The image illustrates a variation from the automated IKEA plan generation in the Scripting and Parametric Design F23, project by Dongtao Bi, Yiting Zhang, and Nick Bilgri

48724: Scripting and Parametric Design
Units: 10 Units
Instructor: Jinmo Rhee

This course prepares students for modeling geometry through scripted development of parametric schemes primarily for design applications—that is, to introduce students to basic scripting in geometrical modeling environment with a focus on algorithms relating to form making and to reinforce and extend basic concepts of parametric modeling. Contemporary approaches to modeling geometry are computational—reflected in designers wanting much more control over the generative process by varying parameters, in turn, enhancing the efficiency with which they navigate design variations, analyze design artifacts and explore design manifestations.

This course has two parts and one final project: firstly, to supply the basics of object-oriented programming and algorithmic thinking using Python language constructs, and secondly, to supply the basics of scripting generative form making—specifically, by customizing procedures for generative design via scripts in GHPython in conjunction with Rhino/Grasshopper objects. A number of different form-making algorithms are explored, e.g., fractals, rule-based models, cellular models, agent-based models, and optimization-based models. In the final project, students will have an opportunity to translate design problems into computational algorithms and create a system to solve them.

The course consists of lectures, computer instruction and weekly assignments. Prior exposure to Rhino/Grasshopper is required.