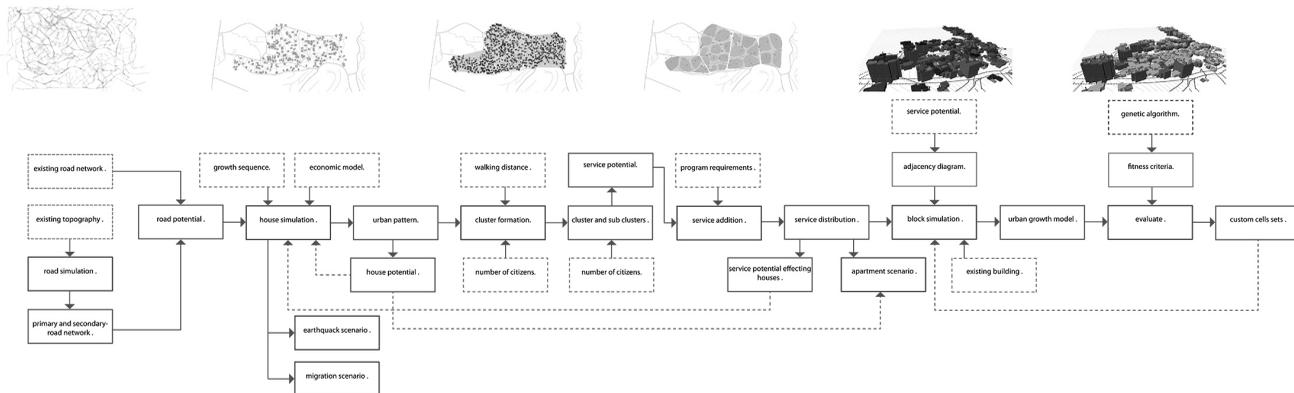


SPATIALIZING THE SOCIAL

COMPUTATIONAL STRATEGIES FOR INTEGRATED DESIGN IN INFORMAL AREAS IN ISTANBUL

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1 Top Left, Right, Bottom
Global view of the Block Simulation output; Close-up view; Overall logic of the simulations

This research proposes a set of architectural and urban strategies to deal with the issue of intervention in informal settlements, informed and empowered by the use of computational tools for modelling and simulation. The global aim is to find possible ways to integrate bottom-up self-construction processes with top-down planning rules, creating an interface to generate and discuss developments between citizens and planners. This interface works both on the virtual and the physical layers of the city, generating a system to control and drive growth over time.

This is achieved by the construction of a set of algorithmic tools to simulate the existing growth processes and to generate different scenarios and spatial configuration for development in the selected study area, the neighbourhood of Derbent in Istanbul. The developed algorithms are grouped into two main simulations:

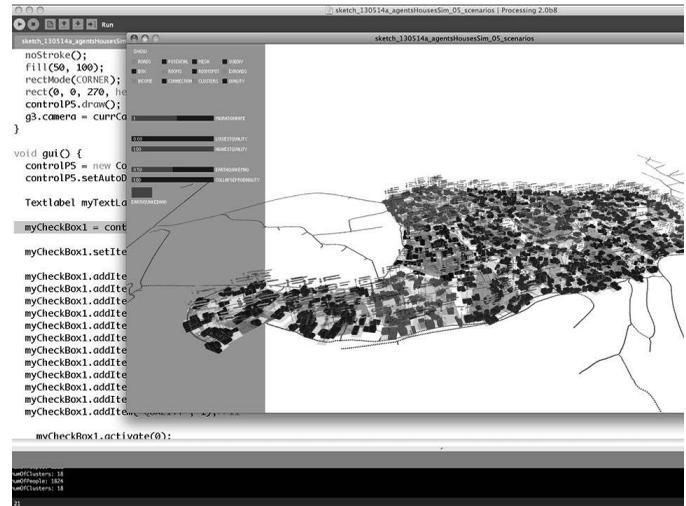
An urban level simulation of settlement growth, based on an economic model, which can provide different scenarios for the growth of neighbourhood and which can at the same time be used as a crowd-sourcing game to collect statistical data about the predicted behaviours of citizens. This is composed of a multi-agents system, generating road patterns, and a cellular-based simulation of growth of housing

units, both of them being intertwined through a web of potential fields, driving the growth in a complex and adaptive way.

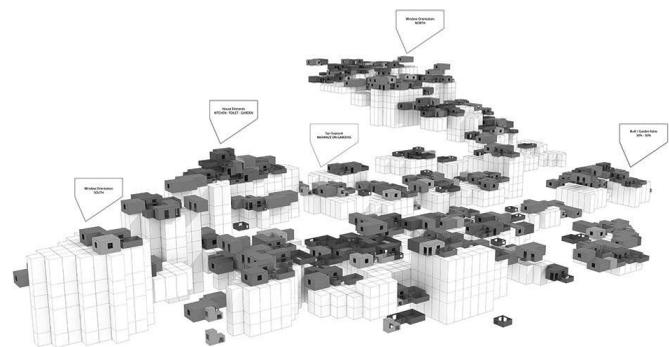
A block growth script, where the relationships between the different existing houses and between the elements of each house can be integrated with new elements, like gardens and service hubs, while maintaining the same nature of the spaces adjacencies.

The model built allows for the creation of different scenarios, either based on a combination of bottom-up processes driven by citizens decisions and top-down policies implemented by the municipalities, or on the modelling of possible unpredictable changes, such as demographic shifts or environmental disasters. The scenarios can be tested and evaluated, allowing for the definition of alternative policies of intervention. Thanks to the use of computational models through all the process, the implementation phase can then be carried out following different paths, but by sustaining a continuous process of feedback with the simulation tools and the reality of change, maintain a degree of control without imposing a rigid development.

The resulting methodology offers a new perspective towards informality, allowing to study it as a valid alternative to current neoliberal trends, rather than as a problem for urbanity; indeed, the idea of an additive process of construction of the city over time allows to change the current “demolish & rebuild” trend that rules Istanbul’s urbanization processes. Moreover, it challenges the role of the architect and the power of the architectural and planning disciplines in opening up towards a more participatory and sustainable practice of city-making.



2 View of the scripted interface of the Urban Simulation



3 Composition of the Block Simulation output components

LILA PANAHIKAZEMI and ANDREA ROSSI are two graduates (MA Architecture) from the Dessau Institute of Architecture. Lila also holds a Bachelors of Architecture from Leeds Metropolitan University, where she also attended one year of MArch on “bioregionalism”. Andrea also holds a Bachelor of Architecture from Politecnico di Milano and he participated to various workshops on computational tools. Together they founded Co_Des, a peer educational group based in Dessau, organizing workshops on computational tools. They have recently presented at the XIII Venice Biennale, at the EnCodingArchitecture conference at CMU Pittsburgh and taught the workshop “Interactive_Planning_Istanbul” at the MediaCities 4 conference at University at Buffalo (SUNY).