

Jun 23rd, 9:00 AM - Jun 28th, 5:00 PM

## MealSense: A Fiction About Datafication and Algorithms in Commoning Food

Viktor Bedö

*University of Applied Sciences Northwestern Switzerland, United Kingdom*

Follow this and additional works at: <https://dl.designresearchsociety.org/drs-conference-papers>



Part of the [Art and Design Commons](#)

---

### Citation

Bedö, V. (2024) MealSense: A Fiction About Datafication and Algorithms in Commoning Food, in Gray, C., Ciliotta Chehade, E., Hekkert, P., Forlano, L., Ciuccarelli, P., Lloyd, P. (eds.), *DRS2024: Boston*, 23–28 June, Boston, USA. <https://doi.org/10.21606/drs.2024.969>

This Research Paper is brought to you for free and open access by the DRS Conference Proceedings at DRS Digital Library. It has been accepted for inclusion in DRS Biennial Conference Series by an authorized administrator of DRS Digital Library. For more information, please contact [dl@designresearchsociety.org](mailto:dl@designresearchsociety.org).

# MealSense: A fiction about datafication and algorithms in commoning food

Viktor Bedö

University of Applied Sciences Northwestern Switzerland, Switzerland

Corresponding e-mail: viktor.bedoe@fhnw.ch

[doi.org/10.21606/drs.2024.969](https://doi.org/10.21606/drs.2024.969)

**Abstract:** Commoning is on the rise as a socio-economic practice advancing the outlook of more just food systems. While smaller commoning operations can predominantly rely on informal arrangements, tracking and monitoring the conditions of the use of resources becomes vital for larger operations. This paper explores the datafication of hunger, pleasure, ingredients, cooking and spoiled food for crafting imaginaries of commoning-based algorithmic food futures. To address not only frictions around datafication but also gainful proposals, the paper mobilizes concepts of ‘unwieldy data’, ‘good enough data’, and ‘minimal feasible datafication’. It uses fiction writing as a method to amalgamate scholarly references in the field of citizen sensing and smart city critique with preliminary learnings from a speculative city-making project into an infrastructural proposal. The text aims to prompt a wider debate about the potentials and pitfalls of algorithmic governance and datafication in infrastructures for the urban-scale distribution of material resources, such as food.

**Keywords:** commoning rescued food; collective machine teaching imaginaries; speculative city-making

## 1. Introduction: Do we need an imaginary of datafication and predictive algorithms in urban food commoning?

Governing structures designed to fulfill food demand in cities and optimize supply are built on scaling-up production, supply, and consumption for the profit of a few (Choi et al., 2022). Commoning, a socio-economic practice in which the community that produces and manages resources is also the beneficiary, is emerging as a robust alternative to capitalist governance structures both in scholarly discourse and practice (Bollier & Helfrich, 2015; Choi et al., 2022; Savic et al., 2020). Food commoning is governed by negotiated institutions and codes of conduct around access, use, responsibility, and care and promises more just food systems (Morrow, 2022).



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International Licence.

Food-commoning practice most prominently manifests in the smaller scale, hyperlocal, neighborly operation of community gardens. At the same time, large amounts of perfectly edible foodstuffs are ejected from supermarket shelves in cities of the Global North, such as London, Basel, and Berlin, creating an abundance that opens the space for commoning. This text speculates on the case of food rescue and the potential of collectively teaching algorithms to govern the commoning of material resources on a larger-than-neighborhood scale.

When the self-organized, volunteer-run food-saving organization Foodsharing.network grew large enough to appear on the radar of public regulatory bodies, the need to install a set of self-imposed and internally enforced regulations emerged (Morrow, 2019; Morrow, 2022). Regulations addressed, amongst other items, the integrity of cooling chains, behavior in shops at food collection, conflict resolution, and acquiring a license for food collection.<sup>1</sup> They were negotiated with public authorities and partnering food donors (such as supermarkets and bakeries). Prospective food savers who wish to join the Foodsharing organization and collect unsold food from supermarkets must pass an arduous test about these self-imposed regulations. However, introducing these regulations allowed the organization to scale up its operation by complying with public hygiene and health and safety regulations instead of operating under the radar of public institutions (Morrow, 2019).

Something else emerges besides internal standards and regulations when sharing or commoning operations grow above a certain size, namely strategies for monitoring and tracking the production and use of the commons. Unlike a five-person flatshare, a housing cooperative with 500 inhabitants in one building not only needs to establish protocols and routines around the fair distribution of resources (such as access to space and amenities or the labor inhabitants invest in the community) but also how to track individual consumption and contributions (Savic et al., 2021).

The research behind the MealSense fiction positions itself in a series of investigations that critically reflect the introduction of datafication, blockchain-based protocols, and algorithms for growing bottom-up resource sharing and commoning operations, such as speculating about the affordances of blockchains in resource-sharing communities (Cila et al., 2020) or the Algorithmic Food Justice project (Heitlinger et al., 2021). In the foreword of *Radical Friends*, Nathan Schneider reflects on the potential of blockchain for communities organizing themselves when he proposes that friendships are a kind of blueprint for distributed autonomous organizations (DAOs) (Schneider, 2022). Friendships, which are autonomous from any central institution, have their own economy, incentive structure and internal currency, and peers validate how good a friend someone is. Smart contracts on blockchains introduce the affordance of scaling in analogous situations:

“Friendships might stop working properly if you put a price on it. What is new and different about DAOs [...] is the ability to know, trace, and surgically reallocate a relationship’s value. Through the digital bean-counting, friendships can scale, extending its

---

<sup>1</sup> See: <https://wiki.foodsharing.de/Hauptseite>

powers from the edges and corners of the social order to the center.” (Schneider, 2022, p.20)

However, we must not ignore that scaling-up changes the very nature of most projects, be it extending one’s personal networks, business or production of goods (Tsing, 2012). While measurement and datafication provide better transparency in favor of a fair distribution of resources, they also obscure hard-to-capture interrelations and incentivize easier-to-capture transactions (Hong, 2020). Datafication does not just count what is already there, but it will constrain possible meanings and interpretive lenses tightly around the method of measurement at hand, through which it creates certain worlds and extinguishes others (Hong, 2022). Whether to quantify contributions and consumption in managing shared resources or refrain from doing so is one of the design dilemmas of introducing technology into the shared management of material resources (Cila et al., 2020).

*How To Run a City Like Amazon and Other Fables* is a collection of fiction and reflections about what urban life might look like if it were governed by business models and algorithms of companies such as Amazon, easyJet and Tinder (Graham et al., 2019). One of the pieces, *Too Much Fulfillment*, describes Deliveroo turning restaurants into fulfillment centers, perfecting the optimization of food deliveries to a highly synchronized just-in-time system, and punishing customers with forced deliveries of unwanted surplus meals if they failed to synchronize with the platform (Richardson, 2019). It tells the story of optimization and extraction spilling over from the hidden logic of the platform to the customer.

While conscious of the perils of injecting datafication and algorithmic governance into commoning, the MealSense fiction about a cooperative for data- and algorithm-based distribution of rescued food explores how those would unfold when scaling up a food commoning operation. The strategy of creating this fiction aims to respond to cautionary tales, such as *Too Much Fulfillment*, not by dismissing technologies but by seeking consistency between sensing, decision-making, machine learning and cooking habits, and offering imaginaries of commoning-based alternatives of algorithmic governance of urban resources. These imaginaries can also draw on positive proposals in the academic discourse, such as *good enough data* (Gabrys et al., 2016), from the field of digital citizenship and *minimal feasible datafication* and in the investigation of community-based smart city alternatives (Powell, 2021).

Gabrys and colleagues introduce the principle of *good enough data* in the context of a citizen-sensing project aimed at defending citizens’ interests against hydraulic fracking in the U.S. (Gabrys et al., 2016). With the researchers’ facilitation, citizens installed air-, noise- and water-quality sensors that picked up environmental conditions in the blind spots of governmental and corporate measurements. One of the key insights from the project was that the success of citizen agency depended less on well-calibrated, high-quality datasets, and more on citizens’ ability to aggregate data readings with their own situated accounts to generate plausible data stories. Using the data stories in their campaign, citizens achieved a change in the US Environmental Agency’s sensing regime, improving corporate accountability.

Following an analysis of smart city approaches of the past twenty years and more current data-driven civic initiatives, Alison Powell proposes the principle of *minimal feasible datafication* as an approach to keeping citizens in the cybernetic loop of algorithm-driven government regimes (Powell, 2021). The risks in datafication are manyfold, from smoothing out differences as data collection aligns with calculative processes of the optimizing machine, to extractivist business models governing what is datafied, and how this datafication is conducted. Instead of abandoning datafication and algorithmic governance in civic projects altogether, Powell suggests datafying only what is necessary to fuel the desired functionality (as opposed to a ‘grab all data you can’ approach), which allows citizens to grasp how the data drives specific functionality. This sensing-functionality connection is key to maintaining citizens’ autonomy in the loop of algorithmic governance (Powell, 2021). For the imaginary of predictive-algorithm-based commoning rescued food, this principle is key for keeping commoners in the cybernetic loop when teaching and re-teaching the model.

The paper tells the story of a fictional community creating a predictive algorithm to distribute rescued food. Its speculative proposal critically investigates the problem space of hardwiring commoning into the data- and algorithm-driven distribution of material resources, collective machine teaching and ultimately taking back the algorithmic governance of urban life.

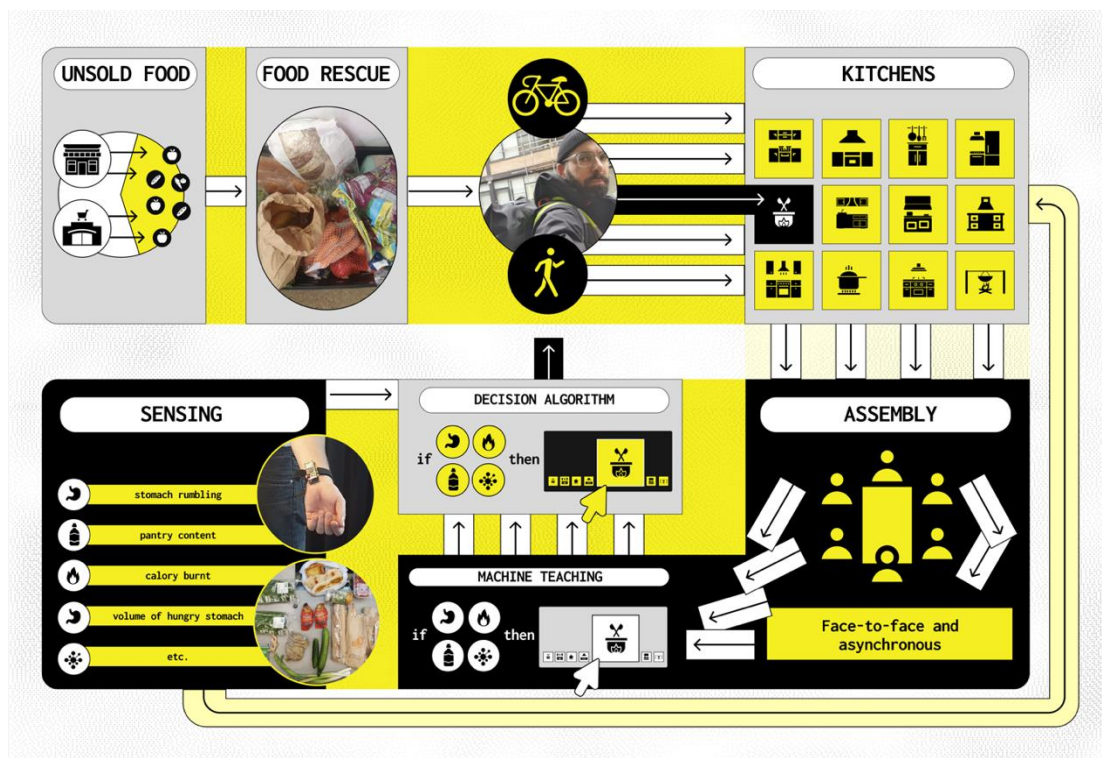


Figure 1 Diagrammatic overview of the algorithmic commoning proposal.

## 2. Method

The fiction of the MealSense cooperative is the output of a semi-participatory speculative design process of the Scaling Material Urban Commons project, led by the author. Fiction

writing aims to engage readers to explore and reflect on possible worlds, how they operate, and how they differ from today (Graham et al., 2019), and to allow a wider group of prospective stakeholders to assess the risks and opportunities the imaginary offers to their personal and professional lives (Kerspern, 2018; Webb, 2020). The use of fictitious scenarios as a critical lens to bring into focus certain technological affordances draws on civic interaction design methods (Blockchain and the commons), while speculating about the implications of a new abundance, draws on *Economic Design Fiction* (Kerspern, 2018).

The text extrapolates signals from recordings and notes of academic and public-facing workshops and research literature. The curation of the signals was guided by the ambition to identify friction emerging from design dilemmas and between the socio-technics of commoning and algorithmic decision-making. The workshops include a 2022 experimental design workshop about the systemic implications of predictive communing, attended by twelve designers and academics in the field of sustainable innovation policy, regenerative urban futures, civic interaction design, economics, contestable AI, food cultures, and responsible IoT; a 2023 workshop with five persons from this group about collective machine-teaching approaches; and a 2022 workshop about collective machine teaching, attended by researchers from the Critical Media Lab Basel, guest academics and masters students in experimental design. The text also draws from participatory workshops from a former project about commoning in housing cooperatives between 2018 and 2021 (Savic et al., 2022). The workshops used playful enactment (Bedö, 2024; see also Heitlinger et al., 2021; Catlow, 2022) and strategies for materializing how we imagine and understand systems, experiences, and relationships (Lockton et al., 2019). Besides the workshops, the text incorporates discussions from two informal dinners in 2023 with Basel-based communities for both food rescue and sustainable food practices.

Workshop insights and research literature are referenced in the fiction as evidence where they informed the imaginary. The fictional text is accompanied by images of workshops and speculative artifacts, and diagrams to support the imaginary.

### 3. MealSense: A fictional infrastructure for commoning food

It is 2027. Most people who showed up to the first meetings of the new initiative had heard from friends that the volunteer-run organization Foodrescue was joining forces with DeliverCoop, a cooperative-run delivery service, and wanted to pilot the predictive distribution of rescued food. Some of the people were urban farmers and gardeners, or were interested in food rescue, or already volunteered in organizations that picked up food from supermarkets to distribute them. Others were drawn by the interest of cooperatives and citizen-driven, open technologies. Most were curious, quite a few slightly skeptical.

They were calling it MealSense to allude to strategies of sensing need and appetite, and the ambition of making sense of how to embrace algorithms in commoning.

The meetings took place in a café and project space which was also home to a sewing workshop and regularly hosted events of open-source hardware initiatives. The first meetings,

which were moderated by a facilitator with experience in grassroots organizations, were about sharing personal motivations for showing up. The majority were intrigued by food systems that kept food out of bins. There were strong voices for feeding people in need.<sup>2</sup> Participants also talked about how they cooked (some halal, others kosher, and quite a few vegans), their favorite meals and snacks, allergies, nutritional and dietary requirements, but also kitchen skills, including fermentation and pickling. At one point someone raised the question: ‘Do you eat or do you feed?’<sup>3</sup> The ambition to work towards pleasurable meals immediately stuck across the board. Another ambition that emerged was acquiring the skills that—similarly to cooking seasonally—enabled participants to prepare pleasurable meals from whatever was rescued that day.

After negotiating their motivations, commoners (how participants would increasingly refer to themselves) decided that it was time to become more specific about the criteria for distributing food amongst their kitchens. Food for rescue was available in abundance, and it could be turned into a common resource after volunteers picked it up from supermarkets, bakeries, sandwich bars, or factories.<sup>4</sup> It proved helpful that one of the commoners lived in a housing cooperative where inhabitants shared not only space but also services and leisure time. He willingly shared his experiences of negotiating labor and responsibilities around common activities, such as repairs, maintenance, cooking and childcare. His stories showed that deciding whose time is worth how much for certain tasks is a complicated and, at times, frustrating affair, and that although trust and solidarity are always a strong platform, monitoring and sanctioning are key for the inhabitants’ perception of fairness.<sup>5</sup> As a consequence, commoners decided to work with the expert facilitator on setting up their decision-making mechanisms as a group. The Assembly was born.

The Assembly was the forum for negotiating the distribution of rescued food, making decisions about building and maintaining the infrastructure for orchestrating food distribution, and, significantly, negotiating the labor and resources invested in organizing the Assembly itself. At first, all Assembly meetings were face-to-face. But although regular face-to-face meetings were never abandoned, with time—and growth in the number of commoners—online meetings and asynchronous decision-making mechanisms (such as quadratic voting<sup>6</sup>) gained importance.

---

<sup>2</sup> These preferences reflect the participants’ voices in Swiss research workshops and project-related informal gatherings. Note that while the Foodsharing network focuses on food waste avoidance, the London-based volunteering-based food saving organization Felix’s sole focus is on feeding people in need.

<sup>3</sup> Quote from the founder of a kombucha drink brand, a participant at a project-related informal cooking event.

<sup>4</sup> Typical sources for food rescue organizations in Europe.

<sup>5</sup> These topics dominated participative workshops with Swiss housing cooperatives in one of the author’s previous research projects.

<sup>6</sup> See Culturestake by Furtherfield: <https://www.furtherfield.org/culturestake-2/>

After the Assembly was set up, the negotiations around how to distribute rescued food amongst commoners' kitchens could commence. It all came down to the question of where a rescued food item could become an ingredient for a meal (in line with the already negotiated personal preferences and politics of the group). Some of the criteria to determine the use value of specific food items at specific kitchens were: Are other ingredients available in the fridge or pantry that can be used in conjunction with the rescued item to prepare a meal? Will someone with the time and the motivation to cook be at home? How many people will be eating dinner that evening or the next morning and how hungry will they be? These criteria determined which kitchen should get the broccoli on a Thursday evening.

Commoners explored these questions through sharing stories about eating habits, comparing recipes, reflecting on the kinds of meals they ate throughout the day or the week (some skipped breakfast, others had only a salad for lunch). Commoners also came up with thought experiments to resolve dilemmas, such as: Would you deliver a crate of oranges to a community kitchen hosting a fundraiser for anti-food-waste initiatives, even if you knew that some oranges would end up in the bin that night?<sup>7</sup>

To develop a better grasp of the use value of food items in kitchens the facilitator suggested playing out situations with workshop materials that represented kitchen conditions.<sup>8</sup> Chickpeas were used for counting commoners' contributions to maintaining the Assembly. At some point, when the discussion around someone's time invest started to drag on for too long, and while a couple of chickpeas were pushed in and out of the bowl representing the common pool, one of the participants grabbed a small handful of chickpeas, placed them on a little pile on the table and said: 'Looks about enough, right?' This looked fair enough to most and they moved on.



Figure 2 Storying and playing out the Assembly during design exploration.

<sup>7</sup> Dilemma presented by participant in 2022 research workshop simulating the Assembly's negotiations.

<sup>8</sup> For an illustration see Figure 2 for a picture taken at a research workshop.

On another occasion, a commoner, an economist, asked in the discussion: ‘Wait a minute . . . we need to be clearer what we are optimizing for! This is a classic optimal distribution problem of an oversupplied, under-distributed resource.’<sup>9</sup> Although nobody could articulate what it was about optimization that made it sound like an alien concept, the thought of it made quite a few people shiver. The Assembly overcame the cognitive discrepancy between a more fluid communal regime and the apparent logic of predictive algorithms by pledging to find ways to keep open the possibility of easily shifting priorities. Unsurprisingly—not only in the wake of this shock—the negotiations turned out to be arduous, and complexities and interdependencies increased exponentially with the refinement of distribution criteria.

Not everybody was on board with the unfolding process, and people started to abandon the MealSense project. Some felt anxious about the prospect of constant monitoring of their cooking habits. Others were concerned about the algorithm’s infantilizing tendencies and feared a push towards duller meal choices in the community. A small group of individuals who left set up their own operation, which was exclusively focusing on feeding people in need (there was more than enough food to rescue for two and even more organizations).

The facilitator supported the commoners who were still committed to the initiative to come to agreements, but the ambition to reach a consensus gave way to a fuzzier set of agreements that had the potential to be adjusted at some time in the future. This also led to the proposal to implement a protocol for re-teaching the algorithm, including the frequency and methods of re-teaching. The method of how the Assembly would teach the algorithm still carried many open questions; all that was established was that this would involve the collective labeling of the data collected from kitchens and bodies and training a classification model with the labeled training data.<sup>10</sup> It was clear, however, that the next step after reaching an agreeable system for distributing food was establishing sensing strategies for monitoring conditions in the kitchens. In other words: generating the data that would deliver training data for creating the predictive model and feed the prediction of the use value of ingredients in the kitchens.

As data privacy was of considerable concern for the commoners, they reached out to their networks to pick cooperative-run servers to run their data traffic through.<sup>11</sup> While this was perceived as a success, the commoners agreed that an even bigger challenge than protecting their data would be to establish which information was most indicative of specific ingredients’ use value in kitchens. And also to establish strategies for monitoring and sensing the conditions in kitchens and bodies. MealSense dedicated the next couple of sessions to this matter.

---

<sup>9</sup> Participant’s suggestion (economics background) in a research workshop simulating the Assembly’s negotiations, 2022.

<sup>10</sup> Method of a smaller-scale collective machine-teaching method workshop 2022.

<sup>11</sup> Initiatives, such as <https://platform.coop> and <https://mazizone.net/mazi-eu/> cater for independent network and online infrastructure.

As a response to the hardship of identifying the most significant data, some argued that the best way to eliminate this problem would be to hook up kitchens and bodies with as many sensors as possible. After all, more data would yield better results once the Assembly starting using the data for teaching the algorithm. They also made the point that in the future the resulting massive database could be mined for questions that MealSense had not even begun to consider in the present. At the same time, the labor and cost needed for both setup and maintenance would be so high that it potentially needed considerable external funding.<sup>12</sup> Although selling the data would easily cover the costs, a vote overwhelmingly dismissed such an approach: a strong external financial interest on which the infrastructure depended would have significant leverage to shape the sensing setup and compromise commoners' autonomy (including the possibility of opting out from, or changing certain kinds of, sensing). The outlook of a business model and financial interests that threatened to cannibalize the initial ambition of commoning rescued food presented a clear deterrent. This, and considerations around the significant energy consumption, were the major reasons for the Assembly to instead invest their energy in identifying fewer, but more meaningful and expressive sensing strategies to help indicate the immediate use value of ingredients in the present.<sup>13</sup>

The Assembly agreed that the use value of broccoli is high when other ingredients for a meal—such as onions, celery, leek, potato, butter and vegetable stock for a broccoli soup—are available in the kitchen. They voted for cameras with image recognition installed in pantries and fridges, which would stream the kind and amount of food items available in the kitchen.

To avoid waste, the Assembly agreed to prioritize kitchens where the other ingredients for a potential meal were closer to expiration or going off. To capture this, the image recognition module would also capture how long the item had been stored. Additionally, carbon dioxide sensors would pick up the ripeness of fruits and vegetables. The assembly also agreed on using commoners' calendar entries to indicate to the algorithm who had free time to cook.

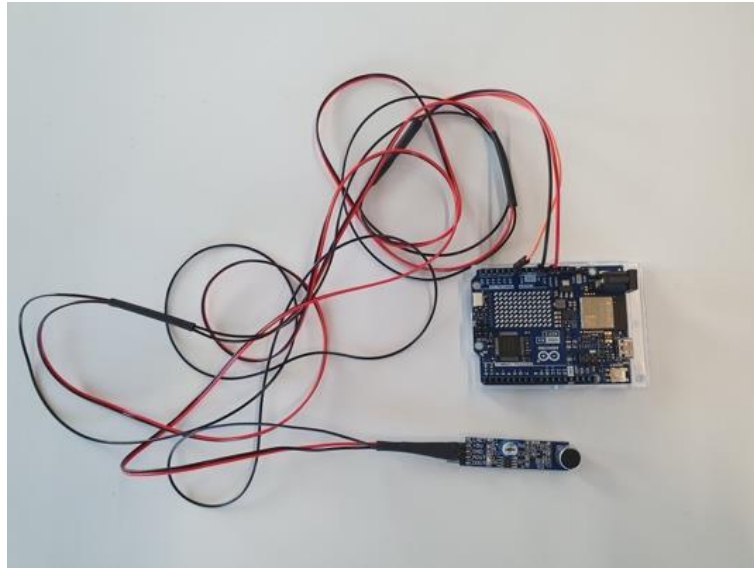
Besides the conditions in the kitchen, the Assembly felt that bodies' conditions carried an equally important indication of food items' use value. The number of hungry stomachs in a kitchen was datafied by stomach-rumbling sensors, which after some prototyping and other iterations came in the form of convenient patches.<sup>14</sup>

---

<sup>12</sup> See (Choi et al., 2022, p. 401) about the costs of establishing and maintaining digital access for smaller operations.

<sup>13</sup> See (Powell 2021, p. 165) for connecting datafication with present functionalities of the system.

<sup>14</sup> For an illustration see Figure 3 showing a stomach-rumbling sensor prototype from the research project.



*Figure 3 Early prototype of the stomach-rumbling sensor.*

The pleasure and joy of having a meal were also central, although tricky to datafy. Clearly, commoners who loved broccoli soup would be excited to receive rescued ingredients for that delicious dish. But their excitement would wane if they'd had it five times in two weeks. Conveniently, wearable bracelets picking up electrodermal activity (EDA; also known as galvanic skin response) datafied the excitement experienced when eating meals. Although measurements of shorter-term fluctuations (for example the height of a data spike when eating broccoli versus the amplitude of a data spike when eating bananas) were quite inaccurate and noisy, longer-term changes in the EDA values (for example during a stressful day) were more straightforward to interpret.<sup>15</sup>

---

<sup>15</sup> Based on insights from an exchange with a medical scientist about the possibilities of sensing meal-related pleasure with the open-source wearable sensor kit EmotiBit. See Figure 4 for the wearable device.



Figure 4 Wearable device for sensing electrodermal activity.

It took many months to get the kitchens and bodies to stream the data, for the Assembly to teach the algorithm, and for DeliverCoop to start dropping food at the kitchens the algorithm spat out. The deliveries were far from perfect.<sup>16</sup> In the months and years that followed, the Assembly repeatedly scheduled re-teaching sessions to exchange data stories and label data to re-teach the algorithm. The data stories commoners shared interrelated their experiences with deliveries with their interpretations of sensor information. They became a gauge for how well the infrastructure served the commoners. With a set of sparsely curated data streams, the complexity of identifying the right leverages or introducing new or eliminating old sensing strategies remained challenging but viable. The commoners were able to hold on to their autonomy in this cybernetic loop. The re-teaching sessions, which in early days were regularly scheduled to react to ad-hoc issues, gradually turned into semiannual sessions, until five years later the system was retired as re-teaching and tweaking no longer afforded the larger changes in the commons.

## 4. Conclusions

The space that negotiations take in this fiction reflects the research project's insight that it is virtually impossible to commit to meaningful data sources or labels for the collective teaching of an algorithm before extensively discussing politics, priorities, and individual circumstances. Negotiating and re-negotiating what conditions are captured in kitchens and bodies, and how they are datafied, don't necessarily support optimization, but are preconditions of algorithmic commoning. Friction emerging from negotiating priorities that do not intersect, but are equally important, is not an argument against datafication, as Powell points out, but

---

<sup>16</sup> Small-scale, less complex collective machine-teaching experiment (negotiating labels and collectively applying them to training data) showed that with a training data set that was already tedious to teach, the predictions remained highly inaccurate.

for embracing it and ‘seeking to employ decision-making strategies that may appear to be more costly on the surface but that leave space for different kinds of knowledge, [as well as for data to decay over time,] for frictions to be identified and addressed’ (Powell, 2021, p.177). The cost of dealing with friction, however, increases with the number of commoners and needs to be measured against the benefits to the commons. This balance potentially sets a margin for scaling the commons.

The imaginary of algorithmic commoning suggests that renegotiating datafication (recalibrating interpretative lenses on methods of measurement) and re-teaching the algorithm are just as crucial as initial negotiations when setting up a project. Consequently, teaching and tuning necessitates strategies for keeping communities in the loop. This prevents the system from siphoning autonomy away from the community, as described by Heitlinger et al. in the context of blockchain-based food commoning: ‘algorithms, once unleashed, run automatically according to predetermined rules without stopping, obscuring the need for changes to respond to unforeseen occurrences along the way.’ (Heitlinger et al., 2021). What is at risk is Ostrom’s third design principle, ‘collective choice arrangements’, in which people who are affected by the rules should be able to participate in their modification (Heitlinger et al., 2021, p.8). Or what Catlow calls the true ‘tragedy of the commons’, when hostile humans or AIs succeed in hijacking automated decision-making and resource distribution in DAO’s due to the DAOs’ black-boxed nature (Catlow & Rafferty, 2022).

The principle of minimal feasible datafication (Powell, 2021) is one of the strategies for keeping communities in the loop of algorithmic commoning. This strategy manifests in the MealSense fiction inasmuch as commoners agreed on sensing that was sufficiently indicative regarding the use value of ingredients, but not on more sensing than was considered necessary. This principle of the sparse curation of the data sources not only limits the intrusiveness of food-related sensing of kitchens and bodies but also helps commoners maintain their grasp of how data influences the algorithm’s decisions.

Another balance to consider is the scale of datafication. While the good enough data (amalgamated with situated observations to data stories) has been shown to boost civic agency in negotiations with public institutions (Gabrys et al., 2016; Powell, 2021) the question remains open as to whether it will be good enough for teaching a predictive algorithm. Good enough in this context means reaching the sufficient number of data points from which the algorithm can extract meaningful patterns. At the same time, as the number of data points grows, commoners might begin to lose their grasp of the data, and the collective machine-teaching process becomes increasingly flawed.

By foregrounding socio-technics of storying and negotiating (and re-negotiating), the MealSense fiction counters machine-learning imaginaries aiming at ultimate optimization (leading to the real tragedy of the commons) with data- and algorithm-based imaginaries of commoning that embrace friction and unwieldiness in the predictive distribution of urban material resources, such as rescued food.

## 5. Acknowledgments

I would like to thank my collaborators who, in workshops, engaged with the design experiments and helped shaping the imaginary with their suggestions and questions, encouragement and criticism: Jamie Allen, Cristina Ampatzidou, Vera van der Burg, Gabriela Aquije, Roy Bendor, Jaz Hee-jeong Choi, Joshua Entsminger, Gabriele Ferri, Györgyi Gálik, Dan Lockton, Iohanna Nicenboim, Iskander Smit, Martijn de Waal. I would like to thank Gabriela Aquije for hosting some of the research and community events at the Food Culture Lab Basel. And I would also like to thank my research team—Ozan Güngör and Yann Martins—for co-organizing and hosting the events. The research was funded by the Swiss National Science Foundation's Practice to Science funding scheme (grant number 199107).

## 6. References

- Bollier, D., & Helfrich, S. (2015). *Patterns of Commoning*. Commons Strategy Group and Off the Common Press.
- Catlow, Ruth. (2022). To Larp a DAO. In R. Catlow & P. Rafferty (Eds.), *Radical Friends: Decentralised Autonomous Organisations and the Arts*, (pp. 305–314). Torque Editions.
- Choi, J. H., Heitlinger, S., Taylor, A., & Bedö, V. (2022). Towards Governance for Open Urban Food Futures. In A. Moragues-Faus, J. K. Clark, J. Battersby, & A. Davies (Eds.), *Routledge Handbook of Urban Food Governance*, (1st ed., pp. 399–412). Routledge.  
<https://doi.org/10.4324/9781003055907-33>
- Cila, N., Ferri, G., de Waal, M., Gloerich, I., & Karpinski, T. (2020). The Blockchain and the Commons: Dilemmas in the Design of Local Platforms. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–14. <https://doi.org/10.1145/3313831.3376660>
- Gabrys, J., Pritchard, H., & Barratt, B. (2016). Just good enough data: Figuring data citizenships through air pollution sensing and data stories. *Big Data & Society*, 3(2), 1–14.  
<https://doi.org/10.1177/2053951716679677>
- Graham, Mark, Kitchin, Rob, Mattern, Shannon, & Shaw, Joe. (2019). How to Run a City Like Amazon. In M. Graham, R. Kitchin, S. Mattern, & J. Shaw (Eds.), *How to Run a City Like Amazon, and Other Fables*, (pp. 1–12). Metaspace Press.
- Hales, D. (2013). Design fictions an introduction and provisional taxonomy. *Digital Creativity*, 24(1), 1–10.
- Heitlinger, S., Houston, L., Taylor, A., & Catlow, R. (2021). Algorithmic Food Justice: Co-Designing More-than-Human Blockchain Futures for the Food Commons. *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, 1–17.  
<https://doi.org/10.1145/3411764.3445655>
- Hong, S. (2020). *Technologies of Speculation: The Limits of Knowledge in a Data-Driven Society*. New York University Press.
- Hong, S. (2022). Predictions Without Futures. *History and Theory*, 61(3), 371–390.  
<https://doi.org/10.1111/hith.12269>
- Kerspner, B. (2018). Economic Design Fictions: Finding the Human Scale. In W. Davies (Ed.), *Economic Science Fictions* (pp. 241–260). Goldsmiths Press.
- Lockton, D., Brawley, L., Aguirre Ulloa, M., Prindible, M., Forlano, L., Rygh, K., Fass, J., Herzog, K., & Nissen, B. (2019). *Tangible Thinking: Materializing How We Imagine and Understand Systems, Experiences, and Relationships*.

- Morrow, O. (2019). Sharing food and risk in Berlin's urban food commons. *Geoforum*, 99, 202–212. <https://doi.org/10.1016/j.geoforum.2018.09.003>
- Morrow, O. (2022). Governing and Commoning Activities around Urban Food Commons. In A. Moragues-Faus, J. K. Clark, J. Battersby, & A. Davies, *Routledge Handbook of Urban Food Governance* (1st ed., pp. 105–119). Routledge. <https://doi.org/10.4324/9781003055907-10>
- Powell, A. B. (2021). *Undoing Optimization: Civic Action in Smart Cities*. Yale University Press. <http://public.eblib.com/choice/PublicFullRecord.aspx?p=6531310>
- Richardson, L. (2019). Too Much Fulfilment: Deliveroo. In M. Graham, R. Kitchin, S. Mattern, & J. Shaw (Eds.), *How to Run a City Like Amazon, and Other Fables*, (pp. 72–78). Metaspace Press.
- Savic, S., Bedö, V., Büsse, M., Martins, Y., & Miyazaki, S. (2020). Toys for Conviviality. Situating Commoning, Computation and Modelling. *Open Cultural Studies*, 4(1), 143–153. <https://doi.org/10.1515/culture-2020-0015>
- Schneider, Nathan (2022). Foreword. In R. Catlow & P. Rafferty (Eds.), *Radical Friends: Decentralised Autonomous Organisations and the Arts*, (pp. 20-25). Torque Editions.
- Tsing, A. L. (2012). On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales. *Common Knowledge*, 18(3), 505–524.
- Webb, M. (2020, December 11). The hard work of imagining. ThingsCon 2020. URL: <http://interconnected.org/home/2020/12/11/thingscon>

#### About the Authors:

**Dr. Viktor Bedö** is a Visiting Professor in Experimental Design at the University of Applied Sciences Northwestern Switzerland, interested in crafting care-based and more-than-human imaginaries of algorithms governing urban life.