Gelassenheit: Dilemma of Computational Thinking in Architecture

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Computational design technologies and tools though operate on a very high level of decisiveness and precision, have a common goal to provide further possibilities of setting free. The terms of rule-based systems, algorithmic thinking processes, parametric design data-bases though drag us to a distant place deep-in digital environment, are all there for a better dwelling on earth and a better understanding of world. How architects relate themselves to their environment of design and realization is a problem of how they relate themselves to the world in the larger frame. Representational thinking initiated by modern science and technology which bases itself on the object quality of being by “enframing” things through their measurable aspects, causes modern age to be an age of “pictures”; where the touch with being is “in oblivion”. Martin Heidegger’s concept of gelassenheit (letting-be, releasement and calmness) reminds the essential nature of thinking as not moving towards and forward with a will-to-power but by stepping back to offer the required offenheit (openness) to the coming-into-being of anything that is with a will-not-to-will. It is about being-in-the-world and dwelling on earth as a part of it. According to this paper, for a further understanding of architectural thinking, space, and production, and the changing paradigms of architecture in the computational era, Heidegger’s concept of gelassenheit both provides a basis and surprisingly encounters us as a recent and future architectural condition.

Keywords: Enframing; dwelling; computational design.

Not-yet-present

The issue that I am going to discuss in this paper is something very simple, but not easy to tell. Like a design problem. The most problematic part is how to put it in words or in concrete terms. Because the relation with the coming into being of something not-yet-present always harbors many possibilities and is always in a direct contact with the vague and unclear world of becoming. This condition of vagueness and uncertainty is what occupies our minds, what derives us and what demands from us most. Because it is this condition that bridges our relation with being and non-being.
This very delicate condition somehow turns into a dilemma when the issue of computational design and thinking is concerned. Because when a problem is under question, computational thinking operates through the very clear-cut paths of reasoning and calculation. Whereas, vague and unclear prevail in their resistance to step-by-step understanding and reasoning of mind. Vague is elusive. And it is there and so, no matter how advanced and sophisticated the tools to capture it, is. However, it is the non-substantial presence of vagueness which grounds the means of clarity, precision and substantiality. This uneasy relation between vague and precise, insubstantial and substantial, being and non-being -which makes the presence of these distant counterparts possible, is what I want to focus on in this paper through an inquiry into computational thinking.

However, though they seem contrary in nature, these negating couples are in fact which are closest to each other, and which harbors the other. It can be perhaps best illustrated by the ironic saying ‘if you go so far in the west you find yourself in the east’. So any efforts of bridging this dilemmatic situation in design, either through computational means or not, will be a direct query and search both into the being and non-being condition of bringing-into-presence, while questioning the limits of the operational tools at the same time. Thus, vague and uncertain world of design, which is a big challenge for computational thinking (Terzidis, 2006), is in fact, the reason for ever-evolving nature of computational design technologies at the same time. Because it is that world, where we are in touch with the coming-into-being of something not-yet-present. It is an unknown and indefinable zone of non-being and potentialities of being. No matter how much and how far one calculates, it still remains.

Computational design approaches to this area of vagueness and uncertainty, by the means that it is most strong at. That is through calculation and algorithmic logic. Whereas, though the operations of computational thinking drag us to the limits of our calculating mind; harbors, implies and requires contrary but not-yet-known skills of reason to proceed. In my opinion we are at the edge of this confrontation and realization.

But before going further in this issue I am going to make a brief discussion on the importance of CAD/CAM technologies in relation to design process.

**CAD/CAM technologies and design process**
The reason why design process gains much attention is the contemporary production opportunities of the digital technologies. Through a highly skillful industry of computer aided manufacturing, there happens to occur a direct link between the world of computational thinking and the ‘earth of living beings’. Any form of design, no matter how complicated or complex can be realized, if can be calculated (Cache, 1999). This opens up a totally new agenda for architectural design by placing it at a prior position.

The integration of two distant worlds of design and production/construction transforms our understanding of what a building is, what architecture is, but most importantly what architectural design is.

With the intense introduction of computational thinking and CAM technologies, architectural design turned into an area of continuous research both into recent digital design technologies and understandings of space generated by them. CAM technologies make these relentless surveys on space possible. But in the mean time which required most reconsideration and came forth as an essential issue for architects is the software industry which encompasses both design and manufacturing processes. Since the introduction of computational technologies in architectural thinking, turned softwares into solid sites of design and space explorations, and even pseudo-realization. When the vast opportunities offered by computational technologies are concerned, this integration with production phase is an invaluable prospect. This ability of ‘what you design is what you get’ is in fact a totally new phase in architecture. It frees architects from conventional construal constraints and opens the venues for a better understanding of how to touch a piece of earth, how
to reshape it by adding something on/in it. Design is a much more philosophical and intellectual challenge than it has been before. Now architects have the chance to include all site specific conditions as design inputs and datas, consider all user requests, climatic conditions, tectonic preferences but still keeping the essential question how to dwell on earth both by providing the necessary spaces and offering the required offenheit (openness) by stepping back for further advance.

**Gelassenheit**

In Heidegger’s body of thought the word gelassenheit, which can be translated as letting-be, release- ment, freedom or calmness, appears in his later period. Heidegger in this term discusses “thinking that is not a willing” (Arendt, 1978:178). Though it can be traced in most of his essays after 40s, he discusses it in depth in his essay ‘On the Essence of Truth’ (1964) and in his short book Discourse on Thinking (1966). In the previous essay Heidegger introduces the term letting-be in its relation with freedom where he discusses the ‘essence of truth as freedom’ (1964:123).

According to him:

> Freedom for what is opened up in an open region lets beings be the beings they are. Freedom now reveals itself as letting beings be... [In ordinary use] ‘We let something be’ means we do not touch it again, we have nothing more to do with it. To let something be has here the negative sense of letting it alone, of renouncing it, of indifference and even neglect. However the phrase required now—to let beings be—does not refer to neglect or indifference but rather opposite. To let be is to engage oneself with beings… To let be—that is, to let beings be as the beings which they are—means to engage oneself with the open region and its openness into which every being comes to stand, bringing that openness, as it were, along with itself (1964:125).

This act of thinking, while letting beings be, is the homecoming of self-being. It means while letting beings be, one’s self-being is also revealed. Letting be is coming into openness of counterparts in each others presence. It is the clearance of this openness (offenheit) that letting be allows. In the openness of the thinking being, beings come into presence, while offering their openness to the thinking being to appear in her/his thought. It sounds a bit confusing like a language game, but it is how beings are in the presence of each other, in Heidegger’s thought.

Dallmayr in his essay “Homecoming through Otherness” writes that the ever-ending journey of being to homecoming is the abode is the home of being. Here, home “is not a fixed abode but a peculiar ‘in-between’ place of transit—a zone between self and other, between proximity and distance, and also between mortals and immortals” (1993:159). Referring to Heidegger’s lectures on Hölderlin’s hymn Andenken (Remembrance) Dallmayr cites the “spring equinox of the ‘time in March./When night and day are balanced.’ This equinox, Heidegger comments, is a time of transit and transition (Übergang), a time when night and day are completely matched and when the ‘harsh rigidity of winter’ is balanced against the vigorous freshness of summer. Balance and transit in this context signals reconciliation (Versöhnung) of contrasts, not in the sense of bland amalgamation or leveling of differences but in that of a mutual recognition where each side or partner freely lets the other ‘be.’ “ (1993:160).

So, gelassenheit is not an upper position of letting something be with a conscious and controlled attitude, but it is coming into presence of the thinking being also. In genuine thinking, one finds her/himself offering the openness of self-being to let beings be with a “will-not-to-will” (Arendt, 1978). This contradictory term implies a condition of not-willing, but not of the passive or depressive mood of willing nothing. It is a condition of willing devoid of dominating or enframing. It is not a will-to something. It is just letting being be as it is. And it is the only condition of self-being's own homecoming and being at home.
In the next part I want to discuss some examples which may help us to clarify this somehow vague and uncertain condition.

**Thinking Computation and Nature**

Nature has always been an essential issue for architects. First it is in the midst of which architects should build. And second, forms of nature were always under investigation and were never aside when trying to find answers to a design problem. Using the forms of nature for developing analogies, or making metaphors with, engaged the minds of architects since Renaissance. Either in microscopic or in macroscopic level, nature inhabits very rich forms of existence. For about last two decades soft and flowing organism-
like forms reign the agenda of digital design queries. All these intricate or complex forms inspired human kind to find ways for measuring and calculating; and now we are at an age, as in the statement of Leibniz quoted by Cache (1999:67), where “any form, no matter how complex, can be calculated”.

In this part, I am not going to discuss the representational capability of computational technologies, where a rather analogical relation with forms of nature is developed and where the three-dimensional object quality of the forms in nature sets the challenge. Whereas, I want to mention the two projects by Ali Rahim that illustrate a ‘reconciliation of contrasts’; i.e. nature and architecture: Leisure Center for the 2004 Olympic Games at Athens (fig. 1-fig. 3) and Residence for a Fashion Designer (fig. 4).

Ali Rahim in the above mentioned projects develops a relation of continuity with topographic conditions of existing landscape by utilizing a dynamic system of so called “pressures” (Rahim, 2006:31,86). All programmatic conditions and site specific requirements are met by placing the pressure at “pivotal points” like existing wells, views and adjacent residences that allow “a continuous interchange between building and landscape” (Rahim, 2006:86). This approach, as a design strategy, can be traced back to the manifesto of the group “Architecture Principe” by Claude Parent and Paul Virilio in 1963; where the
“exploration of the ‘oblique function,’ involving the conquest of the continuity of the sloping plane” (Alison et al., 2006:119) was the main concern (fig. 5). According to Parent: “Architecture is not biological, it is creation. Architecture cannot be likened to an object, it is anti-object” (Alison et al., 2006:119).

This position held by Parent, has a valuable approach when the two counterparts of building and landscape, and the uneasy relation of contrasts are concerned. These projects of both Rahim and Parent are quite aware of the different natures of both architecture and land. And their design approach is to let a ‘third’ to come into being in its own reality. They have a will-to understand the existing condition but not to dominate it. They have a will to elevate it through an understanding of design that brings both the space and land into a new presence by both keeping and enhancing their essential nature. It is not a step forward but it is a stepping back to release.

**Algorithmic Thinking**

However, nature not only abides formal or topographic qualities but inhabits a relational excellence and multiple logics of existence which are evolutionary. This multiplicity and heterogeneity are very hard to grasp through a form-based representational thinking. So, algorithmic thinking as an approach based on relational understanding arises. In algorithmic thinking by the if-then-else operations computer can both calculate and respond to multiple conditions, when defined (fig. 6). According to Kostas Terzidis (2006:15) “an algorithm is a process of addressing a problem in a finite number of steps. It is an articulation of either a strategic plan for solving a known problem or a stochastic search towards possible solutions to a partially known problem. In doing so, it serves as a codification of the problem through a series of finite, consistent, and rational steps. While most algorithms are designed with a specific solution in mind to a problem, there are some problems whose solution is unknown, vague, or ill-defined. In the latter case, algorithms become the means for exploring possible paths that may lead to potential solutions”.

Algorithmic architecture already took its place as a very recent topic at the course lists of departments of architecture. Students of architecture are introduced with the concepts of “systems theories, Boolean logic, L-systems, cellular automata, genetic algorithms, Lorenz curves and Mandelbrot sets as chaos generators, fractal behavior and growth, cybernetics”; and are equipped with the knowledge of scripting languages to “generate complex applications and forms”. Design is now on setting right “variables and constants”, devising “conditional statements”, embedding “control structures” and utilizing the “recursion” (www.arch.columbia.edu/gsap/32297: May 2007).

By introducing the tools of algorithmic thinking and logic, computational thinking and design force
the limits of calculating mind. With the “absolute speed of calculation” and high capacity of keeping in the “memory” (Cache, 1999), computers takes us to the distant worlds of computation. Diving further into the lands of this algorithmic logic, however, opens a very contrary, back to bone question of what architectural design is. Are architects turning into some kind of system operators? Is space a kind of outcome? How can the designing-computing split be resolved? And at the edge of this algorithmic surplus what awaits us?

**Conclusion**

At the closing remarks I want to refer to a very significant point of Cache in his essay “Objectile: The Pursuit of Philosophy by Other Means”:

... the real result of the invention of computers might not be free thought from algorithms and memorization. Leroi Gouran explained how the act of standing upright had freed human hands from tasks associated with locomotion and jaws from prehensile and utilitarian functions, thus blazing the trail for the vocalization of sounds to become the articulations of speech. In similar fashion, I think that homo cyberneticus is well on the way to developing the strange new faculties of an amnesiac and analgorithmic consciousness (1999: 68).

Calculating mind or reason, when proceeds to the out borders of its capabilities, there emerge not a world of further and further calculation, but a world where the contrary aspects of mind and consciousness come fore as anew emerging condition. So at the heights of computation, just the contrary faculties of mind and humanly being awaits to rise.

However, coming to the architectural education, it can be stated that it should be approached from two counterparting sides. One is from an understanding of algorithmic thinking. In our age, scripting is not a optional issue of self-interest, but a way of thinking that students should acquire as if getting acquainted with designing by pencil and paper. And besides that, this acquired capability should be counter-weighted with the introduction of its opposite “analgorithmic and amnesiac consciousness” (Cache, 1999), which is harbored in by. I mean to counterbalance the precise, decisive world of computation the heterogenic, unexpected and vague uncertainties of life should also be included to the curriculums of architectural education to offer a wider view of world. Computational design must not mean just gaining skills, but also developing a consciousness on how to dwell on earth, how to touch a piece of world and how to provide edifices for living and making live. The basic aim underlying that concern is not only to make students better designers, but to make them better thinkers. Thinkers, besides calculating, computing and according with object qualities, can set-free by let beings be by offering the clear openness of thought.
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References
