Nordic Perspectives on Algorithmic Systems: Cards as a Playful Intervention into the Crisis of Imagination

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ABSTRACT

In this pictorial, we introduce a box with four card decks – focusing on settings, metaphors, methods, and caveats – designed to stimulate critical engagement with algorithmic systems from Nordic perspectives. Today, algorithmic systems research often takes the form of critiquing systems-in-use. This leads to a crisis of imagination: rather than envisioning actively what algorithmic systems should be like, it is easy to feel hopeless and powerless amidst the problems of rapidly transforming digital societies. Responding to this crisis and reflecting on the observation that discussions about algorithmic systems quickly transform into discussions about society, we offer our card box as an artefact that can facilitate articulating positive and purposeful ideas about desirable societies and algorithmic systems which promote them. The central intention of our card box is to destabilize hegemonic global conversations through locally specific ideas and values, in an effort to invite new forms of reflection and intervention.

AAR 2025 August 18–22, 2025, Aarhus N, Denmark

ACM ISBN 979-8-4007-2003-1/25/08
https://doi.org/10.1145/3744169.3744190

Authors Keywords
algorithms; algorithmic systems; imagination; crisis; game design; Nordicness

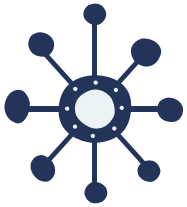
CSS Concepts
• Human-centered computing~Human computer interaction (HCI)

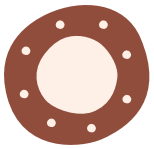
INTRODUCTION

Automation and Artificial Intelligence are spreading like wildfire, almost like an invasive species, propagating the values they were designed with, namely Silicon Valley's focus on centralization and scalability [20]. Such hegemonic concerns exert enormous pressures on other societies [47] and models of care [50], threatening to leave behind, in Anna Tsing's words, a "*mounting pile of ruins*" [61]. Critiques from bias mitigation [19] or broader AI ethics [59] tend to emanate in large part from Western contexts and concerns. And as they overlook concerns from different sectors of Western populations, they are furthermore inadequately positioned to address concerns from non-Western contexts as well. This has led to a crisis of imagination for those on the peripheries of AI developments. Our work joins recent scholarly approaches to contextual understandings of AI and automation [47]. This pictorial is offered in the spirit of combating the hopelessness and powerlessness that can accompany the fast-paced incursion of AI developments into our societies and the cherished systems we rely on.

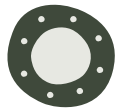
In this pictorial, we introduce a set of card decks designed to facilitate such engagement. Drawing on game design, metaphors, and critical thinking, the decks provide a tangible, playful tool for exploring algorithmic systems. It is structured around four categories – **Settings**, **Metaphors**, **Methods**, and **Caveats** – that encourage users to think creatively about how algorithmic systems operate, how they might be challenged, and how they could be redesigned. Our card decks, intended to open up Nordic perspectives to algorithmic systems, originate from workshops in three different Nordic countries. Nordic countries have socio-political particularities, such as a universal welfare system, strong labor unions, and a high degree of income distribution; these countries also rank high in world happiness and most liveable place rankings. Like Sambasivan et al. [47], we use local contexts not as exceptions but as equally valuable exemplars. The Nordic framing should be seen as a prism through which to understand global AI debates, a situated, contextual provocation to disrupt hegemonic framings of AI.

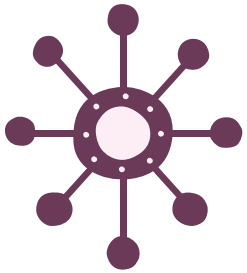
Our contribution is threefold: (1) we introduce the card decks as a tool for creative and critical engagement with algorithmic systems; (2) we demonstrate their use in classroom settings; and (3) we reflect on their potential for fostering alternative perspectives and the possibility of interventions. Through this work, we aim to open up new possibilities for thinking about and intervening in algorithmic systems.





CRITICAL IMAGINARIES OF INTERVENTION: RELATED LITERATURE ON MAKING SENSE OF AND INTERVENING IN ALGORITHMIC SYSTEMS





"*Let this be the general conclusion: For every epistemological challenge the seemingly black-boxed algorithm poses, another productive methodological route may open. The complex and messy nature of social reality is not the problem. Just as algorithms constitute but one specific solution to a computational problem, we cannot expect a single answer to the problem of how to know algorithms.*"
– Bucher [8, p.64]

Over the past decade, there has been a proliferation of empirical and critical research into algorithmic systems. Here, we offer a schematic mapping of some core areas of research on making sense of and intervening in algorithmic systems. Studies across these areas commonly overlap in their thematic interest in issues such as power, human/machine agency, as well as fairness, accountability, and transparency (FAccT).

Folk Theories and Imaginaries

One prominent approach to studying algorithmic systems has been an inquiry into how users make sense of them (e.g., [14, 16, 17, 26, 44, 49, 63]), including systems like Facebook [16, 17], TikTok [26], and Spotify [57]. These studies have built on different conceptual approaches. The concept of ***folk theories*** refers to "*non-authoritative conceptions of the world that develop among non-professionals and circulate informally*" [16, p. 2372]. As another framing of user understandings, ***algorithmic imaginaries*** encompass "*the way in which people imagine, perceive and experience algorithms and what these imaginations make possible*" [9, p. 31]. ***Algorithmic folklore*** accounts for the centrality of how people talk about algorithms – as anecdotes circulating about these opaque systems are important sources of information about them, and in that "*people tell stories [...] to emphasize something of importance to them*" [46, p. 55]. Studying understandings of algorithmic systems sheds light on topics such as how people try to game these systems (e.g., [21]) and how users may evaluate the behavior of others with these technologies based on how they understand the systems themselves [22].

Algorithmic Audits and FAccT Research

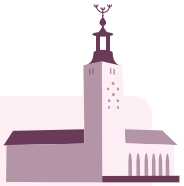
Algorithmic audits refer to research focusing on figuratively 'opening the black box' to understand how algorithmic systems technically work [38, 48]. Audit research has addressed issues such as understanding search bias on social media [30], exposing discrimination in online housing markets [4], and scrutinizing a long-term unemployment risk prediction model [52]. Beyond researcher-led approaches, studies have paid attention to how users audit systems either to uncover injustices [55] or, more broadly, to understand the hidden logic of algorithmic technologies, by testing the effects of their actions individually or collectively [6, 10]. Audit studies are strongly related to a major topic of studies on algorithmic systems, namely that of ***fairness, accountability, and transparency*** (FAccT). While not limited to auditing, this research strand overlaps heavily with audit studies given the shared focus on identifying and addressing injustices that the implementation of algorithmic systems may cause. Yet, the approach has raised concerns about techno-solutionism in the form of focusing on changing the technology instead of the underlying societal mechanisms that lead to the development of biased and unjust systems (e.g., [58]).

Studies of Algorithmic Systems in Practice

Studies working with and/or creating algorithmic systems (e.g., [28, 56]) focus on what it means, in practice, to live and work with algorithms. Research falling under this category has touched upon topics such as gig work under algorithmic management [31, 33, 53, 54], search engine optimization [64], and creating music recommendation systems [51]. Another core contribution in this area has been to document and critique the inequalities algorithmic systems may cause and amplify when deployed in high-stakes decision-making related to public services [18, 34]. Given our focus on the Nordic context, we particularly highlight research that has dissected how algorithmic systems have been brought into public service, altering the ways the Nordic welfare state functions, and even transforming it into a ***data welfare state*** [3]. Some studies have adopted a focus on ***work practice*** (e.g., [2, 23]) connecting the algorithmic turn to the European research traditions of computer-supported cooperative work and participatory design. As another notable example, Kaun [27] combined qualitative interviews with document analysis of court rulings to shed light on how partly conflicting definitions of automated decision-making in social services are negotiated between stakeholders.

PROCESS: WORKSHOP SERIES TO INTERROGATE ALGORITHMIC SYSTEMS FROM NORDIC PERSPECTIVES

The core of our research process consists of three multidisciplinary workshops, spanning from HCI to the social sciences, organized during 2019–2022 in different Nordic countries (Sweden, Denmark, and Finland). Each workshop was self-standing so that some variation in participation was possible. Beyond that, each workshop served as an input to the subsequent ones. The workshops were jointly articulated to cover the following areas: (1) eliciting metaphors and research approaches; (2) experimenting with game design and other 'alternative' methods; and (3) reflecting on what Nordicness means in the context of algorithmic systems, what values might be embedded in a Nordic approach, and what this could imply for possibilities to intervene in existing systems.



1. Stockholm

The first two-day workshop was geared for collecting **metaphors** and research approaches. These were contributed from the different disciplinary traditions, experiences, and research interests represented by 15 workshop participants, all based at Nordic universities. After the workshop, we further collected approaches and **methods** for the study of algorithmic systems through an online form that all participants were asked to fill in. This input was printed out in the form of early card prototypes for use in the second workshop.

2. Copenhagen

The second two-day workshop, with 24 participants, focused on game design and other methods. This is where we first introduced the **Methods** cards and experimented with the game design approach that became crucial for our work. To provide empirical grounding, four PhD students presented their fieldwork on the use of algorithmic systems in different Nordic **settings**, including a recommender algorithm for package inspection at the customs, voice assistants at public organizations, and young workers on digital labor platforms. Breakout groups were, then, tasked to draw from a small selection of the **Methods** and **Settings** card prototypes to design a game, inspired by Dumit's [15] work. All groups were asked to develop a few key components: a setting, a situation or context; actors involved; resources at stake; and an end condition for the game (or at minimum an idea of its core dynamic). At the end of the session, each group explained the game they had created in plenum, focusing on the issues pertaining to algorithmic systems and decision-making. As an example, one group came up with a courier game that mimicked the world of platform-mediated food delivery, featuring couriers, restaurants, and the platform company. Next to inviting participants to think about their objects of study differently, collaboratively, and perhaps more playfully than usual, an important outcome of this workshop activity was identifying both productive and less evocative cards, as well as discussing what other cards – or new types of cards – should be included to make the card decks more helpful for critical game design. This is where the idea of the **Caveats** card deck originates from.

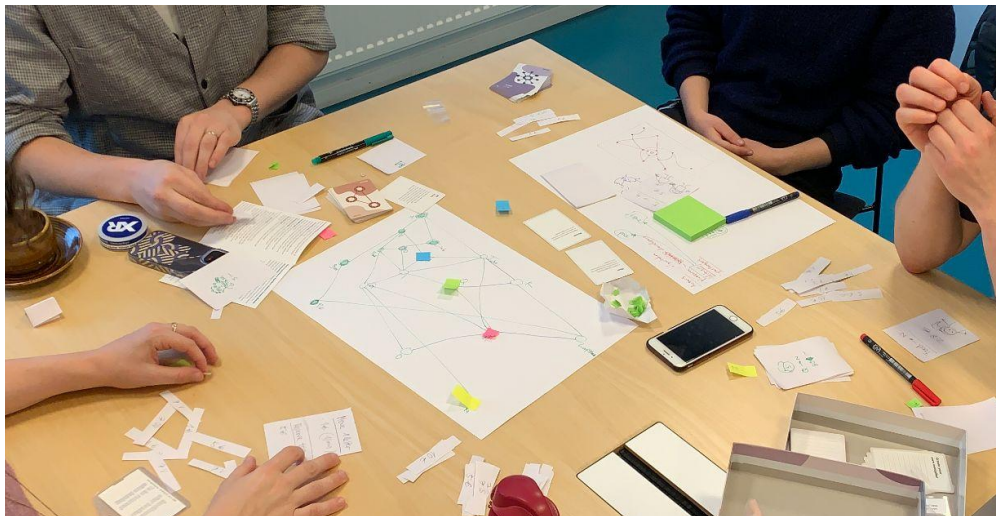
3. Helsinki

The third workshop, with about 15 participants, focused on the Nordicness of our approach and the possibility of interventions into algorithmic systems (and the public discussions about them). We considered Nordicness both as an empirical setting, discussing examples of research literature that addresses the Nordic context specifically, and also in terms of the values and biases embedded in Nordic approaches. This challenged us to engage with our positionality: while all participants lived and worked in the Nordics at the time, many of us are not originally from the Nordics and others have migrated within the Nordics. This gave us the opportunity to engage with Nordicness from both insider and outsider perspectives. As for the latter focus on interventions and what it means to intervene in algorithmic systems, we engaged in a design activity, supported by stories about algorithmic systems located from different media outlets.

APPROACH: GAME DESIGN

Within Science and Technology Studies (STS), game design has been proposed as a pedagogical activity to foster critical investigation of socio-technical systems [15]. Dumit [15, p. 604] suggests that "*games are interesting tools because they involve the game player creatively within a dynamic system, requiring them to make decisions under constraints*", therefore capturing the systemic and dynamic nature of a socio-technical system, while positioning actors clearly into a particular structure. We apply this perspective to algorithmic systems as complex socio-technical assemblages that commonly entail emergent behaviors and dynamics. Games excel at capturing dynamic, action-oriented, and inherently conflicted aspects of systems [15, 43]. They help us imagine and explore counterfactual scenarios [7] and support imaginations of how things 'could be otherwise' [43]. Games often involve information asymmetries, paradoxes, perverse incentives, role play, make-believe, props, and – of course – chance can play a significant role. These characteristics resonate strongly with some of the dilemmas and concerns typical of contemporary discussions on algorithmic systems, such as unequal distribution of power [44], experiences of unfair processes [18], as well as uncertainty and conflicting interests [42].

Our game design approach also draws upon the long tradition within Design Research and Human-Computer Interaction (HCI) to use physical cards to support the ideation and exploration of complex ideas [12, 24, 35, 39, 41, 45, 62]. In this context, cards are used to help design work by stimulating creative thinking, summarizing good practices or know-how, representing design methodologies, offering concepts for specific design problems or domains, or providing checklists [45]. Cards also support teamwork by creating shared boundary objects that are flexible in terms of use [45]. Our card decks build on and add to this tradition in an effort to document and share our workshop outcomes with a broader audience.



ARTEFACT: CARD BOX

Based on our workshops, we designed and produced four card decks and a leaflet, packaged in a bespoke board game box. The final four decks contain 28 cards each: The **Settings** deck features different algorithmic systems and contexts where they are used. The **Metaphors** deck consists of a variety of metaphors that have been – or could be – used to discuss algorithms and algorithmic systems. The **Methods** deck introduces a range of research methods from the social sciences and HCI. Finally, the **Caveats** deck introduces unexpected requirements, meant to prompt new lines of thinking. To encourage appropriation and extension, blank cards were included in each deck. On the following four pages, we present a selection of cards from each deck. The full materials are available as Supplementary Material.

While we created the cards to be used and appropriated in different ways to suit various situations and aims – hopefully also ones we have not anticipated – we included a leaflet in the card box. This folded A5 features basic information about the workshops, along with suggestions for how the cards could be used. These were written as introductory and suggestive. For use in game design, research ideation, or rapid prototyping, our suggestion was to start by drawing one card from the **Settings** deck and another from the **Metaphors** deck. Blending two cards like this is a simple way to start generating ideas, yet it already features the possibility of an unexpected combination. Further cards could then be drawn from the **Methods** deck and **Caveats**, respectively, to narrow down an idea or provide a surprising twist. Based on our experiences, the leaflet suggested the cards to be used in small groups of three to four people. The leaflet also encouraged extending the cards with physical materials, such as fabrics, cardboard, reclaimed items, or game pieces.

METAPHORS

The **Metaphors** deck is an outcome of our longstanding interest in metaphors as powerful tools for thinking and communicating: metaphors highlight some aspects of phenomena powerfully while distorting others (e.g., [13, 32, 36, 40]). Since each metaphor directs attention in its own way, different metaphors may generate differing insights into the same empirical phenomenon. The **Metaphors** deck is geared to provide alternative lenses for focusing on algorithmic systems. Part of our focus on metaphors is motivated by the commitment that one way for critical research to have an impact is through making algorithmic systems more understandable, and ultimately, more available for critical scrutiny and intervention.

Who is in charge? How are algorithmic systems impacting how decisions get made and how might we watch out for distortions in who is serving whom?

This metaphor was inspired by the Sorting Hat in the Harry Potter series, highlighting we can influence algorithmic outcomes, at least to an extent.

This card also speaks to the somewhat marginal position of the Nordics and the EU. Are we left to ride on the coattails of international hype?

What if we shift away from a performance-oriented and controlled approach to something more nurturing and open-ended?

Managing expectations and questioning hype around algorithmic efficiency.

SETTINGS

The **Settings** cards mimic the introductions of specific algorithmic systems, as settings for empirical study, designerly exploration, or intervention. This deck seeks to expand thinking about what algorithmic systems are and where we may encounter them, encouraging discussions that move beyond the examples that are most commonly – and heatedly – discussed, such as social media moderation [16, 17, 22] or corporate contexts [1, 29].

Traditionally progressive in relation to gender and sexuality, Nordicness inspires us to interrogate technologies for dating, like Tinder, and reproductive health, like Natural Cycles, beyond strictly business-centric approaches.

Natural Cycles

An algorithmic contraceptive that uses daily readings of a user's temperature, an algorithm and machine learning to develop a model of the user's reproductive cycle.

Tinder

An online dating and geosocial networking application that personalizes suggestions. In Tinder, users "swipe right" to like or "swipe left" to dislike other users' profiles.

Finland's focus on education is praised internationally and cherished internally. The contested wilma system represents digital integration within the public education system that necessitates renegotiating roles, work practices, and communication styles.

Central to strong welfare societies, the tax office presents a site that serves citizens while being required to identify fraud in an increasingly diverse, opaque, and fast-paced financial environment. Trust is central in enabling the tax office and other public institutions to improve the quality of life under a strong welfare model.

Tax office

Your taxes are automatically calculated based on inputs from employers and you. The algorithm also determines whether certain deductions are reasonable or not.

Wilma

A coordination tool that enables students, teachers, and parents to follow and coordinate education work. It includes a set of rules addressing how to archive, process, and transmit information that pertains to everyday activities in schools.

IMMS

In an Intelligent Material Management System (IMMS), books float around within the library system based on demand. If a lot of romantic novels are returned to a particular branch library, more of them will float there in the future.

Social services

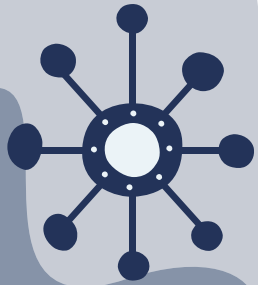
A trial of an algorithmic system which uses vast amounts of data to offer decision-support for social service workers, marking at-risk citizens, including children.

Automated care

An algorithmic system that predicts patients' need for further medical treatment, based on data about past treatments.

What if instead of advancing business interests or engaging in speculative data-driven futures, we focused on preserving and improving cherished existing systems?

Welfare societies in the Nordics are constantly balancing desired social services and their (perceived) economic costs. Automation of care and its scalability is a frequent feature in this conversation. Automation promises solutions, at the same time as it challenges the foundational role of care as more than an economic consideration.



METHODS

The **Methods** deck is motivated by the multidisciplinary composition of our workshops which, to us, illustrate settings where critical conversations about algorithmic systems can be had in a generative manner. The importance of methods emerges from our standing as researchers: methods are the tools we use to investigate algorithmic systems and methodological commitments can narrow the types of scholarship we engage with. Adding **Methods** into our collection of decks expands the decks' potential use from game design to more readily catering for discussions about how to study a particular algorithmic system, encouraging the consideration of unexpected methodological combinations.

CAVEATS

The **Caveats** cards are a result of our discussions over the workshops, which highlighted how algorithmic systems are constrained by contextual factors. For example, on several occasions, we discussed differences in the provisioning of welfare and healthcare services in various societies. The **Caveats** cards are designed to bring up such constraints but also to playfully unsettle game design processes by offering elements of surprise. In the deck, we incorporated some Nordic socio-political realities, such as the important role of labor unions, to highlight such considerations and how they might invite us to think and design differently. In addition to Nordic insights, the **Caveats** cards were used to capture some debates, such as AI ethics as a potential whitewashing activity [5, 37].

Given how central the Internet is to life, separating from the global Internet may not be possible. For example, Russia has worked toward infrastructure that functions without the global Internet.

Separation from the Internet

Your algorithmic systems are cut off from the Internet and all its resources: no more Google Maps, Facebook friend lists, or other types of services that depend on an external vendor. Change your project accordingly: which easy-to-achieve things become difficult?

Global crisis

A global crisis, such as a pandemic, war in a close-by country, or drought, emerges. The price of human labor increases. Face-to-face contact must be avoided. How does this impact the dynamics of your project?

We live in a time of polycrisis. This card highlights that this has implications for algorithmic development.

Old technologies

Your project can only use technologies which were commercially available in the 1990s. This also means that the Internet is slow and costly – and obviously, not mobile.

Green transition

A new regulation has emerged to control environmental impact of services. Reduce the energy footprint of your project as a whole.

Algorithmic systems are global.

Nordic countries have strong labor unions and trade organizations. Often political decisions are made in collaboration with the government, trade organizations and labor unions, ensuring that all three parties are happy with the decisions.

Public sector

Situate your project within a public sector institution (e.g. social security system, tax agency).

The division of tasks between the government and the private sector varies across countries. Some may even wonder what the public sector is!

Ensure labor unions are happy

Nordic countries have a strong history in labor unionization. Abusing labor might lead to societal complications, even a general strike – which would upset your investors. You need to balance the project so that employees and other workers are happy and do not complain about your project to the labor union.

Trust in government

Your society has extremely high trust towards the government, but weaker trust towards commercial entities. Transform an element in your project so that it takes advantage of this circumstance.

Nordic socio-political realities

Machine researcher

Add a machinic researcher to the project, who conducts research in a manner appropriate (or inappropriate) to your setting.

The heterogeneity challenge

Adapt the project in some way in recognition of people who do not speak the majority language or who appear different from the majority of the population.

Beyond implications to the game and its design, we identified caveats related to how one can research algorithmic systems; thus supplementing the methods cards.

EXAMPLES FROM USING THE CARD BOX

During a 120-minute lecture, a mixed group of computer science and social science students explored algorithmic systems using a card box. They received one **Settings** card and three **Metaphors** cards, choosing one to reflect the algorithmic system. With access to various board games, pens, paper, and other materials, they designed a game for 60 minutes. Then, each group received a **Caveat** card to incorporate into their game over the next 40 minutes. After that, students presented their games, discussed observations, and after the class, wrote reports reflecting on the algorithmic systems. After the course evaluations, we sought permission to use these reports in research work on the card box.

Just Sex – Cycle of Choices

Informant: Natural Cycles application serves as an informant for the user, using body temperature to predict whether there is a risk of pregnancy or not.

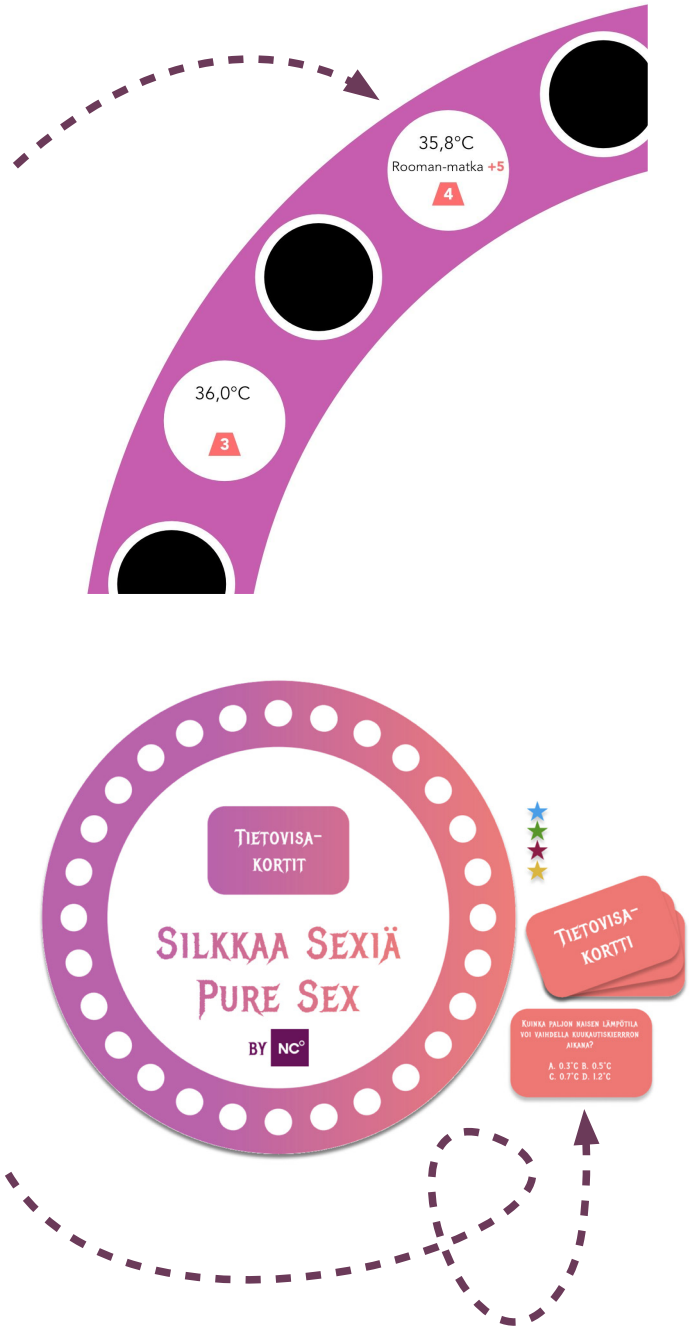
PR crisis: If the player causes an unwanted pregnancy, they might rant about this on social media and blame the application. Game designers chose to see this as a backslash; such a rant leads the player to be in the spotlight for their reckless behavior.

About the Game

On the game board, each place corresponds to a day of a menstrual cycle. When a player enters a place, it is uncovered, showing the body temperature, risk score and any bonus points related to the day. The player needs to use this information to choose whether it is safe to have sex without other forms of contraception or not. If the player chooses to have sex without contraception, they need to roll the dice and receive a number higher than the risk score for that day. This risk score was incorporated into the game design to add an element of randomness. The Natural Cycles prediction, based on the temperature, was seen to serve as an informant, while the ultimate contraceptive decisions are made by its users based on the information it provides.

A player may also decide that the risk is too high for sex without a barrier method of contraception. In this case, the player is deduced any bonus points on this place. If the player assumes it is a safe day and receives a number higher than the risk score of the day from rolling the dice, they will get the score indicated by their dice and any additional bonus points on top of that. However, if the player fails to roll the dice higher than the risk score, there is an unwanted pregnancy. To incorporate the PR crisis caveat into the design, the team added a side-play where the player lands in the eye of public media – after some heated social media comments on Natural Cycles. To successfully survive this and reduce the number of negative points a player receives due to making an erroneous prediction, they need to answer quizzes related to menstrual cycles and women's health.

The game is won with 40 points, so having as much sex without contraceptives as possible – while avoiding unwanted pregnancies – is essential to win the game.

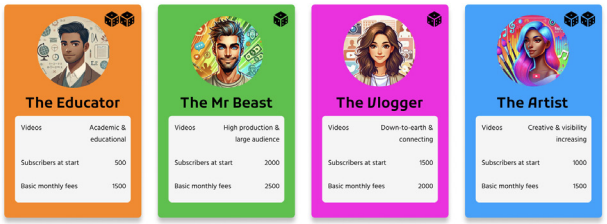


YouTube Content Creator Game

Gatekeeper: The game seeks to illustrate how the YouTube algorithm acts as a gatekeeper of reach and audience. Therefore, it is vital to know what kind of content one's audience prefers and produce such content but, even then, chance has a significant impact on reach – and, thus, monetization opportunities for the creator.

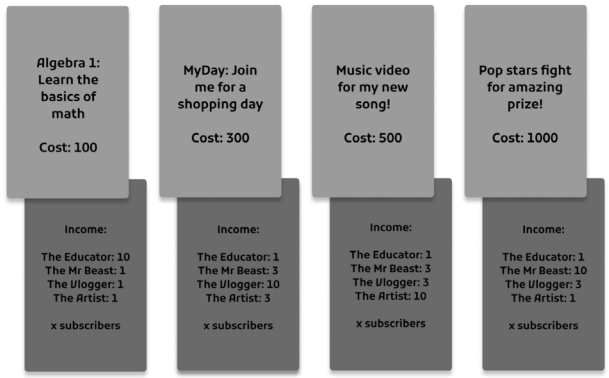
Global crisis: Global event cards highlight events such as the global pandemic and its impacts on the creator economy.

About the Game

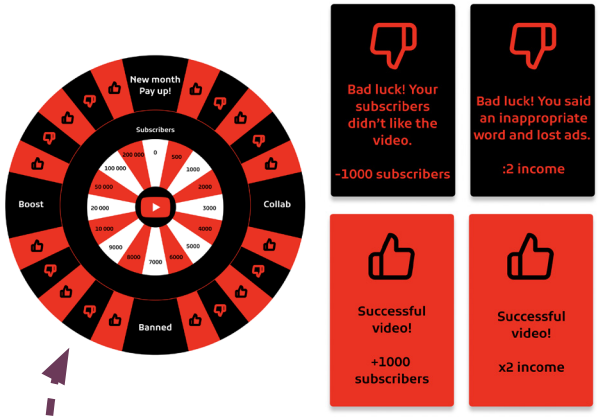


Each player chooses a YouTube content creator they want to play. This specifies each player's content production specialty, number of subscribers, operating cost, and whether they get to roll one or two dice. The goal for each player is to earn enough profit during one rotation on the game board to cover their operating costs. If they cannot cover these costs from their profits, they lose the game.

On each turn, the player chooses the content of their video from four available video cards. Each card has a cost of production and different income levels depending on the persona. The player does not know the income levels while making their choice, but needs to consider what kind of audience they have and what they might appreciate. After a video content card is drawn, a new one is taken from the deck so that there are always four cards available.



Players can also play event cards during their turn, shaping the game mechanics: each event card has an associated *cost* and *impact*. Each player will receive two additional cards per round. These event cards allow players to cut their losses after a bad video or increase their subscriber count to increase the amount of revenue generated, thus adding a level of strategy on top of the otherwise random gameplay. There are also global event cards, which must be played immediately when at hand. These cards mirror the unpredictability of platforms and highlight how content creators face and must respond to it.



The player moves on the game board by throwing dice and lands on one of six spaces – basic spaces with up and down thumbs, showing either positive or negative reactions from the audience and impacting either income or subscriber numbers. In addition to these basic spaces, there is a collaboration space, where the player who landed in the space and the one closest to them produce a video together. The video content must complement both profiles, as the lower multiplier of profiles is used. In addition, special spaces include *banned*, where the player will be stuck – similar to the Monopoly prison – and *boost*, where the algorithm boosts players' content. There is also a space that indicates the start of a new round where the player must pay a fee.

DISCUSSION

In this pictorial, we introduced a set of card decks designed to stimulate and facilitate critical engagement with algorithmic systems. Computing is deeply embedded into society and, in the face of fast-changing developments internationally, it can become daunting to imagine alternative ways of discussing these developments or weave in deliberate considerations of the kinds of societies and systems that are being sought. Critique often feels too little, too late, and while it is certainly crucial to be aware of critical concerns surrounding algorithmic decision-making, such as mitigating bias, we suggest that this can – and should – be done alongside more positive and purposeful ideas for the societies we want to construct and live in. This is the central intention of the Nordic card box: to destabilize hegemonic global conversations through locally specific ideas and values as a way to invite new forms of intervention.

Our experiences, both the documented students' game design work as well as using the card box in our own research activities, show they open up imaginaries to think about technology – and society. For example, the Just Sex group observed how Natural Cycles is not only about algorithms but relates to a wider discussion on healthcare and, ultimately, contraceptive politics and women's self-determination. They pointed out how this type of application might move the responsibility on contraception use and choices related to it to women only, which a student highlighted goes against the equality-driven Nordic society. Similarly, the YouTube game illustrates how a livelihood is based on the monetization mechanic, suggesting that their game promotes a transparent merit-based system in which skillful content creators can gain more money. At the same time, their game included quite many random events to add more realism, thus highlighting that the merit-based approach may be more aspirational than reality-driven. With all these encounters, we also witness the challenge of re-invisioning algorithmic systems: their current operations are unknown and our understanding of them mostly emerges as folk theories – therefore, our thinking may be bounded by various factors. Especially the YouTube team discussed this aspect extensively, describing how they used YouTube influencers' descriptions of the algorithm as inspirations for their game design. Therefore, while game design opens novel ways to imagine algorithmic systems, our focus is still bounded by existing discourses and folk theories on algorithmic systems – which are often driven by the global hegemony.

Nordicness as a Situated Metaphor

We adopt 'Nordicness' not as a factual descriptor but as a situated metaphor, even a caricature, foregrounding, and exaggerating values like trust in public institutions to displace universalist and hegemonic narratives about algorithms and AI. Essentialized Nordic tropes, such as centering welfare state tensions with global developments in computing, can bring forth a set of values that are positively perceived well beyond the Nordics. This is akin to how Participatory Design is imagined in HCI as embodying Nordic values, even though its concrete manifestation in Nordic design practice is sparse at best. Similarly to how 'Nordicness' is a starting point for our cards, participatory design acts aspirationally as a way to productively imagine how to design more desirable outcomes. This is in line with the work of others, like Sambasivan et al. [47] in India. Our goal is to draw on context as productive and inspirational for thinking with algorithms beyond those particular contexts. For instance, debates around tax automation surfaced trust/transparency paradoxes that have been less prominent in discussions of AI and automation. Thinking in this way requires an awareness of its inherent limits. For instance, adopting a literal understanding of described values through a lens of 'Nordic exceptionalism' could easily mislead us into ignoring the ghosts that haunt those very models, from issues of Sami data sovereignty to rising Nordic populism or the rapidly rising wealth inequality in Sweden. Our cards hint at partial accounts as they focus on extracting the inspirational value of a set of idealized cultural constructs. More critical accounts have been incorporated into the **Caveats** deck, such as the card highlighting the often monolingual and monocultural context in Nordic nation states.

Towards Contextual Ecologies of Intervention

Our card box is part of a larger body of work within HCI that has leveraged cultural concepts as inspiration for advancing design practice and research. Previous scholars have leveraged concepts like *jugaad* from India [53], *wabi-sabi* from Japan [60], or *lagom* from Sweden [11], to name a few, as a way to focus on their aspirational qualities, while remaining aware of their partialities and complexities. Rather than seeking to essentialize diverse cultural nuances, these attempts and our card decks draw inspiration from time-tested constructs that can help unlock the ongoing crisis of imagination stemming from the deluge of discourses around artificial intelligence and automation. We do not see the use of the card deck as the end point of these conversations, but rather as a starting point in encouraging imaginaries by leveraging the aspirational aspects of locally situated values. The card is a critical companion, a tangible boundary object [25] that renders discussions of governance more tactile between researchers, designers, policymakers, and the general public.

ACKNOWLEDGMENTS

We thank the students of the Aalto University course *Algorithmic Systems and Society* in 2024 for sharing their game designs for research purposes:

Aarne Talvela
Ana Paula Gonzalez Torres
Anni Penttilä
Elsa Vataja
Juho Sälevaara
Kaarlo Liukkonen
Kelly Yen
Lilli Peura
Linnea Turunen
Louna Kaartokallio
Maria Toivainen
Nuutti Arvilommi
Onni Kivistö
Onni Saarinen
Rahim Ahsanullah
Taimi Huotilainen
Tiina Pajukari

This work was co-funded by the NOS-HS workshop grant *Nordic Perspectives on Algorithmic Systems*, the Swedish Research Council (Vetenskapsrådet, 2023-04032 & 2017-05382_3); the Digital Futures centre at KTH, Stockholm University, and RISE (Research Pairs and Research Pairs Consolidator projects); the Wallenberg AI, Autonomous Systems and Software Program – Humanity and Society (WASP-HS) through a Marianne and Marcus Wallenberg Foundation project (MMW 2019.0228); and the Kone Foundation project *Algorithmic Systems, Power and Interaction*.

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