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Conceptualizing the Digital Experiencing Digital Architecture in an Advanced Design Studio

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STUDENT WORK BY ANDRÉS BERR, UNDERGRADUATE

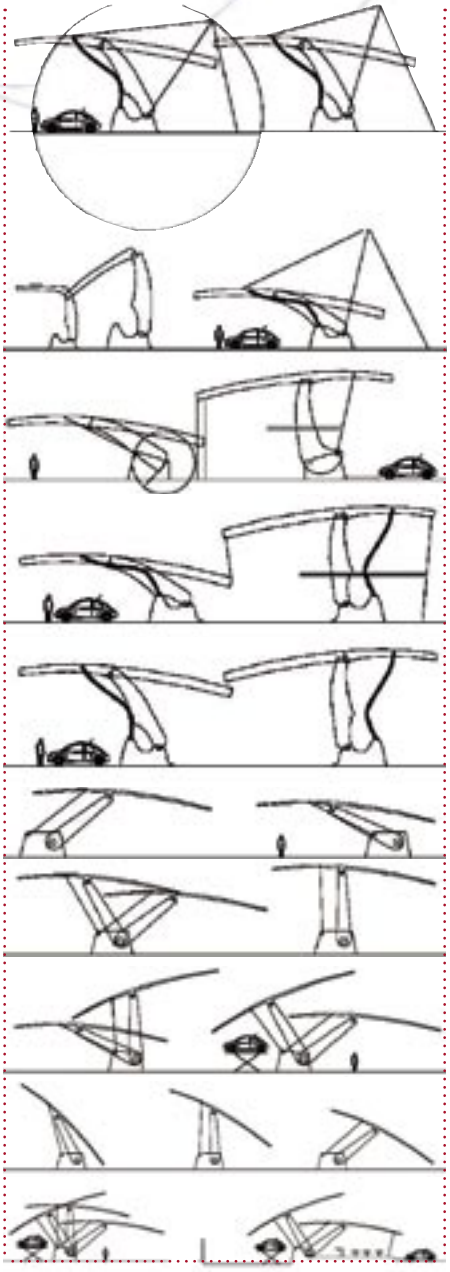
The incorporation of digital technologies in architecture education has opened a wide rage of opportunities for architects and designers. New tools and techniques have been added to the process of space conception and building production. Concepts of parametric modelling, mesh construction and nurbs curvatures, among others, have set new set of formal and functional paradigms in architecture, altering the way we think and conceptualize the process of architecture making.

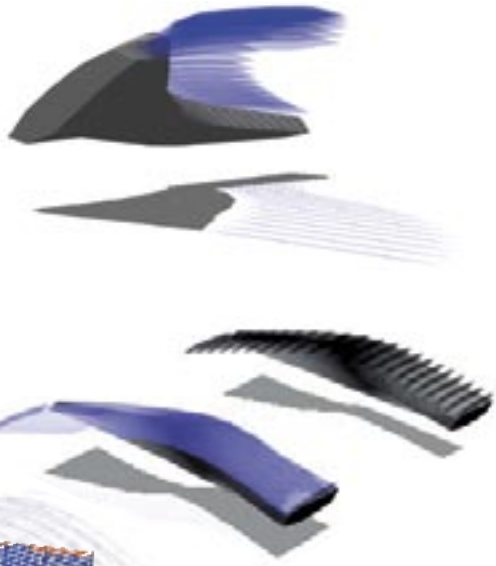
The introduction of **form·Z** in our University has widened our perceptions to this knowledge. Our digital integration in the design process has become ever more dynamic. Now digital construction means integration of information into the architectural three dimensional model. This has revolutionized the way we conceive architecture processes in terms of efficiency and overall control. Digital tools are extremely flexible and open to creativity. Designers can visualize dimensions that were impossible to perceive on the traditional drafting table or in two dimensional environments, where now one can immerse into an overwhelmingly complex and complete three dimensional design.

STUDIO WORK

The introduction of digital constructions within the studio work generally describes a virtual simulation or visual substitute of a real spatial situation. The studio work developed with 4th and 5th year students at our school of architecture, acted as a fruitful place for discussion and exploration of the new possibilities that digital technologies had to offer to architecture. The relation between digital tools and formal processes of architectural design was the starting point of the studio. The student work was developed throughout the constant application of several digital operations intended to solve the formal and constructive materialization of their own architectural proposals. Therefore, the integration of architecture students into the digital process of design conceptualization of architecture and the constructive condition of the digital form were the main objectives developed in this Advanced Design Studio work.

As an excuse to apply new methodologies integrating digital tools in the Design Studio setting, the work was focused in the design of a city's infrastructure for the automobile, solving the programmatic elements directly related to car services such as, car washes, car selling offices, parking buildings, car stations, or mix uses like drive-in, auto-cinemas, car churches, among others.



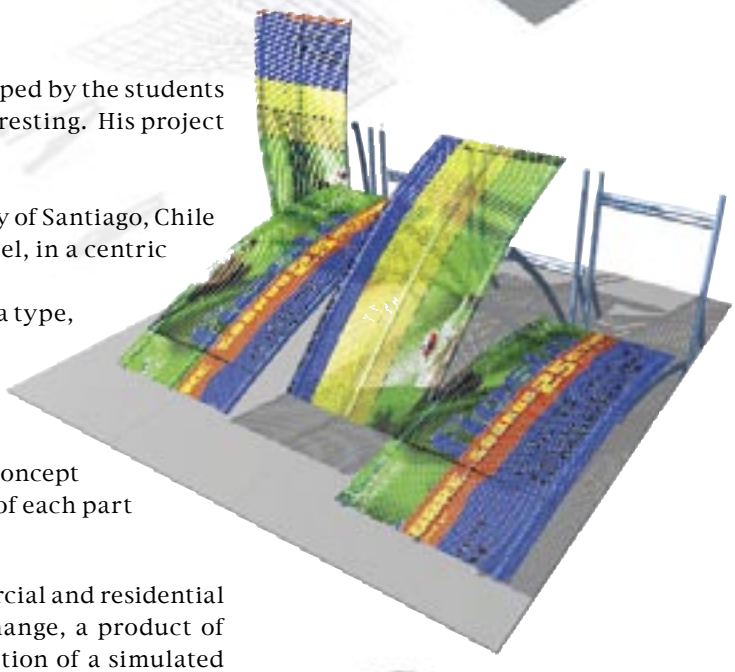


Internet Module for Cars

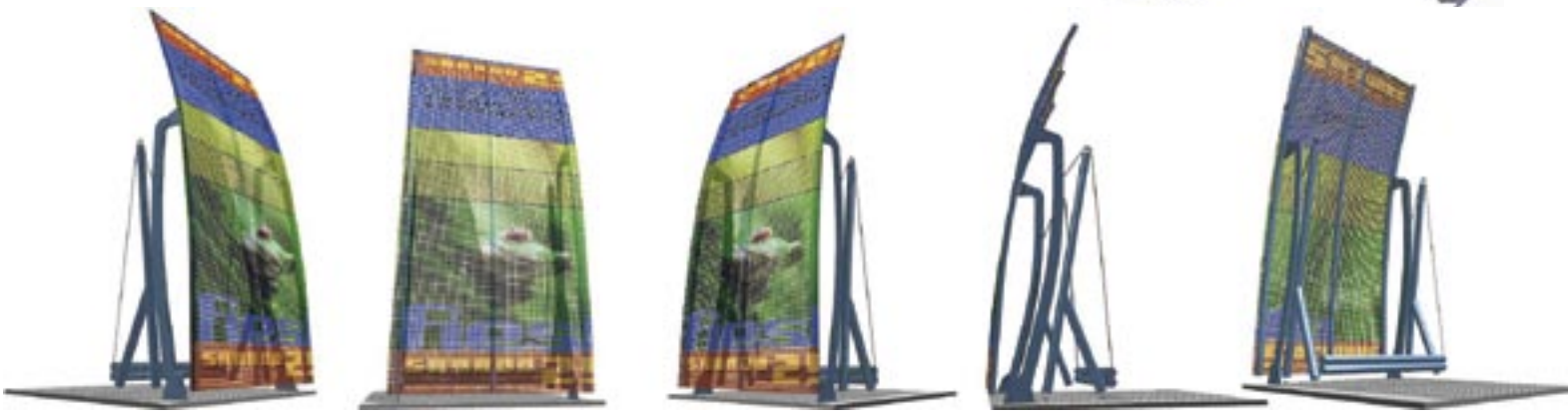
A DESIGN PROPOSAL BY ANDRÉS BERR

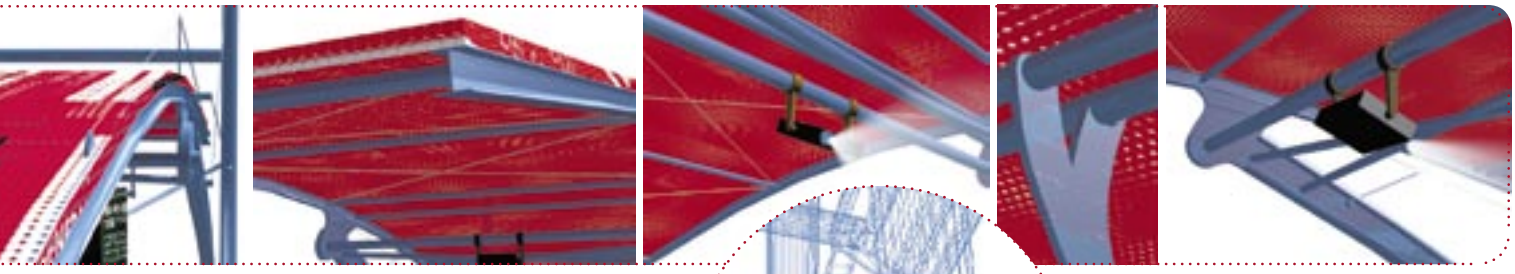
Among the different types of architectonic proposals developed by the students in this studio, the work of Andrés Berr was particularly interesting. His project was developed based on these basic objectives:

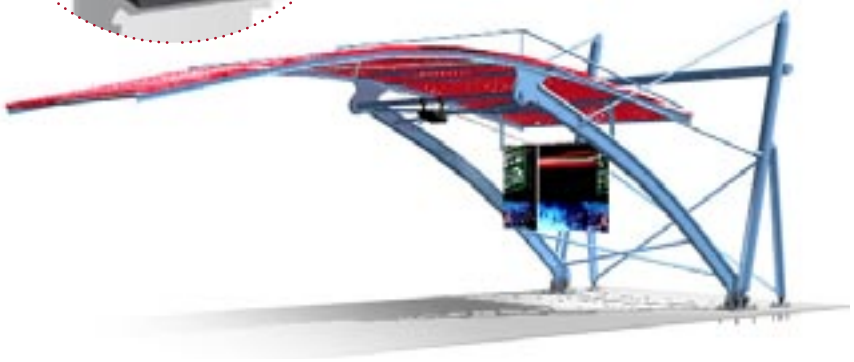
- Urban Simulation: The study of an urban zone of the city of Santiago, Chile where the project will be developed. Avenue Santa Isabel, in a centric zone of the capital city.
- Digital Mapping: The study of an automotive aesthetic, a type, a mark, and a specific model of automobile.
- Digital Translation: Develop an architectonic program related to the automotive activity, defining type and scale.
- Developing Construction Concepts: Application of the concept of "kit of parts", to make possible the serial production of each part that composes the project.



The study of the urban zone revealed a mix of uses of commercial and residential areas inserted within a district in an active process of change, a product of the application of new urban regulations. By the construction of a simulated three dimensional model of the site, students were able to easily visualize the generation of residual lots, a product of an urban area in the process of transition. The generation of residual lots had produced a constant deterioration of the public space, where these pieces of land have mainly developed activities related to the automotive business, such as car sales and all types of motor vehicle repairs, without concern for any architectural intention and design.

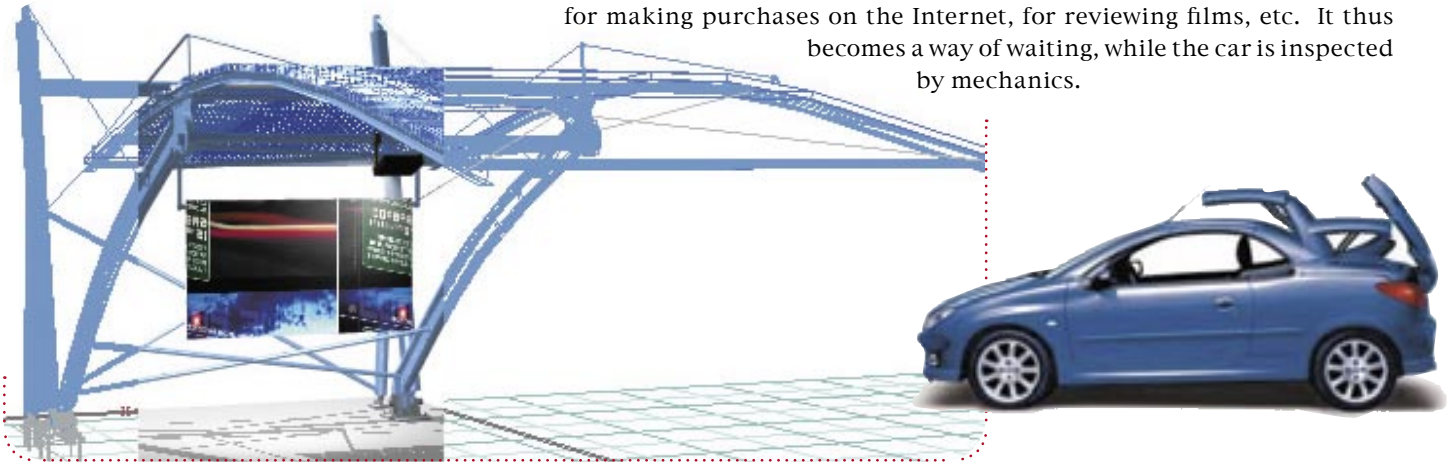


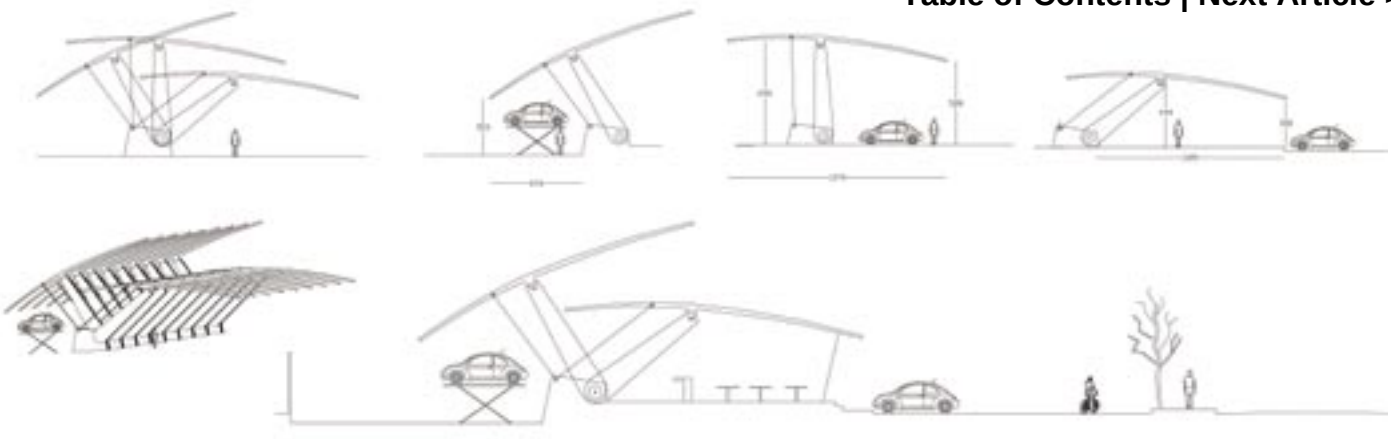




The study of an automotive aesthetic began with the selection of a "car model" in order to find some design clues to be used in the design process throughout, a technique we called digital mapping. Andrés selected the "Convertible Peugeot model 206cc" due to the interest of the folding ceiling that added the concept of mutation and transformation of space. The study began by mapping the car parts and studying all the pieces, movements, and mechanisms related to it that were able to set design possibilities at its interior or exterior.

The programmatic proposal for the automotive activity was derived from an exercise that translated the study of this mutable system to be placed at the city's scale of the street. The idea was to give an architectural use to the residual lots located on the site, determining the size and scale of his proposal. The invention of an integrated external multimedia module for automobiles that can be plugged into a car as a way of occupying urban space by a mutable and technological event, was the main idea proposed by the student, answering the needs of a new paradigmatic architectural artifact for the streets. Therefore, the project was defined as a surrounding module that was intimately related to the automobile scale. It preserved the mutable quality of the original convertible system of the folding ceiling and, because of its scale, it has the capacity to be allocated at any residual lot of the site. Slightly besides the car in a temporary or permanent manner, the project's programmatic idea serves as an Internet-Multimedia architectural booth, with the ability to receive commercial publicity within the mobile structure. The idea, primarily, was to create a new space integrated with the automobile, where the new piece and the car became a portable computer connected to internet with all its possibilities and capabilities. It offered ways for making purchases on the Internet, for reviewing films, etc. It thus becomes a way of waiting, while the car is inspected by mechanics.





The module was designed as a Kit of metallic elements that can be made with laser cutting systems and CNC machines. Each module works by itself as a system of columns, tensions, and counterbalances. Several modules can be individually set or grouped in order to generate larger size publicity advertising that can be sold as an additional service offered by the module.

form·Z was the tool used for investigating and for solving the movable system of the convertible ceiling of the Peugeot 206cc. It was also used to generate different programmatic applications of the design concept. Operations like extrusion, rotation, repetition, deformation, c-mesh, etc., were fully employed to build the three dimensional model. Also, the use of lighting and material mapping within **form·Z** gave new means to generate representations, which were then exported to capable renderers and animators. We were not interested in photorealism but rather in the correct representation through the most common and direct possibilities of the program.