Eco-Joy: Imagining Sustainable and Joyful Food Eco-label Futures

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A third of global greenhouse gas (GHG) emissions are attributable to the food sector, however dietary change could reduce this by half. Educating consumers on the environmental impact of their choices through eco-labels as a form of sustainability signalling may be a powerful approach to tackling climate change if it can bring about a large scale transition in households and supply chains. When designing interactive systems and applications integrating eco-labels however, we need to take into account the different barriers that exist (e.g. lack of knowledge, climate anxiety, complexity of food systems, affordability). The aim of this workshop is to imagine the future of eco-labels and sustainability signalling in ways that are both effective and joyful. The workshop invites researchers and practitioners to discuss current eco-labels, and creatively design the future of sustainability signalling with emerging technology.

1 INTRODUCTION

Climate change is one of the most pressing issues of our time. With glaciers melting and permafrost thawing, the Nordic countries are predicted to be particularly affected by the release of previously frozen greenhouse gas emissions (GHG) emissions [9] and tripling of atmospheric CO2 [23]. The HCI community has shown a growing interest and engagement with how to cope with—and prevent—global warming. Given the strong relationship between climate change and diet, this workshop focuses on how to signal the sustainability of food in ways that are both effective (e.g. loss of biodiversity, deforestation, GHG emissions) and compelling. Our aim is to enable 'individuals to become deeply committed to building a sustainable future and in making informed and effective decisions to this end' [6].

Current food labels, which mostly take the form of static printed labels, face several challenges when communicating sustainability. In particular, they often disregard user experience, and thus fail to embrace the many opportunities that emergent technologies afford when it comes to delivering pleasurable interactions. Now is an opportune time for the

academic community to collaborate and explore creative interaction designs that raise consumer awareness and engage them with the complex topic of food sustainability.

With at least 1/3 of global GHG emissions attributable to the food sector, it is undeniably one of the main contributors to climate change [17]. To stay within planetary boundaries and avoid the most dire consequences of an altered climate, a significant reduction of the food sector's footprint is imperative, yet it is even expected to rise [13] from contributing 30% to global GHG emissions in 2020 to 50% by 2050 [22]. A plethora of research has shown that dietary shift towards low-impact foods (i.e. plant-based) can reduce the food sector's footprint by half [19], a relatively quick route to substantially reducing global GHG emissions, and buy time needed for large-scale industrial changes, transitions to greener production and supply chains [17], and more sustainable policies [24]. However, there are multiple barriers that impede such a shift among consumers: first and foremost, the lack of knowledge and awareness of a) how individual food choices impact the environment (i.e. perceived effectiveness) [8, 11, 14] and b) which foods may be considered sustainable [10, 17]. Several studies within the HCI discipline attempted to overcome these issues, resulting in the usage of known and the development of novel eco-labels as a means of sustainability signalling (i.e. provision of sustainability data on foods' ecological footprint rather than uni-dimensional types of eco-labels such as organic or fair trade) [5, 18, 20]. But despite decades of academic research and—or because of—the large body of eco-labels created by the commerce sector [21], over 60% of consumers still find sustainable food choices difficult to identify [3]. Given the vast difference in the information content, level of transparency and scoring metrics of available eco-labels, it is essential for interdisciplinary researchers to collaborate and re-evaluate what comprises a good eco-label, and how this can lead to a sustainable food systems transition.

This reaches beyond visualising factual information about food's ecological impact towards overcoming *and* targeting emotions to evoke more sustainability compliance. With eco-anxiety growing [16] and significantly impacting mental health [1, 2] we suggest that, for people to embrace increasingly sustainable ways of living, they must find the joy in them. We thus see the need for eco-labels to not only be informative: they should also be joyful and fun, in ways that help consumers to incorporate caring for the environment as a meaningful and intrinsically rewarding aspect of their day. To achieve that, eco-labels may need to address the associated discomfort of behavioural change [15], as well as simultaneously elicit positive emotions in consumers as these play a vital role when grocery shopping [4, 7, 12, 15] and can evoke pro-environmental behavioural shopping outcomes [12]. Thus, using positive emotional stimuli may help to overcome the unpopularity of adopting sustainable behaviours as well as the conflicting notion between individual and collective interests ('social dilemma') [4].

Technological realisations, in contrast to printed packaging labels, have the capacity to show personalised or emotionally engaging content and to allow the shopper to interact with the sustainability signalling. HCI researchers have therefore an important role in designing, developing and evaluating good visualisations that target sustainable food choices, positive grocery shopping experiences, and ultimately in reducing GHG emissions.

Through this workshop, we aim to bring together designers and researchers within HCI and related disciplines. We address the NordiCHI community in particular, with its broad perspective on HCI and focus on interactive technologies to shape a sustainable future, to contribute towards the discussion and development of future eco-labels. This workshop aims to create a foundation for a research and design network in which the HCI community can actively engage, collaborate and broaden their perspectives on sustainability signalling. Participants of this workshop will connect with interested experts from the fields of HCI, the food industry as well as art and design and gain insights into different interdisciplinary perspectives and approaches to food eco-labels. The workshop is structured in three parts: creating

an informed common ground, dissecting the state-of the art eco-labels, and collaboratively designing and discussing speculative future visualisations. In particular, we will:

- First, critically reflect the state of the art of current eco-labelling to identify interesting areas of advancement
- Second, generate speculative ideas as to how emergent technologies might contribute to crafting more effective and compelling eco-labels
- Third, provide a forum for sharing, listening, and learning from the interdisciplinary expertise of the participants to collaboratively envision new directions to further develop this research space.

2 WORKSHOP DESCRIPTION AND STRUCTURE

To this end, we will host a maximum of 20 participants in an in-person workshop where we will use a range of co-design techniques, as described below. If needed, we will adapt the workshop to an online format, using Zoom and Miro. All the organisers have considerable experience with facilitating both in-person and online co-design workshops at academic conferences and beyond. Here we outline the activities involved in the workshop:

(1) **Introduction** (15'): We will begin with a short introduction by the organisers, where we will introduce the research space of eco-labels and the scope and aims of the workshop.

(2) **Finding common grounds** (60'): Before the workshop, we will set up a board with all the labels participants created for themselves prior to the workshop (see details on Section 3). In this phase of the workshop, we will begin by inviting participants to have a look at everyone's label as a means of getting acquainted with each others' background and research interests. Following, participants will gather in groups of 4-5 so they can talk about their work and begin to find common grounds. This phase of the workshop will end with a 20' discussion where groups will share the synergies they found in their conversations, as a means of beginning to identify exciting areas of collaborative exploration within eco-labelling.

(3) **Coffee break** (15')

(4) **Challenging the state of the art** (60'): We will divide participants in groups of 3-4 people and provide each of them with a selection of existing eco-labels. We will also invite them to include any eco-label of their own to the mix, either ones they brought to the workshop or ones they found in situ (e.g. through a quick online search). During 20 minutes, we will invite the groups to examine and critically reflect on their deck of eco-labels, to identify both interesting and questionable design choices behind them. We will provide participants with a set of guiding questions to facilitate their discussions, but will also allow them to use their own alternative criteria. The activity will end with a 30-minute discussion where groups will briefly present their most relevant insights and work towards initiating a list of challenges and opportunities emerging in the current state of the art of eco-labels.

(5) **Lunch break** (60')

(6) **Speculative eco-labelling futures** (60'): In groups, participants will work on a design activity: envisioning a future eco-label incorporating emergent technology. Groups will have 60 minutes to: (1) choose a food they would like to design the label for; (2) settle on their labelling goal(s), e.g. is it to inform, to guilt, to persuade, to provoke...; (3) select an emergent technology that could help to achieve those goals; (4) come up with a speculative idea of a label that could achieve those goals while affording a user experience that is joyful and/or fun; and (5) make a quick prototype of the label, using techniques such as sketching, collage, lo-fi prototyping (e.g. paper, colour pencils, cardboard, play dough...), and/or enactment (e.g. pretend playing the technological

functionalities of the label, or a use case scenario). As their deliverable, groups will provide a name for their label, a brief description (max. 100 words), and a photo, video, or otherwise graphic representation of their speculative prototype.

(7) **Presentations and discussion** (60'): Groups will present and discuss their prototypes. Building on the speculative design ideas and their underlying qualities, we will discuss what might be interesting innovative directions for eco-labelling design (related to food and beyond), and how emergent technologies might contribute to realising them. The workshop will end with a reflection on what might be the next steps to collaboratively advance the field of technology-supported eco-labelling.

3 PRE-WORKSHOP PLANS

To communicate and announce the workshop, we will create a website with information about the workshop, important dates, schedule, and questions we invite participants to reflect upon prior to the event. The website link is: https://eco-joy.uni-oldenburg.de.

Prospective participants will be asked to submit a one-page position paper in order to attend the workshop. In the position paper, they will be asked to include a short bio, a brief expression of interest, and a design of a label presenting themselves to other participants, including: (1) their name and affiliation, (2) up to 5 keywords describing their research interests, (3) up to 5 keywords describing their methodology, and (4) a playful, evocative image that represents their work and/or approach, for which we will provide examples in the website.

Accepted participants' position statements will be made available on the website, if agreed by the participants. Selected participants will also be invited to (optionally) bring to the workshop any eco-labels they find interesting and would like to discuss.

We will distribute a call for participation through HCI email lists and through our professional and personal networks. We will also send out direct email invitations to researchers and practitioners working on topics related to the workshop. We aim for a diverse representation in participants across contexts. Participants will be selected based on their submission's relevance to the theme, including consumer voices as agents of change addressing ecological issues in HCI, sustainability signalling approaches to research and practice, and behaviour change interventions foregrounding consumer education on ecological issues.

4 POST-WORKSHOP PLANS

The workshop outcomes (e.g. main conclusions, speculative prototypes) will be reported on the workshop website. Additionally, we will strive to leverage those outcomes towards one or more collaborative publications (e.g. an article in the ACM Interactions magazine or a pictorial at a design-oriented HCI conference). We expect two of the workshop outcomes to lead to such publication:

- The critical dissection of the state of the art of eco-labelling (workshop stage 4).
- The portfolio of speculative eco-labelling ideas created by participants, as well as the discussion around them (stages 6 and 7).

We also expect the workshop to serve as an opportunity for community-building around the research space of eco-labelling. We will strive to initiate collaborations that continue to strengthen this community, either through follow-up workshops or through a jointly-edited Special Issue. Those outcomes will largely depend on the participants'

perspectives and initiatives; from our diverse experiences in similar workshops, we are confident that such follow-up initiatives are likely to take place.

5   ORGANISERS

Workshop organisers are HCI researchers doing signalling work across cultural contexts on various issues.

Gözel Shakeri is a researcher in Sustainable HCI at the Carl Ossietzky University Oldenburg (University of Oldenburg). Her research interests focus on using behaviour change intervention science to create interfaces that support shoppers in purchasing sustainable products. Her work has a strong experimental focus, applying multidisciplinary evidence to create rich, natural, and sustainable interaction between human and technology. She is passionate about sustainability concerns and therefore serves as a member at the SIGCHI Sustainability committee as well as Sustainability Chair at CHI 2023. She has previous experience organising workshops.

Frederike Jung is a research associate at OFFIS, institute for information technologies in Oldenburg. Combining her experience in graphic design and HCI, she currently works on creating multimodal visualisations to help users understand privacy policies and the use of their personal data. She has extensive experience in organising workshops for diverse participant groups, including children. Passionate about using technology to sustainably empower and educate, she incorporates possible users into her design processes, exploring creative interaction methods, such as Augmented and Virtual Reality.

Ferran Altarriba Bertran is an interaction designer and researcher, currently serving as a lecturer at Escola Universitària ERAM (Universitat de Girona) and as a post-doctoral researcher in the Gamification Group (Tampere University). His research investigates how to design playful technologies and experiences that enrich the socio-emotional texture of people's day-to-day. He is also a co-founder of the Feeding Food Futures network and a member of the International Journal of Food Design's editorial board. Ferran has vast experience as a co-design workshop facilitator, both in-person and online, both in academic conferences (DIS, CHI, CHI Play, EFOOD...) and beyond. http://ferranaltarriba.com

Daniel Fernández Galeote is a games and gamification designer and researcher currently doing his doctoral studies at the Gamification Group (Tampere University). His research aims to understand the potential of games for climate change engagement. He is also an experienced game developer and a member of the International Game Developers' Association (IGDA) Climate SIG. He has ample experience as workshop facilitator, in-person and online. https://linktr.ee/polybiak

Adrian Friday is Professor of Computing and Sustainability at Lancaster University, UK. For about 10 years, his interdisciplinary work has focused on how innovative technologies, data and empirical studies reveal the externality and impacts of everyday life, and offer new and more sustainable ways of doing. He has led a series of collaborative and multidisciplinary projects exploring energy use in the home, including exploring energy and embodied footprint of food preparation and sustainable food shopping with a major regional supermarket retailer in UK. He has extensive experience of organising and running previous workshops with a sustainable HCI focus, including Responsible Innovation and Climate Change in HCI, https://christianremy.com/_publications/2019_chi-workshop.pdf.

6   CALL FOR PARTICIPATION

A third of global greenhouse gas emissions are attributable to the food sector, however dietary change could reduce this by half. Educating consumers on the environmental impact of their choices through eco-labels as a form of sustainability signalling may be a powerful approach to tackling climate change. When designing interactive systems

and applications integrating eco-labels however, we need to take into account the different barriers that exist (e.g. lack of knowledge, climate anxiety). We invite submissions from researchers, designers, educators, and activists interested in the intersections of data visualisation and design as well as ecological issues of consumer choices. Our workshop has three goals: (1) examine the state of the art of eco-labelling to identify interesting areas of advancement; (2) speculate as to how emergent technologies might contribute to crafting labels that are more effective and compelling; and (3) envision new directions for further developing this research space. Prospective participants should submit a one-page position paper, including:

- A short bio (100 words max.).
- A brief expression of interest (300 words max.) describing their research interests and why they would like to participate in the workshop.
- A design of a label presenting themselves to other participants, including: (1) their name and affiliation, (2) up to 5 keywords describing their research interests, (3) up to 5 keywords describing their methodology, and (4) a playful, evocative image that represents their work and/or approach. The label can be made on a digital or analogue format, and does not need to hold up to professional graphic design standards; any level of expertise is welcome. We will provide examples (Appendix A) of what such label might be on the website.

Submissions should address and will be selected based on relevance to the workshop goals. Submissions should be sent to first author on goezel.shakeri@uni-oldenburg.de with the subject "Eco-Joys Workshop". Accepted papers and media will be published to the workshop website https://uol.de/medieninformatik/lehrveranstaltungen/eco-joy. Please note that at least one author of each accepted submission should attend the workshop and all participants must register for both the workshop and for at least one day of the conference.

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Template
for your Label

1: Fill the entire next page (A6) with content that describes YOU and your work

2: Name, affiliation, up to 5 keywords describing your research interests, up to 5 keywords describing your methodology, a playful, evocative image that represents your work and/or approach
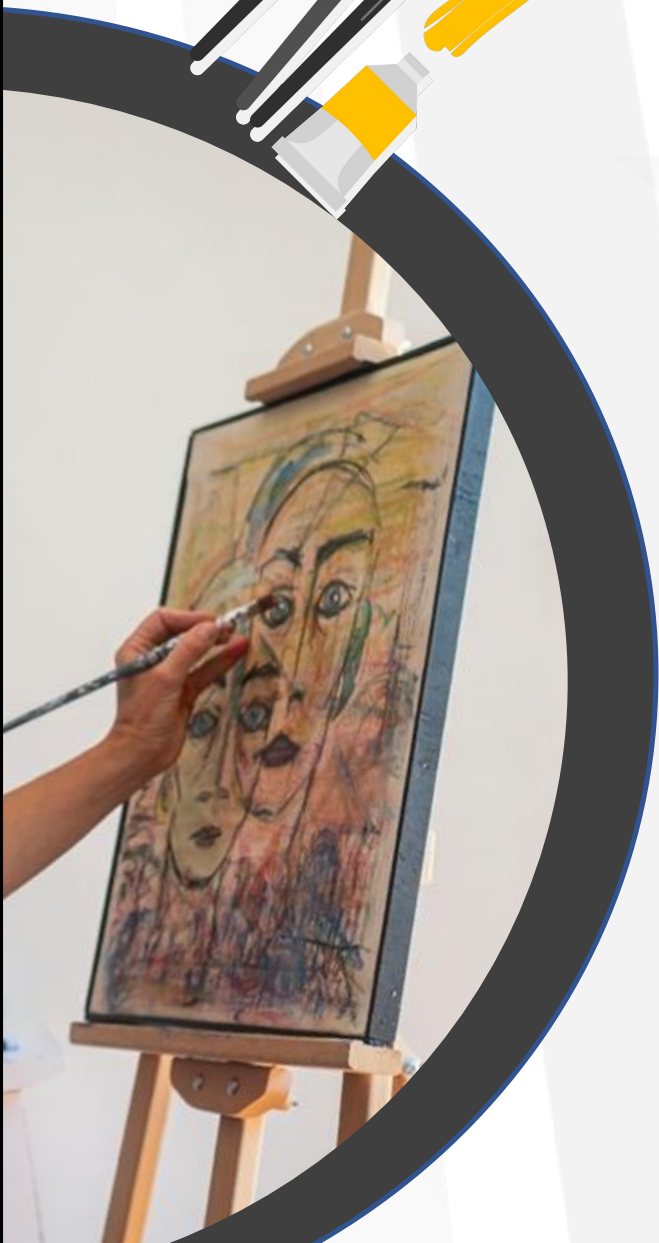
3: Add elements, icons, stickers, colors,… feel free to go beyond our suggestions
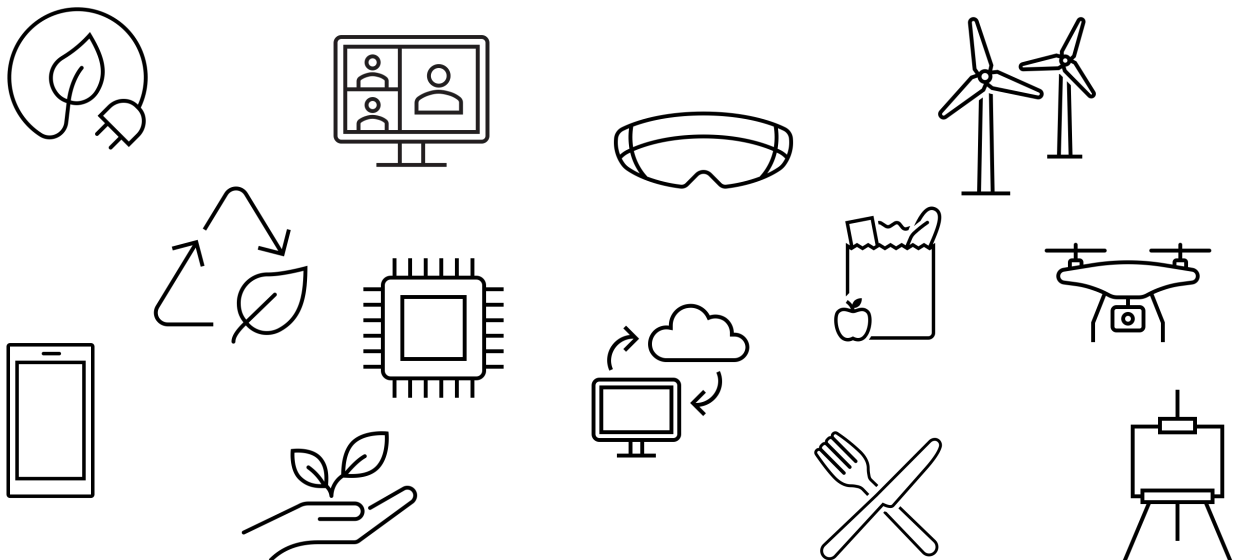
get started

Your Name

Frederike Jung