Data processing for our SIGGRAPH Paper WallPlan: Synthesizing Floorplans by Learning to Generate Wall Graphs

1. Data format

wall_graph: Wall graph python list. For each wall graph node contains
'index': to uniquely identify a node,
'pos': store the location information,
'connect': records the index of the nodes connected in four directions, and
'label': record the nodes' neighboring room label.
door_info: Front door dictionary, where
'pos': records the center position of the door and
'ori': records the direction.
inter_graph: Nodes in the wall graph except for the boundary.
room_circles: Room list that records the room category and the wall graph nodes around the room.
rooms_info: Room list that records each room, where
'pos': records the center position of the rooms,
'pixels': records the pixel counts and
'category': records the room label.
connects: Room connecting pairs that records two room with shared wall graph ndoes.
allG_iteration: Graph traversal information, where
'start': records the start node index and
'iteration' records the node index by Breadth-first search manner.
boun_slices: Boundary slices that records the node pairs on the boundary.
boun_slices_room_order: Boundary slices record pairs of nodes on the boundary sorted by room index.

2. Data transformation

After acquiring wall_graph and door_info, other data can be obtained from wall graph. For room labeling, we use 0 for living room, 1 for bedroom, 2 for kitchen, 3 for bathroom, 4 for balcony and 5 for storage.
door_info
1. Calculate the center of gravity of the pixels in door_mask to get the 'pos' of the front door.
2. Calculate the front door direction in door_mask, 0 indicates horizontal direction and 1 for vertical direction.

wall_graph
1. The boundary_mask, category_mask,inside_mask are obtained from the RPLAN dataset. Wall_graph_mask and door_mask can be obtained from category_mask.
2. Given wall_graph_mask, we first extract the position 'pos' of the nodes in it and put them into the wall_graph list.
3. Detect connections between nodes in the wall graph list and add them to the

'connects' of each node in the wall graph.

4. Traverse all the room circles and determine the label of the room circle based on the area surrounded by the room circle on category_mask. Then we add the room label to all the nodes in each room circle.