AN INTERVIEW WITH...

Interview by Mirko Daneluzzo and Mirco Bianchini - City Vision Magazine issue 7 - January 2013
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It is interesting how one can translate, for design purposes, the simulation of agents system, in other words how to translate the behavior, the location and the intensity of interaction, into the project, and then later in architecture. From the use of points that define different densities, to the definition of modules that fit and distribute in the system based on the position of the agents, up to the definition of the trajectories. **What is then, the decisional element to determine what will be the most appropriate language to materialize the project? How this shift from the behavior of a system to its form occurs?**
The approach I have developed using agent-based techniques for design is not an attempt to translate the behavior of abstract, or biological, swarms into architecture. Instead my interest is in encoding or seeding very specific, architectural, intentions and decisions within the behavioral interaction of computational agents. The intention here is to generate a self-organised design intent. The architectural language is not one that is selected – instead it is an emergent sensibility. This emergence is not purely a computational one – instead a project's language is teased out of a messy process, a constant back and forth between generative design strategies and more direct design decisions.

When I see the tests about the Fibrous House, I think: "Wow! This is how we will build in the future." Lightweight, redundant and elastic structures. What is, however, the idea of inhabiting, behind these architectures, so the relationship between the use of space and the definition of the spaces? In which way this kind of research is an aware proposal of an alternative way to live or an alternative tipology of space for the future?
Western architecture is traditionally characterized by the definition of space through the establishment of clear boundaries, this for institutional-symbolic and of course, for environmental reasons, such as control of the living environment. Reyner Banham in "Architecture of the well-tempered environment" referred to "societies who do not build substantial structures inhabit a space whose external boundaries are vague, radjustable and rarely regular". Working with agents seems to define a design tool that comes closest to this way of living the space, in which multi-performance and heterogeneous systems de-materialize the concept of border. **What is then the value of the envelope (the limit), especially in a kind of architecture that enhances trajectories defining interweavings rather than surfaces?**
What is, in your opinion, the architectural and space quality that this approach provides to the design practice?
In the last year of two there seems to be a growing enthusiasm within certain corners of contemporary architecture for the use of agent-based crowd simulation to test inhabitation or use. This approach is in no way generative as it merely tests or evaluates a proposed design – this in it's self is predicated upon the ability to accurately simulate the nuanced actions of people, which is a dubious claim of even the most rigorous crowd simulations. My approach is not to consider agents as people, but as architecture. I am interested in the interaction of architectural decision and the emergence of architectural formations.

It is true that my architectural approach resists surface and the simple delineation of architectural elements. This diffuse characteristic is partly an innate bias within complex systems and partly a deliberate attempt to challenge the linear hierarchies of architecture – those that articulate a separation of architectural elements or systems such as structure, skin and ornament. Instead I am interested in the compression and mutual negotiation of these systems within a continuous architectural geometry or matter.

While this work is driven in part by a conceptual interest in the non-linear negotiation of architectural decisions and systems, it is also driven by a set of formal and aesthetic experiments. An example of which is the continued interest in exploring the aesthetic implications and formal affects of high population agent systems.

What is your position regarding the passage from the simulation to a "stigmergic fabrication", when, in other words, the simulation is not limited to the construction of form but its actual construction of the building? Are you more inclined to consider the coincidence or the difference between these steps?
Stigmergic fabrication is a term I have coined to describe a strategy for the compression of algorithmic design and robotic fabrication into a single operation. This strategy encodes architectural decisions as machine behaviors that respond to the existing condition, hence setting up a feedback loop between the physical assemblage and design intentions. The process responds to the behavior of material, enabling material to play an active role in the emergence of architecture, rather than reducing it to a mere receptor of predetermined form. The issues of algorithmic design and robotic fabrication are very different, however instead of one anticipating the other in a linear sequential relationship, stigmergic fabrication posits a non-linear negotiation between the two.

Each system in its growth and transformation, incorporates a number of aspects like matter, function, structure, etc.. . In your research, what's the importance of these aspects and how do they affect the performance of the project at both structural and decorative level?
The incorporation of architectural intent is critical to behavioral formation, not just in the way the building performs, but more fundamentally the encoding of intent with algorithmic processes is essential to a coherent architectural design approach rather than the process acting merely an abstract formal generator. Some of these behaviors are directly tied to the performance of a project, such as the bundling of structural fibers enable structural stability, however other behaviors are more abstract - emergent qualities and affects are teased out of their interactions, rather than encoding precise architectural intent.

When I'm involved with the design work, I rely on various personal obsessions, in a previous interview, you spoke about agents calling them just they are your obsession. What is a design obsession for you, but more importantly, in which way do you protect against it?
Developing a behavioral generative approach to architectural design through swarm intelligence and multi-agent algorithms is clearly a focus, if not an obsession, which has occupied my work for 10 years. However this method is somewhat broad – a generalized approach to the non-linear generation of complex architectural organization and form. As this research develops it continues to generate new avenues of research an offers new opportunities – it is inherently an open-ended project. Criticality is the protection against obsession – in the case of generative design that criticality must be at the level of the designed artifact, rather than allowing the focus to dissolve into a fetishization of design process.