

aicracy: Everyday Objects from a Future Society Governed by an Artificial Intelligence

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ABSTRACT

In this paper, we present *aicracy*, a critical design project that portrays a society ruled by an artificial intelligence. Five hypothetical objects from this society are presented: a bracelet that gives citizens feedback about their deeds, a patch that releases dopamine into its wearer's blood, an office chair that collapses when its user is unproductive, a shopping basket that displays different prices for different users, depending on how much they contribute to society, and a marble-based voting machine.

CCS CONCEPTS

• **Security and privacy** → **Human and societal aspects of security and privacy**; • **Human-centered computing** → **User interface design**; **Ambient intelligence**.

KEYWORDS

Critical design, society, government, artificial intelligence.

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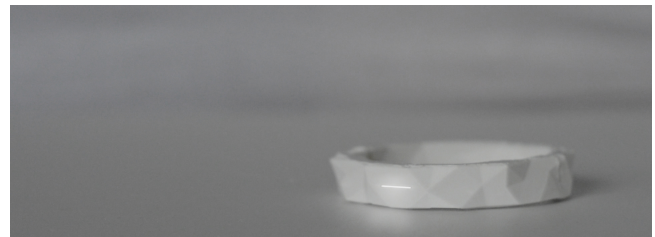


Figure 1: The Transparency Bracelet gives citizens immediate feedback on their contributions to society.

1 INTRODUCTION

For a long time, societies have used technologies to facilitate everyday activities and governance processes. Recently, artificial intelligence (AI) has been proposed as another technology to support these activities and processes. Today, while AI-based systems are promising in automating repetitive and tedious tasks, it is unclear how they could – or should – be used in governance. Therefore, it appears necessary to foster discussions among citizens about data-driven societal systems. A possible contribution to this needful discussion can be made through design: design can turn abstract ideas of future life into tangible objects that can be experienced hands-on, and concretely discussed with others. Applying the approach of critical design to the topic of societal interfaces appears to be a worthwhile approach. Consequently, we set out to create objects from a dystopian future society that is governed by an AI-based system.

2 BACKGROUND

This project can be contextualized between critical design, design fiction and speculative design [4, 5, 17, 30]. Using speculative objects to foster socio-technological discussions appears to be an approach that bears great potential: Auger [1] argues that a speculative design can build a ‘perceptual bridge’ for audiences to engage with a possible future. Also

Lukens et al. [30] argue that speculative design can encourage people to think more creatively about possible futures. Sturdee [37] notes that speculative scenarios can be a helpful means in creating designs that focus on user fears and needs. Imagining dystopian futures has been argued to be advantageous for software development [6]. Tanenbaum et al. argue that Design Fiction can be used to improve the robustness of computing systems in worst-case scenarios [38]. Design Fiction has also been proposed to explore, for example, social implications of brain-computer interfaces [45], future interactions with food [16], developments in human labour [22], human-human interactions [18], as well as media [25]. The goal of this project is to fuel discussions about how AI-supported governments may be harm to citizen wellbeing, despite their immunity to personal affectivity, institutional corruption and political shortsightedness. We aimed to design realistic objects [14] to encourage questions about the extent to which the underlying principles might already be a reality. Following the aforementioned ‘design for debate’ approach, this project can be categorized as ‘adversarial design’ [32]: the proposed objects all exaggerate the current situation. This approach – worsening the problem, rather than solving it – has also been argued for by Blythe et al. [10]. Inspired by Wong et al.’s [46, 47] and Helmer’s [26] work, this project explores possible implications of ubiquitous sensing technology on future forms of policy making and governance. This exploration manifests in five objects. These objects aim to build a world [15], designed to inspire future thinking about what could go wrong in an AI-controlled society. This project adheres to Knutz et al.’s [29] structure of design fiction projects: it poses a ‘what-if scenario’, it criticizes AI-based governance, it is designed to spark a discussion about current developments in data-driven governance, through materialized, physical products, which all share a common aesthetic quality. The project aims to foster public debate about data usage by exposing possible consequences of current tendencies in interactive systems design [3].

Societal Interfaces

Increasingly, government processes are being digitalized. Including AI-based systems in governmental processes has been argued to be beneficial in terms of cost reduction [40]. Advancements in electronic government processes can be observed in several countries, e. g. in Portugal [19], Colombia [41] and Kenya [42] – the latter with a particular focus on mobile government interactions. For the establishment of these processes, user-centredness has been argued to be a crucial factor [35]. However, the boundary between what should be automated – and what shouldn’t – appears to be rather unclear. Using critical design to foster discussions about desirable and undesirable futures may thus be a worthwhile undertaking.

Tangible Discourse Objects

Tangibility can be helpful for turning theoretical future scenarios into practical, hands-on experiences [27]. This is leveraged, for example, by Boer and Donovan in the Provotypes project [11]. An interesting role can be played by discomfort, which may increase the intensity of the discourse sparked by an object. This approach is, for example, highlighted by the Near Future Laboratory’s TUXSAX project [33]. Using physical discourse objects – fictional future ‘everyday objects’ – to foster discussions about digitalized government processes may be a promising approach. Unfortunately, research projects in this area appear to be sparse. To remedy this issue, we set out to create *aicracy*.

3 NARRATIVE

To give our objects sufficient context, we developed an overarching narrative. The accompanying video, which can be retrieved from [HTTP://WWW.AICRACY.NET](http://www.aicracy.net), interweaves the objects in a plot [9] about two citizens, a productive and a lazy one, who have different experiences with the system. In the remainder of this paper, italicized paragraphs will be used for fictional explanatory and ‘marketing’ texts, depicting different aspects of the *aicracy* system.

A new era has begun. Governments and justice courts finally have entirely been replaced with AI-based systems. Previous problems of human bias and corruption thus belong to the past. Every citizen is, for their own safety and for everyone’s, eligible for algorithmic supervision during their time awake. The system is designed according to the human values of transparency, happiness, productivity, fairness, and individuality. Humans can be egoistic – our system can’t. Welcome to the future.

4 OBJECTS

Five objects were developed in the project. Each will be described in the following, framed by its underlying questions, assumptions and insights from its design process. We aimed to maintain the same design language for all objects – for instance, all objects bear a color-changing feedback light that serves as an ubiquitous sign for the AI’s presence in our scenario.

Transparency Bracelet

Transparency is important to us. Therefore, we are happy to inform you that every citizen will receive a Transparency Bracelet soon, at zero cost. It will inform you about changes to your societal value instantaneously. Contribute to society and you will see a green flash: your deed has been recognized and your societal value has increased. If you see a red flash, your action was evaluated negatively. Do not hesitate to contact citizen services if you have any questions.

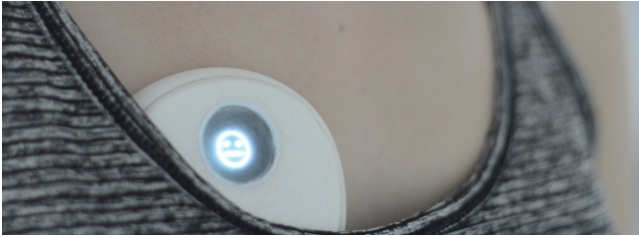


Figure 2: The Happiness Patch ensures citizen happiness by releasing dopamine into its wearer's blood.

The Transparency Bracelet is based on the question of whether permanent feedback on societal contributions can lead to altruism. It criticizes tendencies of self-quantification. It was inspired by Wohlauf et al.'s Haptic Scale [44], which argues that imprecision can be beneficial for self-forgiving and thus for long-term improvements, based on a healthy relationship to oneself. In Ferri et al.'s terms, it applies the tactics of *semantic shift* and *social transgression*: it applies the aesthetics of a fitness tracker to a merciless system of enforced altruism [20]. Criticizing gamified behavioural manipulation and its side effects [13], the Transparency Bracelet resembles an ankle monitor [28] based on Skinnerian operant conditioning [36]. Earlier iterations of this object were concerned with the topic of privacy: the bracelet initially was conceptualized as a navigation device, guiding users to places that were well-populated with other citizens and surveillance cameras – away from privacy, into 'safety'. This concept was then changed into a more general 'feedback' system. The bracelet consists of two halves which magnetically latch together, allowing the bracelet to be easily opened and closed. This easiness stands in sharp contrast to the social duty of wearing the device (Fig. 1).

Happiness Patch

We all have good days and bad days. But why suffer through unhappiness when there is an easier way? We're happy (and so will you be) to announce that every citizen will receive a Happiness Patch at no cost: a smart device that painlessly connects to your blood system, providing you with a happiness boost (a small, non-addictive shot of dopamine) just seconds after something made you frustrated, sad, or even angry. Providing happiness to all citizens is what we strive for.

The Happiness Patch is based on the question of whether ever-happy citizens are the best foundation for a stable society. Criticizing tendencies of trivializing the addictiveness of everyday, happiness-inducing substances (e. g. sugar [2]), the Happiness Patch argues against being afraid of negative emotions [39, 43]. Earlier iterations of this object conceptualized it as a subdermal implant.



Figure 3: The Productivity Chair helps users to avoid self-distraction through computationally controlled discomfort.

However, the dramatic act of attaching the patch to the blood circle every morning with a needle was preferred for its strong connotation of cocaine addiction (Fig. 2). In Ferri et al.'s terms, this object applies the tactics of *body modification* and *social transgression*, overriding the brain's own emotion management with a government-controlled system [20].

Productivity Chair

Nothing feels better than being productive. That is why all computer workspaces in our society will shortly be devised with a Productivity Chair, free of charge. While highly ergonomic in its standard mode, it will become uncomfortable and, eventually, collapse underneath its user if the detected activities are being categorized as unproductive. Quickly, your brain will learn to stay focused, enabling you to be meaningfully productive without the urge to distract yourself.

This object is based on the question of whether productivity should be a core value of our society. It criticizes current tendencies of workplace surveillance for productivity maximization [48]. Technically, it is inspired by the concept of shape-changing furniture, e. g. as in Grönvall et al.'s shape-changing bench [23]. It is also much inspired by Hassenzahl and Laschke's 'Pleasurable Troublemakers' [24]. Earlier iterations included a desk that would captivate users, and not release them until they did something productive. However, the final design (Fig. 3) – a modified office chair with an additional, remote-controlled hinge – was preferred for its connotation of instability.

Fairness Basket

We breathe and live fairness, it's at our heart. Likewise, we strive to make human life on earth sustainable. That's why we decided to equip all supermarkets with Fairness Baskets. As soon as you express your intent to buy a product (for example, by picking it up or by touching it), its handle will display your personalized, state-subsidized price for it. This will help you to conveniently find the products that perfectly match your taste, your wallet, and your societal value.



Figure 4: The Fairness Basket displays state-subsidized, citizen-specific prices for groceries.

This object is based on the question of whether people should be extrinsically motivated to behave altruistically. In Ferri et al.'s terms, it is mostly driven by the tactic of *social transgression*: the Fairness Basket criticizes current socio-economic tendencies of adaptive pricing (as in 'dynamic' insurance payments) by applying them to groceries. [20]. It stands in the context of Fiedler's 'Unreliable Machinery' project [21] which equips people who would otherwise be unable to afford their health insurances with devices to cheat on their fitness trackers. Earlier iterations of this object included the concept of subsidizing dangerous products (like cigarettes, fast cars and high-sugar drinks) for unproductive citizens, while making less dangerous products more expensive for them. The final object is a shopping basket (Fig. 4) that displays a product's dynamic price in its handle. It links the price of natural food to a citizen's societal value. Natural fruit are cheaper for productive citizens, less productive citizens will receive a subsidy on synthetic fruit powder. They will receive the same nutritional value, yet of synthetic origin.

Individual Voting Machine

Our society needs to evolve continuously. That's why we crave your opinion. We developed a new, continuous voting system that rewards every citizen's contributions to society with voting rights. As you approach the voting machine, you will be given a number of marbles, depending on your societal value. Every marble can be used to vote for 'yes' or 'no' for any of the societal decisions displayed on the device. Every citizen counts, and so does every vote.

This object is based on the question of whether active members of a community should have a greater say in societal decisions. It stands in the context of direct democracy [34] systems, arguing that recent developments like delegation systems [8] and voting assistants [31] should be viewed with scrutiny [12]. Aesthetically, it is much inspired by Bishop's Marble Answering Machine [7].



Figure 5: The Individual Voting Machine adjusts a citizen's voting rights to their societal value.

The final design (Fig. 5) adjusts a citizen's voting rights to their societal value, which manifests in the number of marbles they receive. In Ferri et al.'s terms, this object is based on the tactic of *social transgression*, combined with a *semantic shift*: restricting the voting rights of unproductive citizens stands in sharp contrast to the playful act of inserting marbles into the machine [20].

5 DISCUSSION

On the surface, we created a computationally supported, altruism-encouraging society. It promises to emphasize the values of transparency, happiness, productivity, fairness and individualism, but it is in fact a form of data-driven slavery. In exhibitions, the physical prototypes and the accompanying video sparked discussions about the future of our society, which we consider *aicracy's* biggest achievement. Such discussions can sharpen people's views on how technologies affect societies, and how current developments – e. g. social scoring, algorithm-supported judging, predictive policing – may have serious, negative outcomes. Such a sharpened, critical view could be of paramount importance preventing these outcomes. We hope that our project thereby contributes to the thoughtful development of socio-technological systems that truly adhere to human values.

6 CONCLUSION AND OUTLOOK

Quite dramatically, while creating *aicracy's* narrative and the five objects, we failed to create something that is not happening in some societies already – at least in conceptually similar, although less drastic ways. Therefore, we hope that our project will lead to fruitful discussions about what it means to be human in an increasingly digital world.

Creating tangible objects for discourse by following a critical design approach has turned out to be a discussion-sparking, view-sharpening tool. We hope that it will facilitate the creation of future societal interfaces which, in turn, will help people to shape a world worth living in.

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