Software Lab:

Modeling: ★☆☆☆☆
Mathematics: ★★★☆☆
Programming: ★★★★☆

Integration of Optimization Methods into a Visual Programming Language (VPL)

Setting

The use of Visual Programming Langauges (VPLs) in the design of CAD models is increasing in recent years. Besides the easy way to create CAD models fast and reusable with the use of parameters, the possibility to run mathematical evaluations on the parameters is one of the key features.
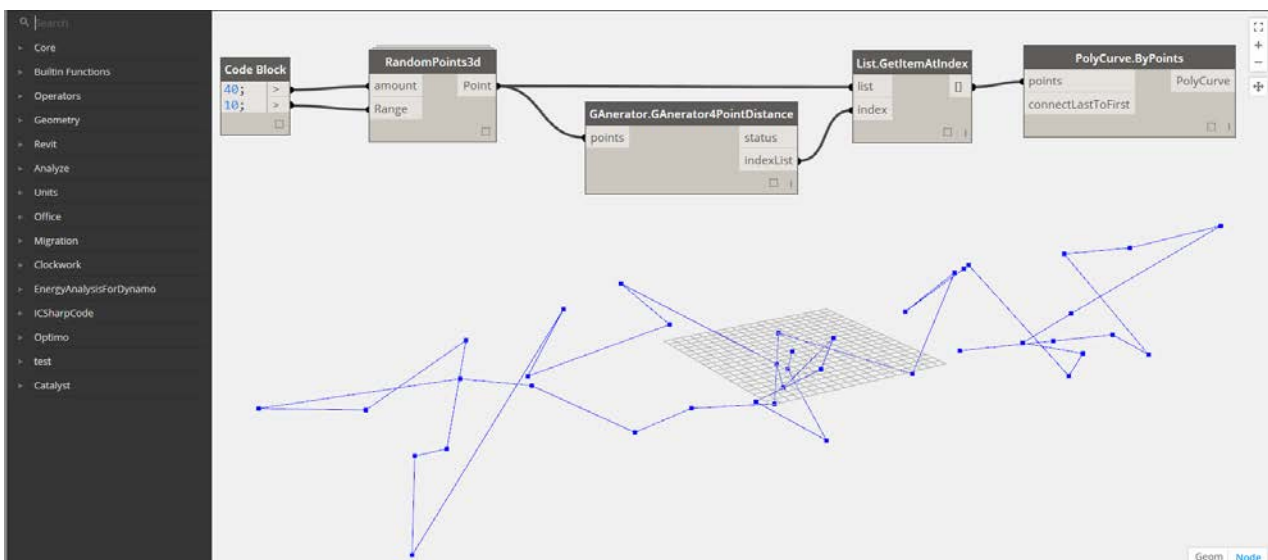

Figure 1: A genetic algorithm for finding the shortest way between points (traveling salesman problem).

To further increase this functionality, different optimization strategies have to be implemented that allow a fast search for the best parameter combination. Thus it enables designers to create high performant design solutions from the very beginning.

Task

The Software Lab will include the following tasks:

- Become acquainted with optimization algorithms and visual CAD programming
- Implementation of several optimization technics into the VPL
- Allow the user to explore different stages of optimization results.
- Testing of the implementation

Supervisor

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