
ECCV'20
ONLINE
23-28 AUGUST 2020
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IBM Research

Structural Plan of Indoor Scenes with Personalized Preference

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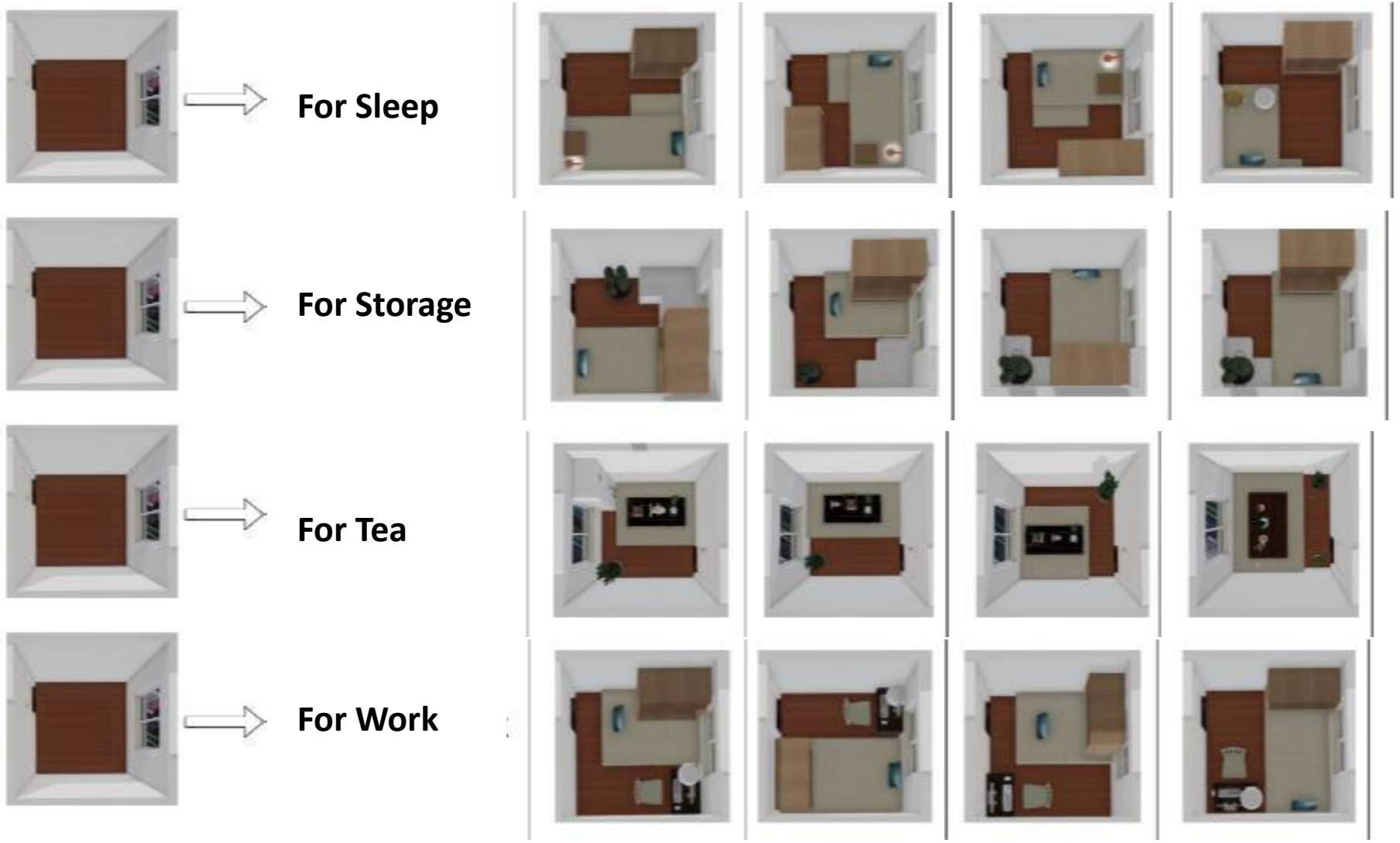
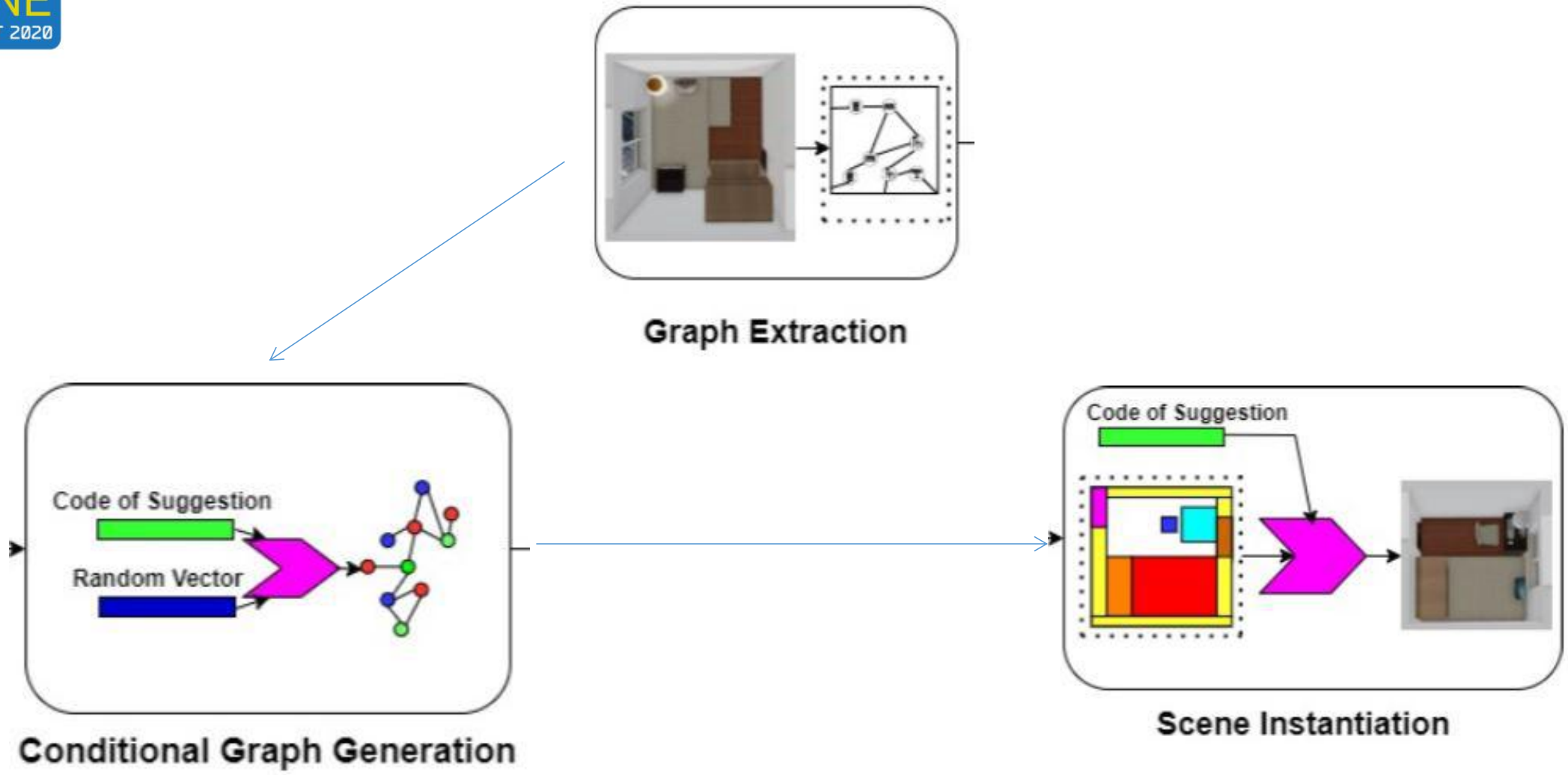
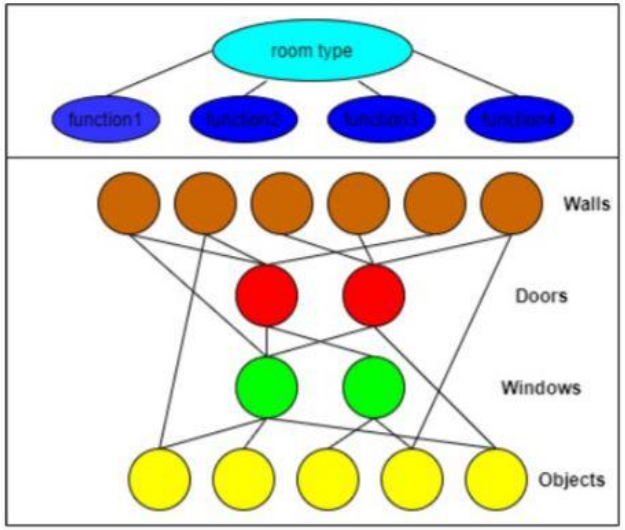
For each given empty room and corresponding functionality, the proposed model produces the layout plan of the furniture. The functionality is the customer's personlized perference.



The pipeline is composed of three Stage



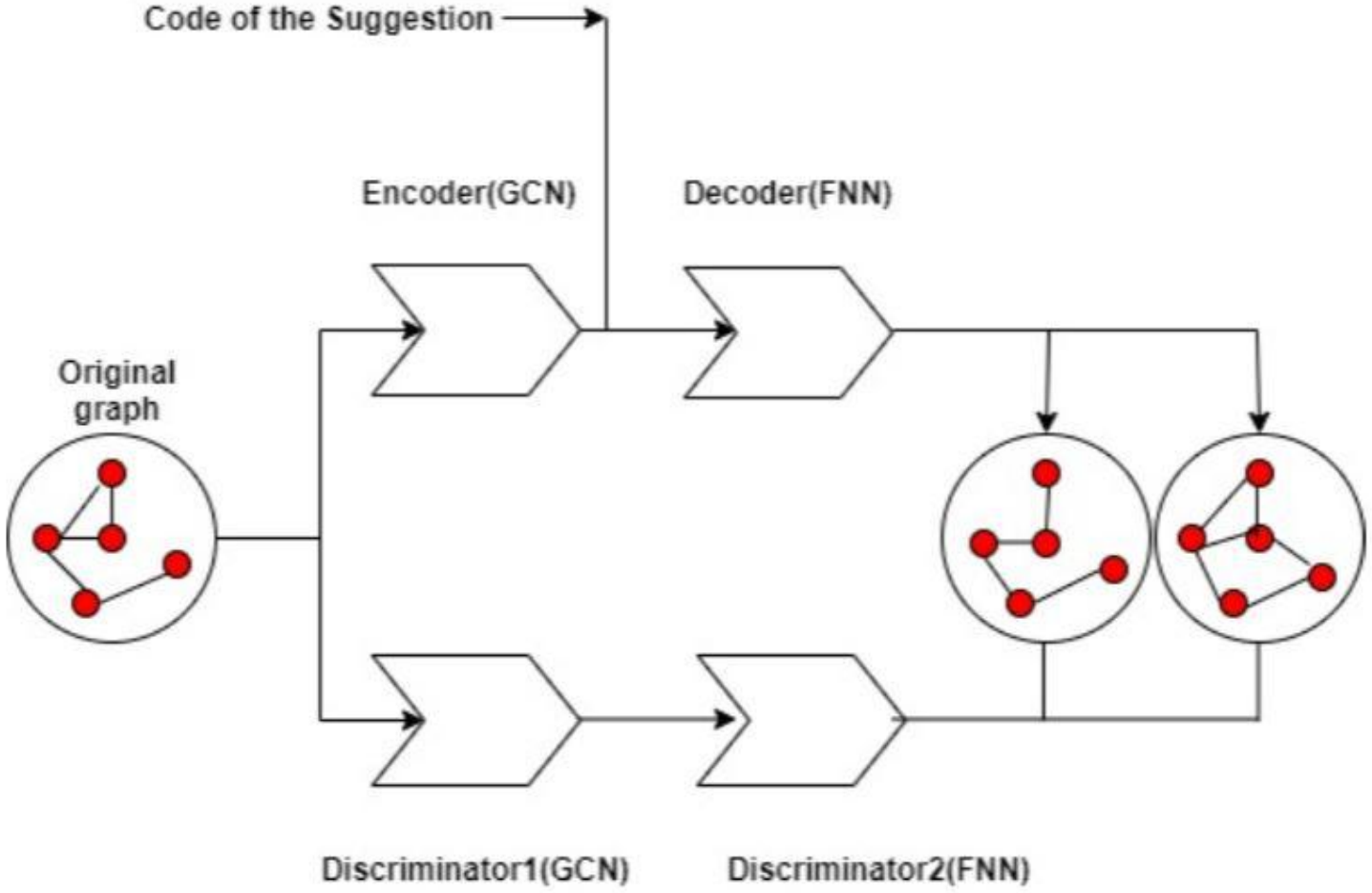
Graph Extraction



The Nodes of the Graph are Walls, Doors, Windows and Objects

The Edges of the Graph Links These Nodes

Conditional Graph Generation



Using the Code of Suggestion,this Module Applies GCN Encoder,GCN Decoder,two Discriminators to Generate the Graph.

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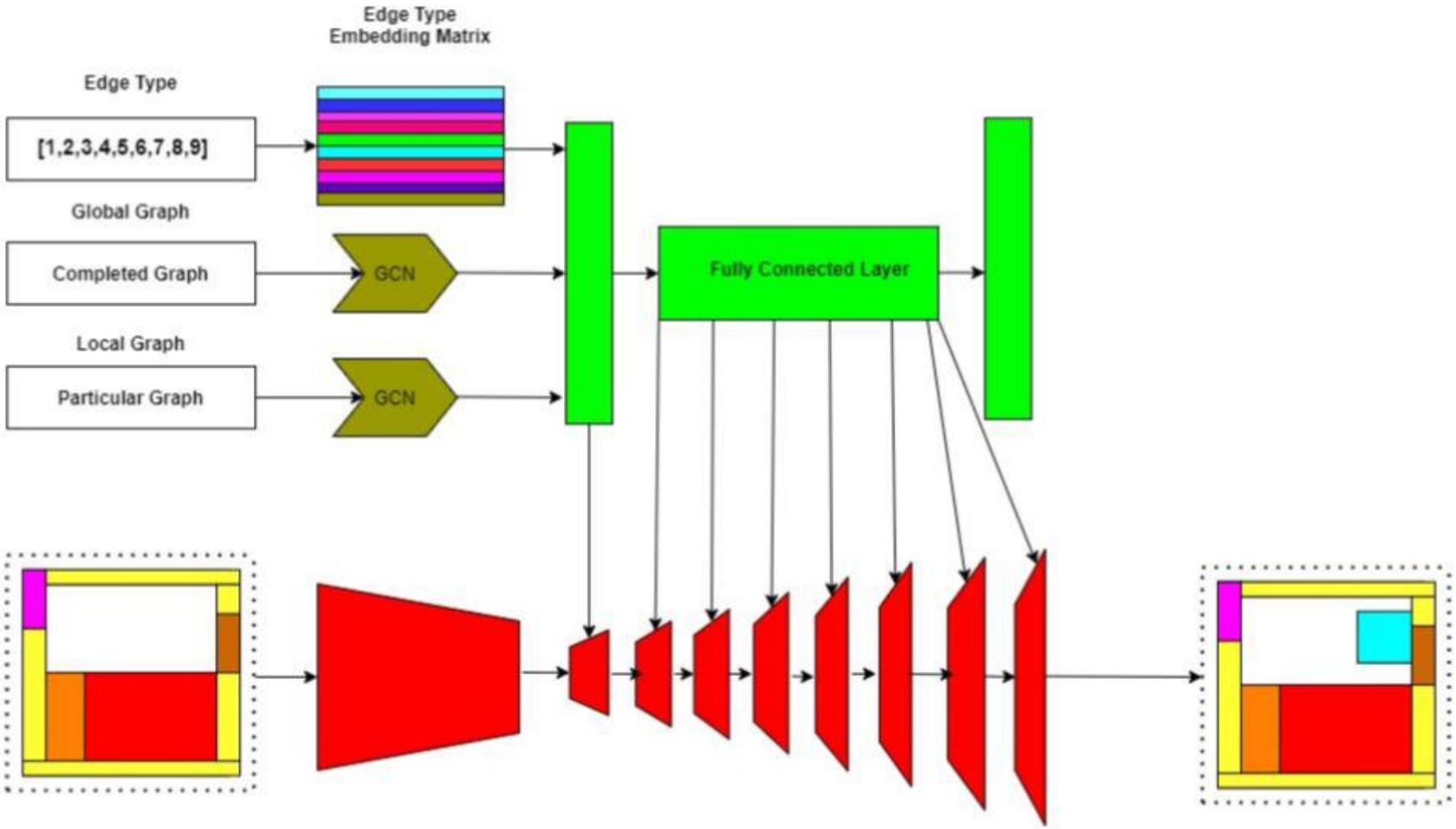
Scene Instantiation



This Module applis the Code of Eges, Global Layout Graph, and Local Layout Graph for the Sccene Instantiation of the Generated Layout.

Generated Samples

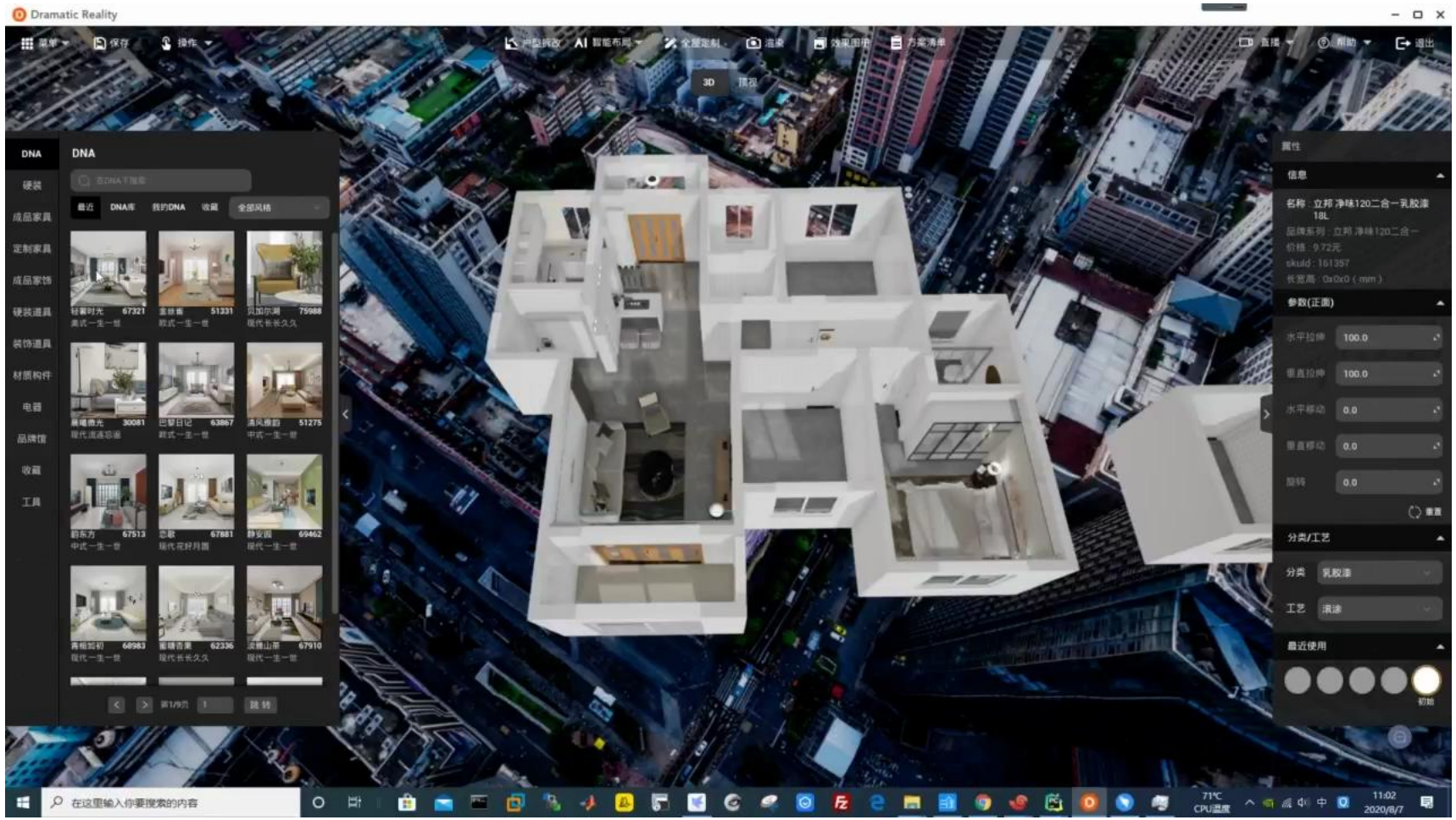
Evaluation

Room	Ours	PlanIT	Grains
Tatami	57.12 ± 3.48	71.93 ± 6.42	69.42 ± 5.87
Balcony	58.21 ± 2.95	75.23 ± 2.74	67.51 ± 1.53
Kitchen	54.21 ± 4.51	74.68 ± 4.62	77.94 ± 2.90

Percenntage of 2AFC Perceptual Study Where the Real Sold Solutions are Justed as More Plausible than Generated Scenes

A New Layout Dataset
----a real-world 11000 designs from professional designers

An Example:



Application of the Model in the Industry