

POLITECNICO DI TORINO
SECOND SCHOOL OF ARCHITECTURE
Master of Science in Architecture
Honors theses

Spatial perception and the environment in the dynamic evolution of living.

The paradigms of the architectural plan from the retrospective analysis to the experimental perspective

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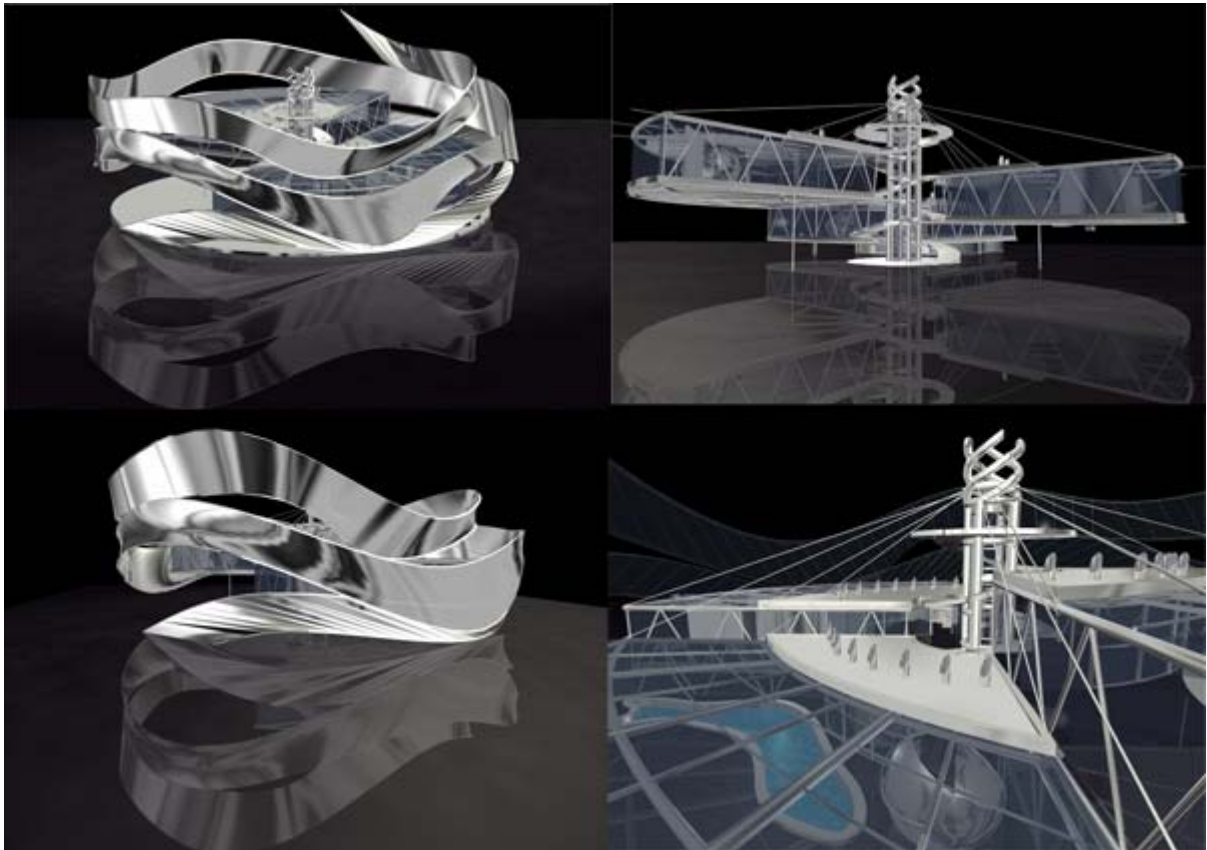
The new technologies have radically transformed our way of working, living and thinking over the last twenty years, and architecture is not immune to these dynamics. The topic of this thesis revolves around the revolution in computer science and its repercussions on architecture.

The object of the plan is that of a one-family house as an example of contemporary architecture, by means of a carefully documented list of representative architectural works, in accordance with the analytical criteria connected to the functional, formal and constructive parameters followed by the examination of international and national competitions and exhibitions that have pushed back the boundaries of housing.

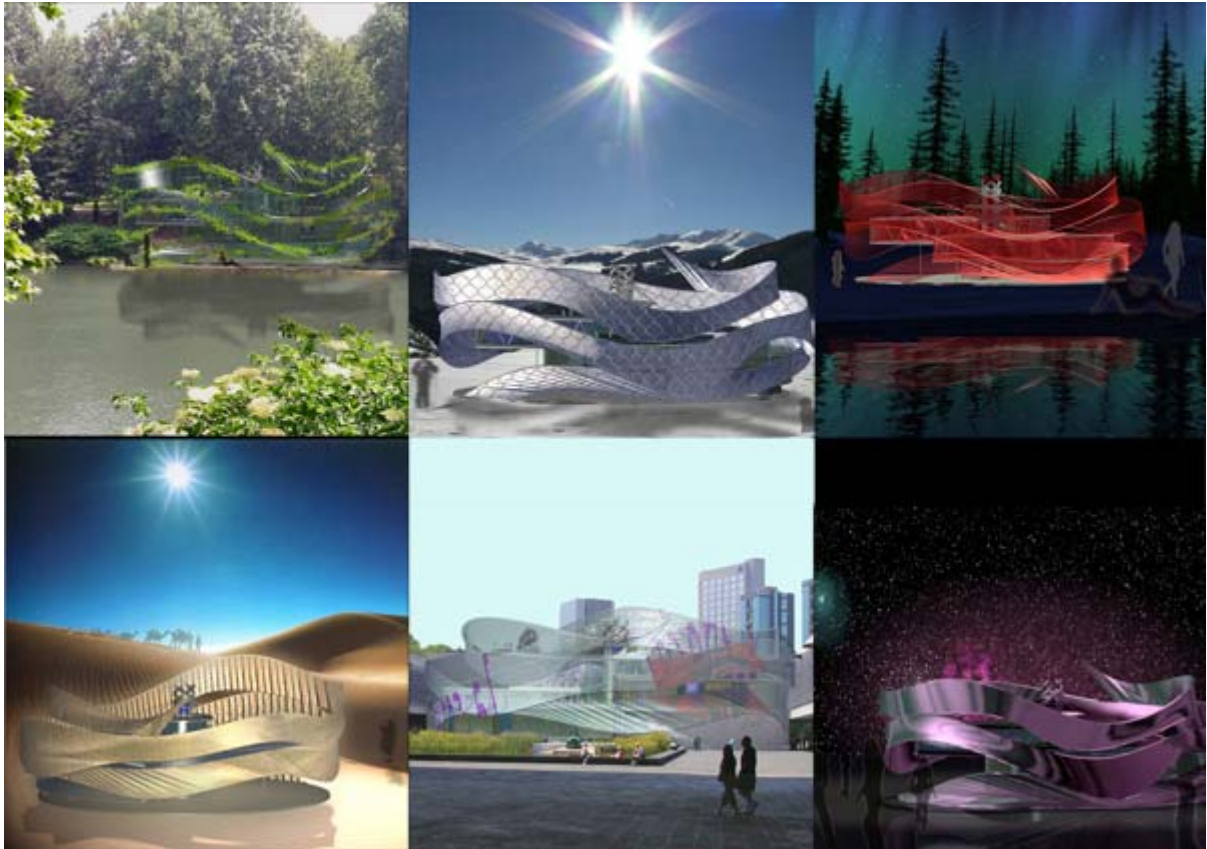
These stimuli, together with the personal experience of a competition related to the planning of a "domestic workplace", gave birth to the challenge of planning the house of the future that also regarded architecture as a pluridimensional space that is able to break "x, y, z" bonds, and experiment with new forms, thanks to the use of computers: the shapes become dynamic, sinuous and in a continuous state of change. Beyond the merely graphical question, the computer also makes it possible to create programmable spaces based on the objective requirements of the specific users and to shape the environment based on their particular personalities. The emotional sphere is the ultimate objective that the house of the future will have to reach because, even if the domotic house already represents a huge technological conquest, it merely facilitates physical actions but it does not take into consideration the state of mind of the individuals and the variability of their expectations. All human beings are unique.

The building that they live in will have to recognize them and be sensitive to their mental states, by interacting and adapting to the user; it will become part of their genetic code, of their DNA (in fact, the shape of the building stems from the propeller-like shape of DNA).

In order to be as non-invasive on the territory as possible, the house of the future weighs as little as possible on the land that accommodates it, both in terms of energy consumption and in physical terms.

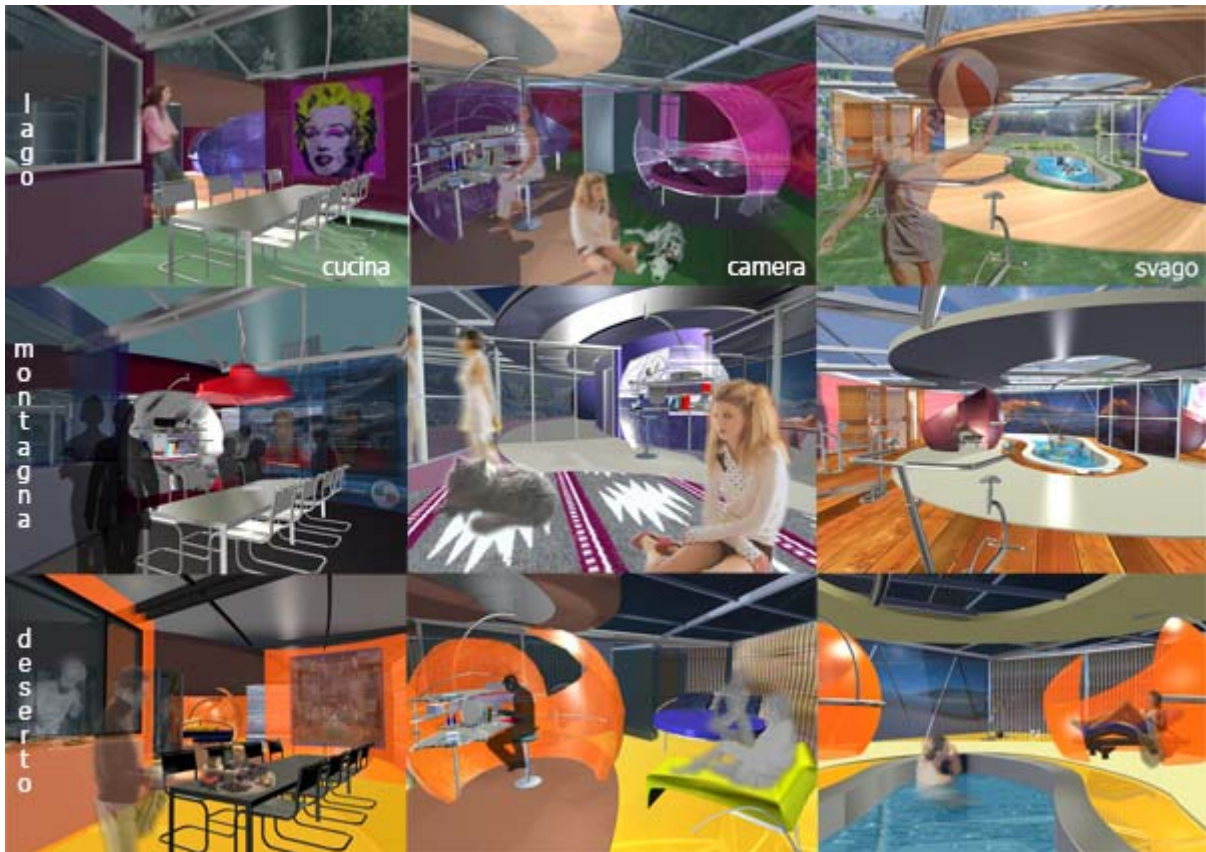


The construction is suspended above the ground by means of kevlar cables covered in carbon fiber and the exterior is made of a web of carbon profiles in carbon that support an “intelligent” camouflaged covering that changes according to the environment: transparent photovoltaic panels that project digital images and information, ETFE panels, bamboo and raw earth panels, frames with climbing plants, panels of tree bark and Hylite panels.



Nowadays, the exterior plays a predominant role in the entire plan.

The exterior of the house of the future, a second skin that is sensitive to external stimuli, takes inspiration from the tape of Möebius, whose fluid shape is a clear indication of its modernity. It acts as an intermediary between the internal domestic world, intimate and private, and the external world, public and changeable. It is shaped like a light, intelligent membrane that, thanks to a complex apparatus of sensors, turns to nature and the surrounding environment to capture its smells, colors, lights and sounds, adapting itself and camouflaging itself within it. Initially the building does not belong to a specific context, but thanks to the interactivity and the sensoriality of its exterior and to the versatility of its interiors (mobile bamboo screens, liquid crystal light-sensitive glass windows, polychrome floors and walls), it is able to exist in any environment. Thanks to the sensitive covering the building becomes an integrated part of the natural system with which it can interrelate and ecology becomes a means of proposing new equilibriums where artificial and natural coexist.



The inner spaces continuously reshape themselves thanks to polyfunctional cells that move along a sinuous route at the service of all the places, transforming them according to requirements. Electronic devices allow the user to create the ideal interior thanks to “projector” walls that slide through the house showing the user’s favourite images and by the same principle the blind walls can also become virtual windows.

The aspiration is, contrary to current beliefs, that man can be brought closer to nature by means of technology. The encounter between technology and nature can produce moreover innovative forms in the realm of planning.

The house of the future will have to take into account the increasing demand for a higher quality of living, that is, the need to live in buildings constructed with quality materials, technology that is able to assure a low energy consumption and a high standard of comfort in the home. It is indispensable to take into account the current pressing problem of the environment.

The sustainable challenge opens therefore, together with the issues of flexibility, interactivity and virtuality, the new scenarios of the future and, even if open to perfection, my degree thesis plan is aimed at offering an experimental proposal to meet this challenge.

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