The Fallacy of Eco-Friendly Design
How progressive design can save it

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Abstract: When observing the current interest in designing sustainable solutions, one may quickly realize that most attempts lean toward reducing emissions and material consumption while creating new and enticing products and services. However successful, these attempts are futile as our planet hosts a growing consumer base aiming to increase material standards in the personal sphere. Therefore, consumption, and in its extension resource depletion, will not be reduced in the aggregate.

Even the shallowest scrutinization of the field of "eco-friendly" design reveals a discrepancy and a lack of rigor between what its proponents are claiming vis-à-vis actually achieving. So, instead of merely ecologizing the design language, design ought to be the place where technologies are applied in truly useful ways.

This paper aims to harness scientifically plausible but yet unrealized aspects of emerging technology to achieve its goals, as this is a viable route to take: creating products that when consumed helps the ecosystems evolve at a slower pace than they may be forced to today. After all, organisms have until lately had longer timeframes to adapt to changes in the environment.

The works described in this paper intend to incentivize intellectual and emotional playability in their recipient as well as spectators or those detecting traces from these products. The ramifications of these new technologies will represent such a shift in paradigm that are similar to what could have happened in the digital technological revolution but didn't quite, due to designers' lack of attention towards the emotional bond between user and artifact. This is perhaps most frequently suggested by the choice of the term "user", a term containing no agency. The Apple Mac hibernation light is an exception from this rule; intended to sustain an emotional relationship even when not in use.

By selecting the domain of fashion for our exploration, we aim to utilize the truly embodied qualities of garments worn on the human body. The concepts developed were represented physically as to provide encounters and prospect of documentation. By wearing, or considering wearing these products, the recipients are subjected to consideration around what a garment or hygiene product should be, and what benefits and risks there may be.

Key words: Interaction and interface design, Human behaviors, Perception and Emotion, Aesthetics and Experience in Design, Values.
1. Introduction
In this paper we strive to and bring issues concerning the discrepancies between claims in design and fashion between what they argue that they are alleviating in terms of for example sustainability and what is actually the consequence of the actions taken. We will also identify the underlying psychological mechanism that is exploited in this false good but more beneficially we will describe the fallibility of it by design. This through the presentation of prototypes that do take the consequences of their statements as well as prototypes for a future discourse wherein the ideas could actually be achieved. This task demands a thorough look at what fashion is and means to be able to replace to complement it with something that is not only sustainable but also meets the needs currently satisfied by fashion.

2. Background
The typical naïve view on fashion is that its sole contribution is in signaling, that it simply conveys something to an onlooker, purposefully or not. This however seemed a parsimonious explanation that drove us to delve deeper into the inner workings of fashion, á porter so to speak – in situ, to explore the possibly ineffable quality of couture-wearer relations.

A new set of problems, mostly cognitive biases, has been unveiled by recently surfaced research that confronts the consumer of today. Not only has the abundance of choice made consumption a decision making task on par with the hardest of them. Also a number of fallacies in consumer thinking and discrepancies between what the consumer thinks are the consequences of consumption and what they actually turn out to be. For example one might think that buying an environmentally sustainable product is good for the environment. This is however not the case. It is only so compared to the theoretical case that they otherwise would buy something not environmentally sustainable. It is the lesser of two evils in a way since none of the choices in fact helps better the environment, possibly just slow the process down a bit. But who is really at fault here? The consumer can of course be blamed for not being fully informed but more importantly the designers are not telling the whole truth. They are supplying a demand for eco-friendly products for which there is a growing market without actually producing products that help the environment in any way but compared to an alternative, fictional scenario. Designers are in a way misleading consumers and rather supplying fuel to their feelings of righteousness than they are helping the environment. Sustainability is not good enough if we want to help the environment, it is only slowing down its pace of deterioration.

In a related topic one might think that recycling paper or not using paper but instead reading off screens might be better for the environment. A study has shown that it in fact wouldn't, but that it would be better to not recycle paper if trees are plentiful since they are absorbents of carbon dioxide [1]. Another fallacy of consumption is the fact that people experience better health effects with a more expensive placebo than with a cheaper one, an effect that also transfers into a large variety of products such as cosmetics and energy drinks [2]. This goes against what one would expect from an economic man since he would be looking for a bargain but it seems that the efficacy is a dependent on prize. Our presumption is that this also transfers to general happiness, which is said to be the goal of consumption.
3. Focus Group and Contextual Study

For our research we sought a two folded strategy, a focus group comprised of French females in their twenties, who are likely to keep abreast of contemporary fashion. With the intent to delve deeper into their behavioral patterns we had to resort to more disruptive means to become fully aware of the scope of, and personal importance of, fashion and style. Hence we conducted a "socially invasive experiment" wherein behavioral patterns were incited in an existing social setting in order to observe the subsequent results. In this intervention we used a stalking horse, justified by the fact that we could never do it ourselves. The experiment took place in an ordinary social setting – a bar. There we observed, in the classical non-interfering anthropological way, how style and social behavior might be connected. This being a highly complex issue we thought a more controlled experiment might be required. To ensure we tapped in to the truism of "It’s not always what people say that contains the most important information; often, it’s what they take for granted" [3].

However gathering a test group and having them act normal pertaining to social behavior being tremendously difficult for many reasons, the Hawthorne effect [4] alone might be reason enough to reconsider, gave us the idea to conduct an interference to be able to study something we otherwise might never have been able to study. We had observed two people on different floors of a bar, both of them each adhering to a very specific style of fashion. In order to reveal if the goal of a highly personal style is to ostracize people not acquainted with it and espouse people with tentacles inside its discourse or if it was merely a trait of one individualism that stated ones personality and individualism and as such one would like to be the only one adhering to. This was not a style of any subculture just a fashionable extreme of something already present, however the really interesting part of the experiment was that they looked extremely alike.

The experiment disproved the latter assumption by the two people, rather than feeling threatened that someone else was infringing on ones individuality, they seemed to get along in an astonishing way seemingly not aware it was like looking into a mirror. No awkwardness was registered on the agency or creation of couture composition, but rather a very friendly conversation ensued which continued through the night as had they been friends for a long time.

The focus group on the other hand revealed another surprising characteristic of the wearer couture relation, namely that of fashions raison d’être is not, as many have stated, that of signaling: to convey something to others by the wearing of clothes. This focus group instead showed a break in the communication triangle where there was no receiver and hence a communication model cannot be used. They described, at the time studying abroad, a longing for their shoes, as were they members of family, pets or places you can call home. The claimed to miss not only, or not even, wearing them but just having them in a pile, sorting them and throwing them a glance of affection now and again. This certainly shook the foundations about our preconceptions about what fashion is, and in a more interesting sense what it means: to interpreters as well as wearers. It is from these findings we came to the redefinition on what specific roles fashion has or ought to have as a design discipline, but also what it can achieve, which may be more than could other disciplines of design.
4. Krepp-à-porter

Based on workshop findings as well as our intentions to explore the issue of environmental design, we decided on creating an adaptable dress. The concept of the dress is based around the old truism that hemline height follows economic developments: The Hemline Index, as first introduced by George Taylor [5] (an excellent graphic can be seen in Broby-Johansen’s book [6], pp 216-217). This rule stipulates that if the economic situation is good, skirts and dresses will be shorter, and vice versa. Kreppa is the Icelandic word for economic meltdown.

By collaborating with a fashion designer, we created a dress with a loose silhouette in a soft tricot fabric. The dress was designed with adjustability in mind, small channels for wiring were sewn into the garment, and the dress was lined with a shinier material in order to look more glamorous in the event that the stock market would go up.

The electronics driving the dress are based around a microprocessor, capable of receiving commands and processing them, as well as controlling two small electric motors embedded in the waist. The solution is customized by the authors and has wireless capabilities for sending and receiving data. Thus, the dress can be remotely controlled by the wearer or someone else, as well as run programs requesting real time stock market data wirelessly, used to calculate tendencies and activate the motors accordingly.

The dress was shown in front of a live audience for the first time at New Media Meeting 2009 in Sweden. A contemporary dancer wore it, while the authors controlled the movement of the dress remotely as well as created ambient sound for the performance. All three artists were during the 20 minutes performing an improvised set with inspiration from the past year’s worth of Dow Jones index data, all while interacting with each other through their respective means of expression.
This being the first iteration of Krepp-à-porter, changes will be made to both the technical implementation, garment design, framing of the experience and the design of the experience itself. By allowing the wearer to program (or order) the capability of displaying the development of the personal stock portfolio in real time, a closer connection between wearer and garment is expected.

Drawing upon the capabilities of the current implementation, a version capable of mesh networking may also be developed. Here, multiple dresses would be able to communicate and negotiate the trends in the local area, by means of intercepting or receiving communications and then redistributing this data. Every dress would be individually tailored and programmed through a process closer to prêt-a-porter or a quicker and dirtier haute couture, with the result that all dresses would never act in total unison.

5. Bio-coat

The answer is a progressive design rather than a slow design reaction to the consumption society. If the slow paradigm were to be implemented as a provotype, a prototype that embodies the opposite of what the design ought to be, envision a dress made of moss that one has to nurture. Preferably in the countryside over a long period of time while it constrains the wearers movement and absorbs carbon dioxide. One could however envision a future wherein progressive design uses the new technologies to produce solutions to the problems we face. A future wherein fabrics are made of carbon absorbing algae and fur coats are grown in greenhouses much as victimless meat would. Standing in the way of such a future are not so much technological difficulties as moral barriers. These are issues we need to battle, and design is one of the best frameworks to perform that task, if it only were more daring and true to its propositions.

Figure. 2 Bio-coat manufacturing station
6. Bio-scent

A group at MIT has put bioengineering to practical use by making earlier foul-smelling E. Coli bacteria smell of mint and banana [7]. For this conceptual piece, we have adapted the process to work with the bacteria producing the smell of sweat, strands of Brevibacteria-linen and Corybacteria-JK. By supplying the body with new bacteria, though functionally identical to what you already have your body covered in, the new and adapted strands can create a better, custom-designed fragrance for your body.

In outlining a biotechnical solution for perfume we have showed ways to embrace new technologies in design and do so in a way that raises interesting questions of what kind of materials design can work with and what can be designed. This design also is in its nature embodied and also alive which might raise some interesting questions on how we should be harnessing nature for our well being, or for that matter well smelling.

Is it less of an exploitation of the biotope if the biological materials have been created in laboratories? Will people find it agreeable to wear living organisms and will inviting them to their bodies even strengthen their sense of symbiosis with nature? And: How may this change the way we look at products and services, as well as lesser forms of living organisms?
7. Conclusions

What we are also trying to achieve is to strengthen the emotional component found in the workshop between wearer and garment. In technology this component has been vastly overlooked. Very few technological artifacts have been able to generate and nurture this relation. Fashion is one of the few design fields that evidently is able to tap into this embodied quality. Technology has commonly failed in its attempts, with notable exceptions like the Apple Macbook hibernation light: intended to sustain emotional relationship even when not in active use. Once established, it has a slow decay and leaves users still after the hibernation lamp is broken, a fairly common occurrence in this type of computer, hovering over their Macbooks patiently or impatiently wondering whether their Macbook has gone into hibernation or not. This tendency is very similar to the one observed with teenagers in a long distance relationship with their shoes. The same connection, the same decay.

If design were to more carefully take this consideration into account environmental winnings could be achieved since the decay of each garments emotional relation is lower it will "last" longer and hence lesser items need be consumed. If this emotional relation is achieved thus, it is likely to dampen the need for self-reproducing consumption.

Krepp-à-porter has ascertained an interesting mix of technology and functionality and hope that there will be opportunities to further develop the project. Garments adapting to constantly changing trends may create a post-trend situation where constantly changing fashion is under the control of the wearer.
Sustainable solutions need to take the extra step from reducing greenhouse gases and toxins, and start absorbing and remediying the damage created by other products. As designers we need to take responsibility not only for our own creations, but adopt a truly holistic view of the ecosystem in which our creations reside. By finding new ways for products to help clean up after each other, and work better together, we can create better arguments for consumers to adopt this new breed of solutions.

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9. References


