

Honors Thesis

Master's degree Science in Architecture Construction City

Abstract

("Hello, city") Parametric Tools for Urban Design

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How do you design a city?

Designing a city - or even just a part of it - is an intrinsically interdisciplinary act, as the city itself is the result of the overlap and interaction of multiple dimensions. From this perspective, we can think of the city as a living organism, capable of evolving and adapting over time, a phenomenon in constant transition. To approach and manage this complexity, working within the framework of parametricism can be particularly useful.

The research aims to apply computational tools from the parametric approach to structure and support a design process that interrelates constraints, data, and design ideas. Their spatial and temporal variations give rise to a broad range of evolutionary scenarios that do not simply represent a final state, but rather the entire process necessary to achieve it. The ultimate goal, therefore, is to test both the potential and the limitations of the parametric approach in the urban field.

The application of an advanced algorithmic digital model to the Ex-Thyssen industrial area in Turin demonstrated how such a process enables designers to make informed decisions while expanding their design perspective. At the same time, however, it also highlights the risk of reducing urban complexity to rigid computational schemes, potentially losing the spontaneous and unpredictable dynamics that are intrinsic to urban life.

In this academic research context, (*"Hello, city"*), as a parametric tool for urban design, plays a role similar to that of (*"Hello, world"*) in computer programming: both serve as a means to explore and test new tools and development environments.



Figure 1 Process phase. Extract from diagram.



Figure 2 Density heatmap variations.



Figure 3 One of the developed metaprojects.