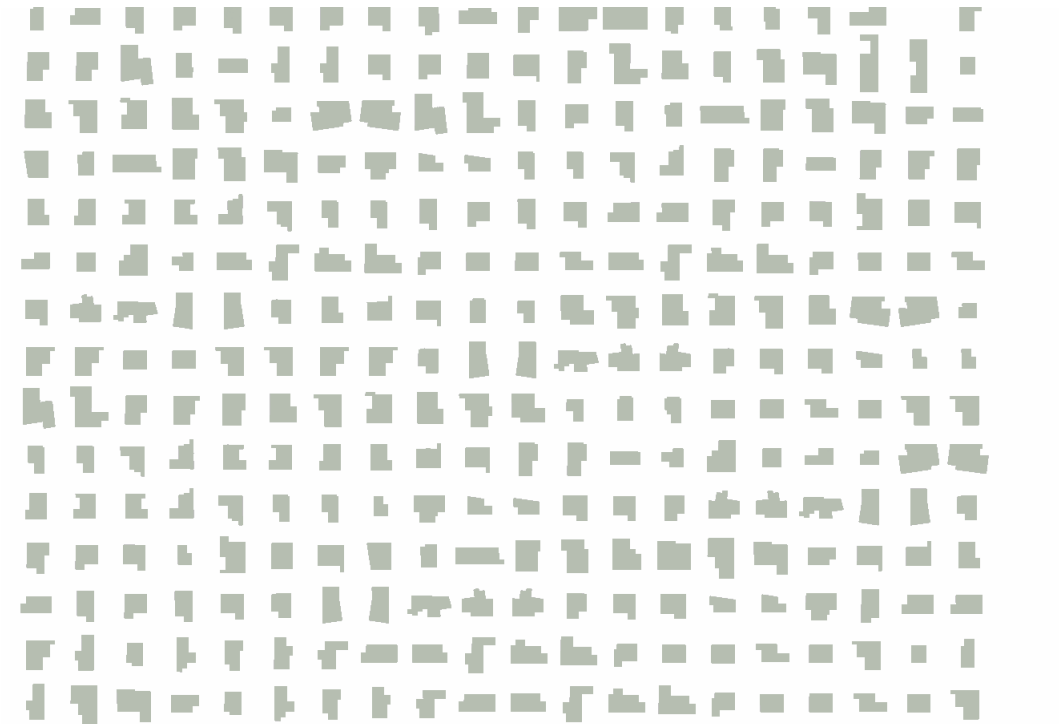
SOFIA MALMSTEN

FLOOR PLAN PARAMETRICS

- Procedural Floor Plan Generation Within Residential Development



HOUSING

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Floor plan design is regarded as on of the major tasks within architecture and housing development. It is a challenge of creating appropriate shapes and locations of rooms, and the process normally requires parallel design steps across different scales. The task can often be complex and result in a time consuming process.

”Floor Plan Parametrics” is an investigation on how algorithms can be developed in order to support the floor plan creation. The focus is on generative design - a process where architects formulates rules and constrains, and a software generates possible solutions. By defining rules for floor plans the algorithm generates multiple possible room configurations inside a given apartment boundary.

The generative design approach applied on floor plans could assist the human brain, facilitate decision-making and streamline the planning. Risks and consequences can be foreseen at an early stage and architects can investigate a wider design scope in order to make informed decisions faster.

By investigating procedural algorithms from the gaming industry together with a set of architectural floor plans from already built projects a code prototype is developed. The implementation of the core mechanics of this algorithm is described together with required architectural aspects to take into consideration.

“Floor Plan Parametrics” will contribute to improved decision support and facilitate how floor plans can be created in a shorter period of time.