

Objectology: influence of computerized technologies on contemporary design.

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1. Introduction

"We are lacking a discipline, perhaps an 'objectology,' or an 'object ethology,' which allows us to analyse and systematise objects and to formulate the rules and codes of their behaviour ... a discipline which recovers and updates the interrupted discourse of material culture, in crisis since the world of objects was taken over by the world of products and the world of consumption" [1].

At the beginning of the 20th century artists began assigning additional significance to everyday objects, beyond their being mere functional items: Marcel Duchamp's artwork represents the beginning of an era of deconstruction and reconstruction of those objects [2]. From Duchamp's time and to this day many artists and designers like Joseph Kosuth, Bruno Munari and Rachel Whiteread engaged in formal studies examining the boundaries of objects. Nowadays, thoughts concerning the essence of objects are still relevant, even though research tools have changed.

In recent years our world is becoming increasingly infiltrated and mediated by electronic systems and devices and the role of design is shifting in response to these changes [3]. Over the past decade, computers are used not only for the rendering of objects, but also as part of the actual creation process of new forms.

Under this context, the field of generative design has developed, which uses algorithms to produce series of autonomous forms. The role of the generative designer therefore shifts from designing individual objects into designing their "DNA" [4]. Generative design's concern with universal laws which characterize objects as entities and not as particular items, serves not only for designing new forms but also as a tool for defining and analyzing objects.

2. The project

"Objectology" is a morphological study that explores the reciprocal relationship between science and design and examines the impact of computerized technologies on design in the contemporary world. The study uses techniques of generative design but chooses manipulations which express values related to the evolution and history of the products. Forms are examined within a historic, biologic, genetic and perceptual approach. The study raises questions about the past and future of the objects and thus adds a fourth dimension to three-dimensional shapes: the

dimension of time.

The project examines the transitions and superpositions created between forms, both between different icons in the history of a certain object, and between different objects. Furthermore, it shows that these intermediate states reveal forms which exist from a conceptual point of view, but have not yet been expressed visually.

The study focuses on the form, detached from its function, material and technology. This detachment leads to an analytic approach similar to abstraction, held in scientific researches. Studies of this type disconnect the object of research from reality in order to analyze a certain phenomenon. The use of scientific methodology in a formal study frees the designer's act of 'making', allowing him or her to create unexpected forms.

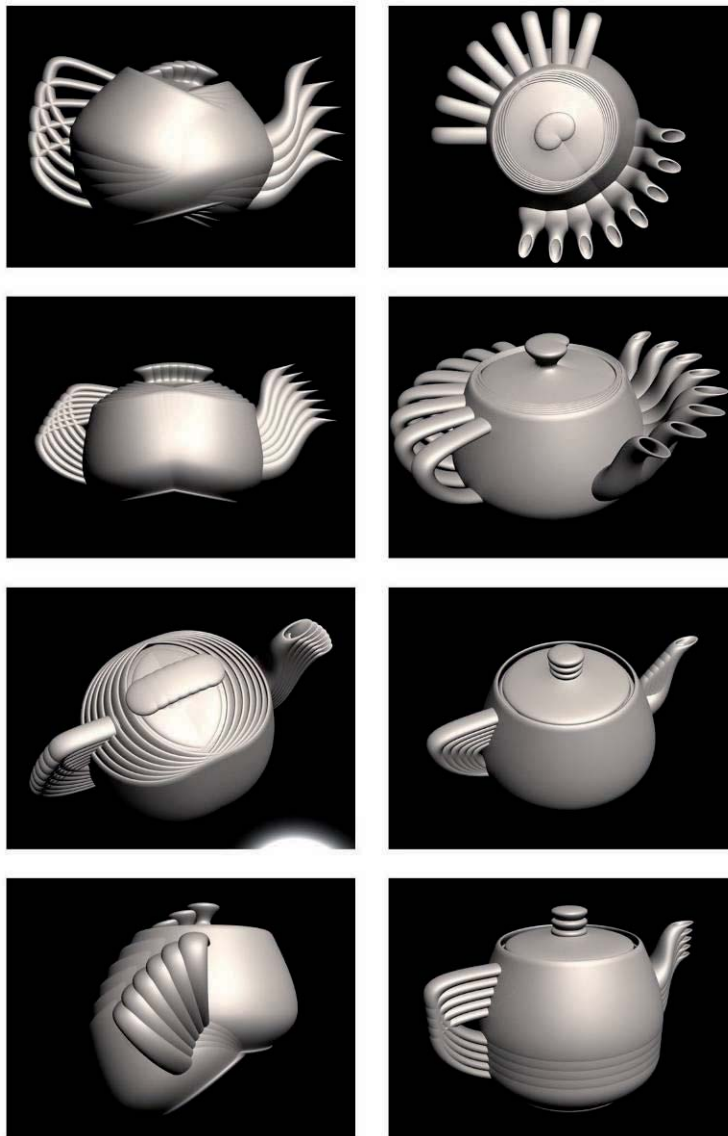


Figure 1: Test #1: Objects movement .



Figure 2: Test #2: Genetic combinations of turned patterns.

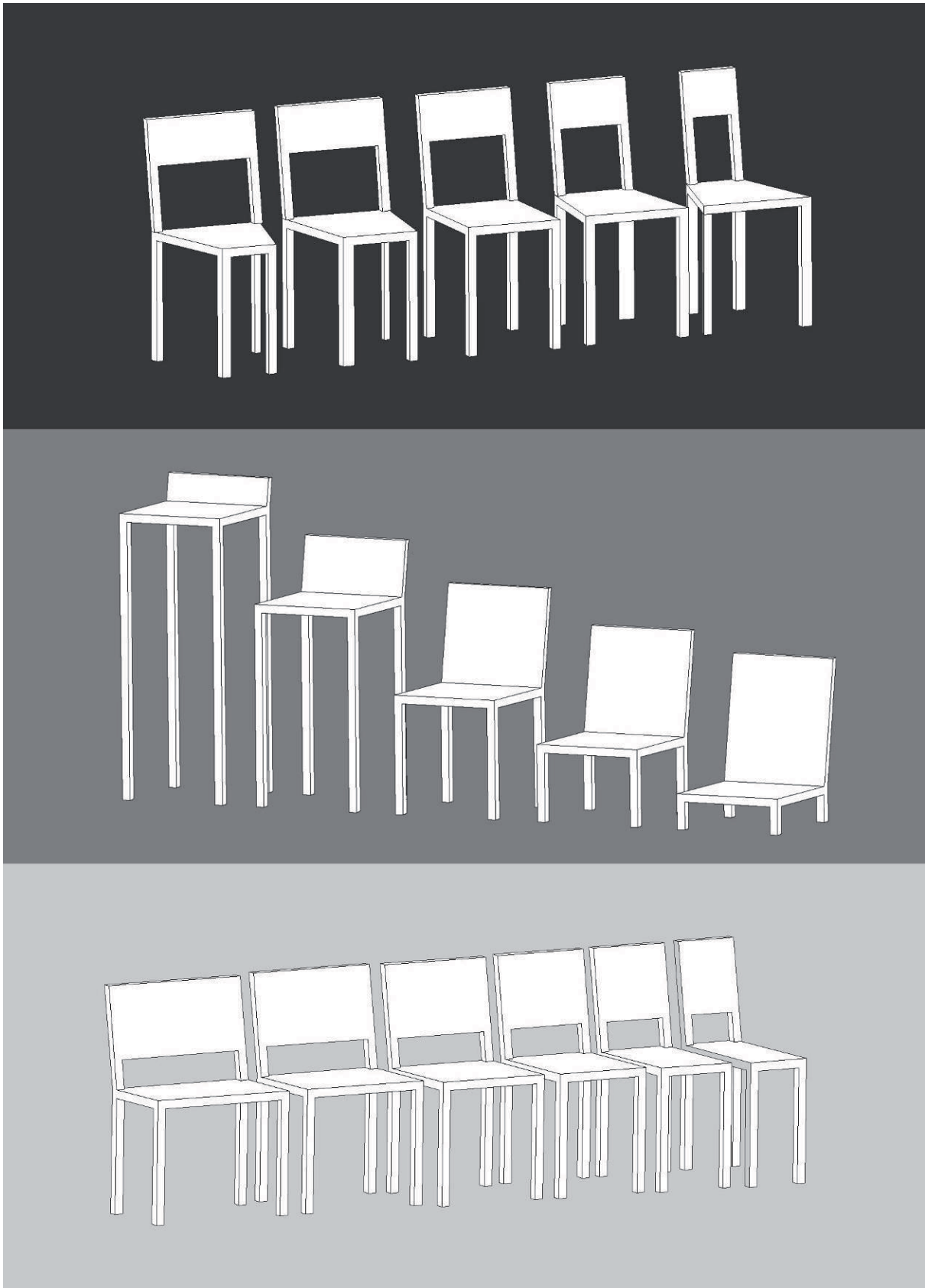


Figure 3: Test #3: Progressive changes on a chair keeping parameter (volume) fixed.

Addition, subtraction, distortion, scaling or flattening are part of the manipulations performed on different objects. These manipulations can give rise to lack of functionality. Such situations - where shape is detached from function - on the one hand enable us to examine the shape separately, while on the other hand, gives the objects a sculptural dimension.

In fact, computerized software allows designers to build three-dimensional forms regardless of material and technology. This phenomenon is reflected by treating the material as a texture which can be mapped onto any form and replaced according to the will of the designer. This option both frees and detaches the designer from the limitations of the material and of the production technology.

The products of this study are forms which remain in the virtual world in which they were created; they are forms which represent the object as an abstract concept. Gray forms which are similar to the display of models in three dimensional software-raise the question of whether the software is, in itself, a new design language. I claim that the use of computerized tools in design shows not only a technological development, but also a new paradigm in design. This new paradigm is based on a scientific approach in which principles of the natural world are transferred to the "object world".

2.1 Object's essence- Superposition

What is the minimum form that an object needs to exist?

The search after the minimum – morphological as well as material - has been the major focus of many contemporary designers. This relentless search sometimes reaches a point, where the object loses its cultural depth [5]. My goal was to reach the morphological minimum of the object, while including its historic, social and poetical aspects. This minimum can be conceived as the essence of the object.

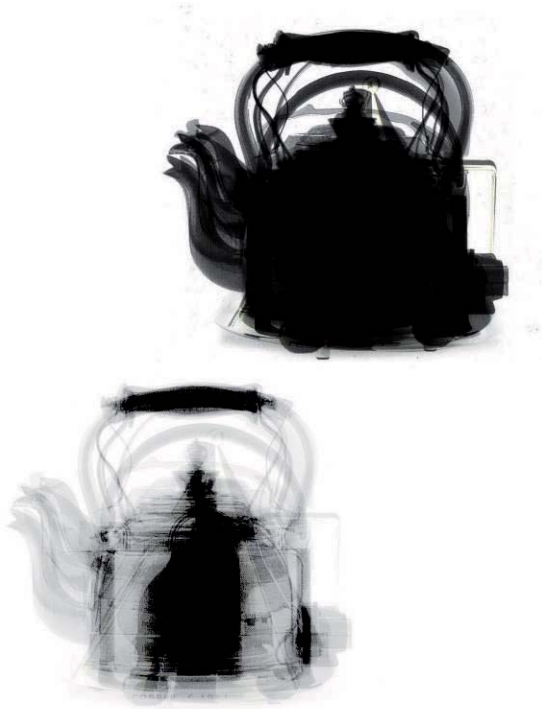


Figure 4: Superposition of kettles from the book "The Kettle: An Appreciation" [6]

By superposition of transparent silhouettes, it is possible to see the morphological changes which took place during the history of an object and its development. It is also possible to see darker parts indicating the regions of the object which have not changed. I separate those darker parts of every set of objects in an attempt to examine whether the result can be conceived as the morphological essence of the object.

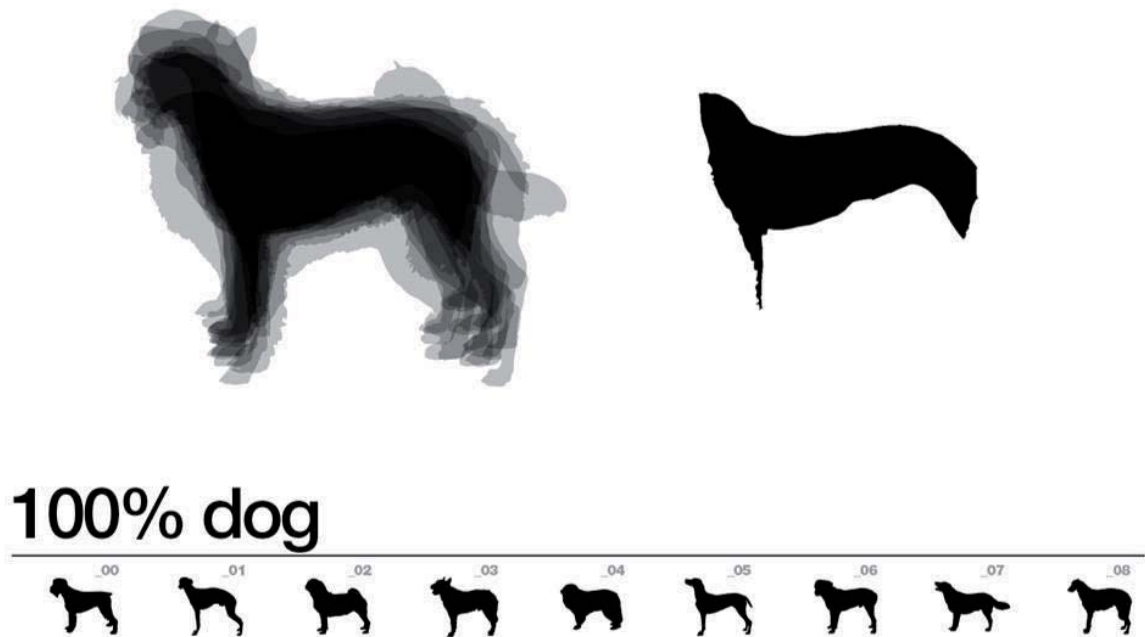


Figure 5: Snapshot of the video "Objectology: Object's essence".

2.2 Vestiges of a chair- Gradual hybridization

Is the development of products similar to developments in nature?

In the recent years there has been an influence of the natural world on design practice. This influence is evident in design companies, using genetic algorithms to develop products, and in designers, who refer to products as living creatures [7].

Inspired by the evolutionary process in nature, I have created a set of chairs undergoing mutation and becoming storage units. Each chair in the set is in a different stage of the evolutionary process, and fulfills the sitting-function to a different extent.

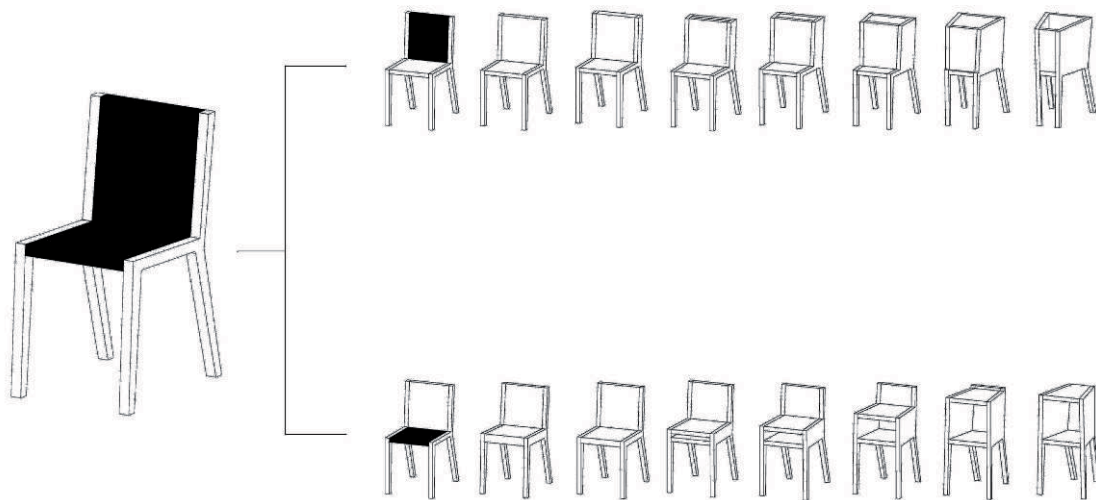


Figure 6: Gradual hybridization of a chair with a storage unit in its seat and back.

Darwin's Theory of Evolution explains that somebody traits have no specific role, and that their present shapes can be accounted for by their being vestiges of previous generations [8]. Human's toes exemplify this phenomenon. While separated toes made it possible for primates -who were ancestors of modern humans- to move among trees; humans only require one separated toe (the big toe) in order to achieve balance in walking [9]. However, Indians take advantage of their toes and use them to hold threads while weaving. This shows the ability of humans to provide new functions and cultural significations to existing forms. By using an evolutionary model from nature, it is possible to create new forms which do not necessarily need to fulfill their original function. Only then, it will it be possible to think of new meanings and additional functions.



Figure 7: 1:1 models of four chairs from the sequence.

2.3 Primal Furniture- Filling the negative spaces

What are the boundaries of the object?

Prehistoric man created a whole world of tools and furniture from stone, which were gradually advanced and perfected throughout history. The shape of every object known today largely depends on factors related to the period in which it was created - technological capabilities, local trends, etc. By filling the negative spaces of iconic chairs in the history of modern design, I cancel out the historical characteristics of each chair and detach it from its cultural context.

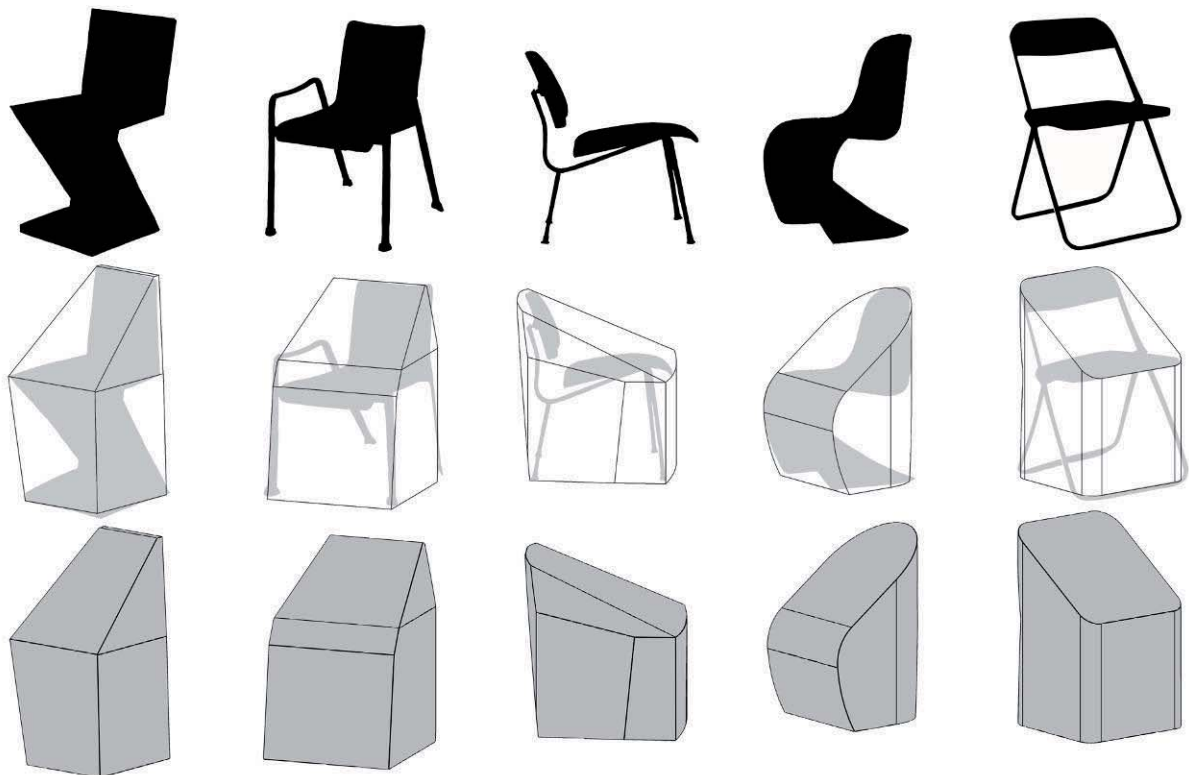


Figure 8: Process of filling negative spaces of the chairs: Zig-Zag (Rietveld, 1934), Landi (Coray, 1938), LCM (Eames, 1946), Panton stacking chair (Panton, 1960) and Plia (1969).

With this action, I try to attain a basic form which expresses a chair from a perceptual approach. Michelangelo believed that every stone had a sculpture within it, and that the work of sculpting was simply a matter of chipping away all that was not a part of the statue. By filling in the spaces, I revert the chairs to stone.

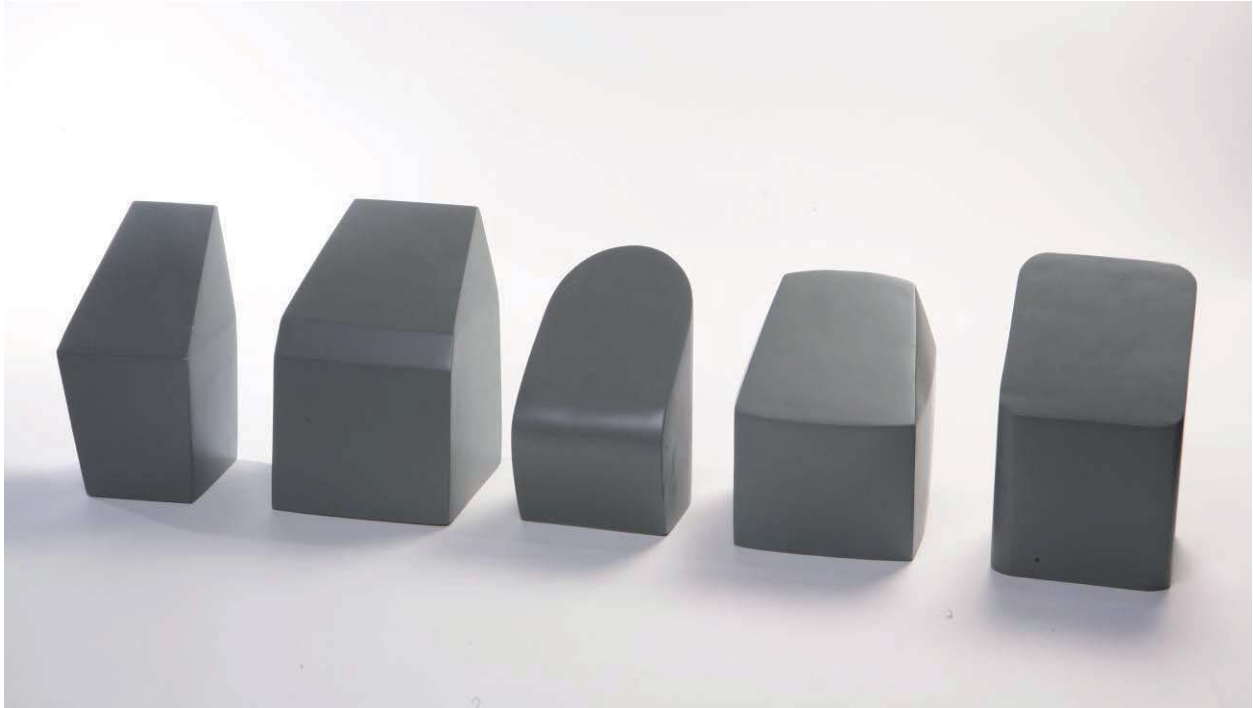


Figure 9: 1:3 models.

3. Conclusions

The influence of computerized technologies on design in the contemporary world is characterized by constant detachment in different levels: between the design process and its result, between shape and material and between the object and its cultural context. Even though that this detachment can be seen as a negative phenomenon, it can also be perceived as a new approach in design which is in line with a new paradigm that uses scientific models to explain phenomena of the inanimate world. In this latter case, the detachment is an objectification of the designer's work that leads to a different level of abstraction than the one normally used in current design processes. This phenomenon emphasizes the great potential of the computer not only as a working tool but also as an analytical or research tool.

4. References

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