



The Mediated Body on a Berlin subway.



# A SHORT GUIDE TO MATERIAL SPECULATION: ACTUAL ARTIFACTS FOR CRITICAL INQUIRY



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Design has long borrowed from fiction in techniques like scenarios, personas, and enactments. Speculative inquiries in design like futuring, forecasting, and envisionments have also deeply incorporated practices of fiction. More recently, design fiction has emerged as a uniquely productive approach to speculative inquiries [1]. Given this, we see an opportunity to further explore fiction and other types of inquiries to nurture and expand interaction design research efforts.

This article is a short guide to what we call *material speculation*, which emphasizes the material or mediating experience of specially

designed artifacts in our everyday world in order to speculatively and critically inquire through design. (A more detailed discussion can be found in [2].) Material speculation draws on the literary theory concept of *possible worlds* [3]. The theory of possible worlds includes the notions of actual versus possible worlds and the counterfactual. Philosopher David Lewis offered the idea that propositions like counterfactual statements can be understood as either true or false dependent on in *which worlds* the statement is true and in *which worlds* the statement is false [3]. This allows for the fictional world of Sherlock

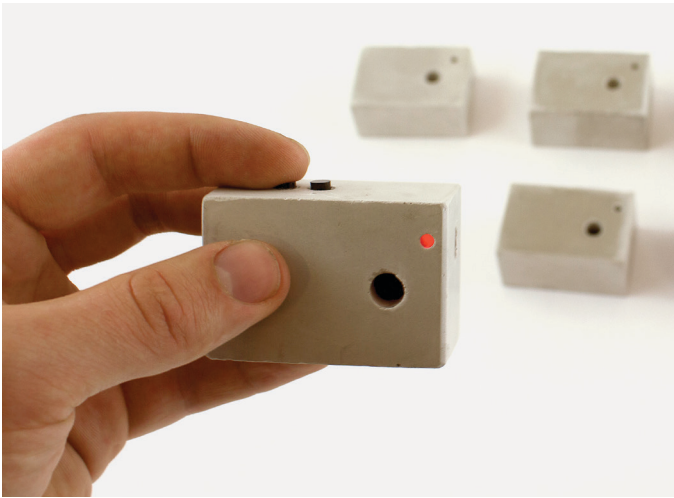


Figure 1. The Obscura 1C and the camera destroyed.



Figure 2. The Obscura 1C was displayed in retail partnerships (above) or “droplifted” into stores.

Holmes to unfold such that any faltering of the detective’s deductive reasoning would be perceived as false or a negative development in the character’s intellect.

Counterfactuals are central to the theory of possible worlds. By virtue of contradicting one world—the world in which Sherlock Holmes is a fictional character—they elicit and open up another possible world, a world in which Sherlock Holmes is a brilliant detective with no equal. Lewis describes counterfactuals as similar to *if...then* operators that create conditional modes in which possible worlds may exist [3].

Possible worlds theory relies upon the ideal that reality comprises all that we can imagine, composed of the “actual world” and all “possible worlds” [3]. Additionally, actual worlds have no privilege over possible worlds; rather, actual worlds are simply *our world*, the one we inhabit. In this sense, all worlds like the actual world hold their own internal logic and autonomy. This approach expands on traditional efforts in design to improve our actual world by considering multiple alternative possibilities that may hold underlying assumptions and principles that differ from those of our own world, thus creating a deeper level of criticality.

Material speculation is the adaption of possible worlds theory to design research. When considering possible worlds and counterfactuals, in philosophy or fiction we are concerned with either a statement of logic or a text. In design, we are often concerned with material things and so in material speculation we refer to speculative artifacts as *counterfactual artifacts*. A

counterfactual in material speculation is a virtual or tangible artifact or system rather than a statement or text.

The basic outlines of material speculation can be summarized as the manifestation of a counterfactual in a material artifact: a counterfactual artifact. As a material thing it occupies the boundary between actual and possible worlds. The counterfactual artifact is also an embodied proposition that, when encountered, generates possible world accounts to explain its existence.

## CHARACTERISTICS OF MATERIAL SPECULATION

We can summarize material speculation with the following characteristics:

*Material speculation is the coupling of counterfactual artifacts and possible worlds.* Material speculation is the sum of the counterfactual artifact designed to be encountered in the everyday world and the multitude of possible worlds it generates through those encounters.

*Counterfactual artifacts exist in the everyday world.* The counterfactual nature of material speculations rely on the contradiction of the artifact not appearing to “fit the logic of things” in the everyday world yet undeniably existing in the actual world. Counterfactual artifacts situated in everydayness offer a new ontological perspective that over time makes assumptions and implications visible. It is important for the depth and quality of the emergent possibilities that material speculations be a lived experience rather than simply an intellectual reflection.

*Counterfactual artifacts are generators of possible worlds.* Counterfactual artifacts in material speculations do not embody possible worlds; rather, they act as propositions that, if considered, generate lived-with engagements with new possibilities encapsulated within possible worlds. These include the world(s) as imagined by the designers and the world(s) imagined by those who encounter the counterfactual artifact. Most speculatively, the counterfactual artifact itself can be perceived to imagine a world.

*Counterfactual artifacts are specially crafted.* Material speculations are specially designed artifacts. They are

crafted with the intent and purpose of inquiring into new possibilities. This is not a straightforward practice; it requires expertise and design judgment to create an artifact that successfully contradicts the world around it, yet it is entertained as a viable proposition in our everyday world. Counterfactual artifacts are carefully shaped and designed through materials, form, and computation such that the artifact is balanced between “falsely” existing in the actual world while being “true” in a possible world.

*Material speculation is critical inquiry.* Counterfactual artifacts by nature challenge the actual world since they are designed to occupy the boundary between the actual and the possible. The criticality of a material speculation can arise from the quantity of possible worlds it opens up or the quality in which it suggests fewer possible worlds. In either case this speaks to the nature of the critical space revealed.

## EXAMPLES OF MATERIAL SPECULATION

In [2] we detail many examples of material speculation. Here, we share two projects: *Obscura 1C* by James Pierce and Eric Paulos [4] and *Mediated Body* by Mads Hoby and Jonas Löwgren [5].

The *Obscura 1C* is a digital camera made of concrete with all photos stored locally inside its concrete case. The only way for the owner to view the photos stored on the camera is to break the camera and retrieve the memory card stored inside (Figure 1). This is similar to a disposable camera. However, the *Obscura 1C* holds thousands of photographs that can be taken over many years. The *Obscura 1C* is designed to explore how enforcing limitations in the design of interactive technologies can potentially open up new engaging possibilities and encounters. The *Obscura 1C* was deployed in a range of ways including



Figure 3. The Mediated Body in use at the Burning Man festival.



Figure 4. The Mediated Body performed on a Berlin subway among many onlookers.

local retail partnerships (Figure 2), community bulletin boards, and agitprop tactics like “droplifting” or “shopdropping” (leaving a product in a retail store rather than stealing or shoplifting a product).

The Obscura 1C can be seen as counterfactual in that it draws its owners into a familiar device and interaction—taking a photo with a camera. However, the form and composition depart into an alternative situation in which one must destroy the digital device recording one’s life memories in order to access these digital records. In our contemporary world of constant availability and connectedness, the Obscura 1C takes a critical stance on “functionality”—one based on inhibiting, restricting, or removing common or expected features of a technology. To initiate consumption of one’s digital photographs, one must first encounter the discomfort of destruction. On a broader level, encounters with the Obscura 1C invite critical reflection on one’s own potential practices contributing to unchecked digital content production and on the almost unnoticed or assumed eventual obsolescence and disposal of everyday digital devices. Camera users might also be encouraged to reflect on the actual pictures taken rather than being consumed by the constant picture taking and sharing of current digital photography.

The Mediated Body is a symbiotic system consisting of a human (“the performer”) wearing custom-built technology (“the suit”). The system offers a play session to a single participant (i.e., a person that is not the performer) at a time. The technology is able to sense bare-skin connections between the performer and the participant, at distances from a few centimeters apart to light touch to full contact (Figure 3). The sensing data is converted into a complex soundscape, which is played back in the headphones worn by both the performer and the participant. Thus, from the participant’s point of view, the performer is a musical instrument that she can play by touching and vice-versa. The headphones make the interactive soundscape a shared experience between performer and participant; they also serve to limit surrounding

sounds and thus make the experience more intimate and private. The suit includes bright lights on the performer’s chest that enhance the interactive qualities of touching by changing color and pulsing, broadcasting the interaction dynamics of the session to others watching. The Mediated Body was encountered at the Burning Man Festival and in public spaces such as the subway in Berlin (Figure 4).

The Mediated Body leverages familiar interactions such as touching another person to venture into unfamiliar territory. It reconfigures relations between not only the performer and participant but also the evolving social and material ecology encompassing the interactions. It generates encounters in which issues of social conformity become peripheral to the performer and participant in favor of direct, intimate engagements in public spaces. However, these engagements extend beyond the two people directly involved in the interaction, as those around them try to make sense of the encounter in ways that differ considerably from the performer and participant (Figure 4). The Mediated Body speculates on many issues pertaining to the mobile experience of digital media, the cultivation and expression of personal space in public places, the human body as a technical interface, and the richness and tensions entangled across all of these themes.

## CONCLUSION

Material speculation can be characterized as the intent to critically investigate our world through the design of material artifacts that are specially crafted for the purpose of inquiry. This is achieved through the making of fictional artifacts that exist in our everyday world, which we refer to as *counterfactual artifacts*. The concept of material speculation draws on the literary theory of possible worlds, which demonstrates that, like fiction, design can generate alternative possibilities or possible worlds that critically reflect on our own world. Further, these worlds can be generated by the imaginations of designers, by those who encounter the counterfactual artifact, and, most radically, by the existence of the counterfactual artifact itself.

## ENDNOTES

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