to provide the opportunity for readers to draw their own connections and interpretations within the overarching framework of natureculture; that is, our Pictorial's implications for design are not a set of propositions about natureculture, but the heightening of our shared capacity to perceive it and its consequences.

For example, a designer can further investigate instances where formal similarities (e.g., the peaks on the bamboo hats and the peak of canopy over the river) that are found in nature and culture, and a designer can sketch or imagine new ones. Or, a designer can look to existing natureculture hybrids and seek to change their meanings, e.g., from serene to the festively ghoulish. A designer can understand how nature and culture alternately build on each other (like the cultivated ivy walls) and seek to imagine new layers of built life. A designer can try to stimulate new appetites and tastes through the

construction of natureculture arrangements—a skill that chefs already have and practice.

Our photographic work also demonstrates that humans are not most comfortable living in isolation from nature, but that we prefer our lived environments to be rich with natural materials, color palettes, and structural forms. In some cases, these include extreme juxtapositions producing highly complex meanings—as in the case of a courtyard living room thick with snow, designer furniture, and jazz. The play of reflections, light, and shadows from natural elements such as trees and pools are also productive of naturecultural settings where humans feel comfortable, even (in the case of religious buildings) transcendent.

Perhaps most fundamentally, photographing natureculture made us aware of how we have always already been a part of natureculture. After 400 photos, instead of running out of ideas, we could see that we could take 40,000 more. The very idea that nature and culture are separate comes to seem almost absurd: how could we ever have thought that way? Our sensibilities became heightened as to the ways that the cultural is just one of nature's many capacities. We are cultural because it is in our nature; as a species, forming and replicating culture has helped us "get on" with life: to find food and shelter, to survive and to reproduce-- to feel the pleasure of the sun on our skin as a kind of poetry.

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References

1. Bardzell, J. Interaction criticism: An introduction to the practice. *Interacting with Computers* 23, 6 (2011), 604–621.
2. Blevis, E. Being Photo-Visual in HCI and Design. *Proceedings of the 2016 ACM Conference on Designing Interactive Systems - DIS '16*, (2016), 983–995.
3. Blevis, E., Odom, W., and Hauser, S. Sharing The Hidden Treasure in Pictorials. *Interactions*, 2015, 32–43.
4. Choi, J.H. and Blevis, E. HCI & sustainable food culture: A design framework for engagement. *NordiCHI '10*, (2010), 112–117.
5. Haraway, D.J. The Companion Species Manifesto: Dogs, People, And Significant Otherness. Prickly Paradigm Press, 2003.
6. Heitlinger, S., Bryan-Kinns, N., and Jefferies, J. Sustainable HCI for grassroots urban food-growing communities. *Proceedings of the 25th Australian Computer-Human Interaction Conference - OzCHI '13*, (2013), 255–264.
7. Hirsch, T. Beyond Gardening: A New Approach to HCI and Urban Agriculture. In J.H.-J. Choi, M. Foth and G. Hearn, eds., *Eat, Cook, Grow: Mixing Human-Computer Interactions with Human-Food Interactions*. The MIT Press, 2014, 227–242.
8. Hirsch, T., Sengers, P., Blevis, E., Beckwith, R., and Parikh, T. Making Food, Producing Sustainability. *Proceedings of the 28th of the international conference extended abstracts on Human factors in computing systems - CHI EA '10*, (2010), 3147.
9. Latimer, J. and Miele, M. Naturecultures? Science, Affect and the Non-human. *Theory, Culture & Society* 30, 7–8 (2013), 5–31.
10. Lyle, P., Choi, J.H.-J., and Foth, M. Designing for grassroots food production: An event-based urban agriculture community. *Proceedings of the 26th Australian Computer-Human Interaction Conference, OzCHI 2014*, (2014), 362–365.
11. Lyle, P., Choi, J.H.-J., and Foth, M. Growing food in the city: Design ideations for urban residential gardeners. *C&T '15 Proceedings of the 7th International Conference on Communities and Technologies*, (2015), 89–98.
12. Mancini, C. Animal-Computer Interaction : A Manifesto. *Interactions*, 2011, 69–73.
13. Mancini, C. Towards an animal-centred ethics for Animal-Computer Interaction. *International Journal of Human Computer Studies* 98, (2017), 221–233.
14. Odom, W. "Mate, we don't need a chip to tell us the soil's dry": Opportunities for Designing Interactive Systems to Support Urban Food Production. *DIS '10: Proceedings of the 8th ACM Conference on Designing Interactive Systems*, (2010), 232–235.
15. Raghavan, B., Nardi, B., Lovell, S.T., Norton, J., Tomlinson, B., and Patterson, D.J. Computational Agroecology: Sustainable Food Ecosystem Design. *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, (2016), 423–435.
16. Smith, N., Bardzell, S., and Bardzell, J. Designing for Cohabitation : Naturecultures , Hybrids , and Decentering the Human in Design. *CHI*, (2017).